REGIONAL WORKSHOP ON COMMODITY EXPORT DIVERSIFICATION AND POVERTY REDUCTION IN SOUTH AND SOUTH-EAST ASIA
(BANGKOK, 3-5 APRIL, 2001)

ORGANIZED BY UNCTAD IN COOPERATION WITH ESCAP

Lesson Learned from Commodity-base Diversification with Particular Emphasis on Small Producers and Exports and on Poverty Reduction

By Boonjit Titapiwatanakun Ph.D.
Department of Agricultural and Resource Economics
Faculty of Economics, Kasetsart University, Bangkok, Thailand.

I. Introduction

The objective of this report is to review and draw lesson learned from commodity base diversification in the Asian countries. Factors contributed to the success of agricultural commodtiy diversification such as role of public and sectors in research, extension, policies/strategies, institutional arrangements, and marketing are reviewed and discussed. The overal poverty situation in Asian countries are discussed, especially the pattern of average share of agricultural income and the percentage share of small farmer's planted area in selected crops in Thailand are analyized to serve as an indicator for contribution of commodity production to poverty reduction.

1.1 Role of Agricultural Sector

Following the conventional computation of national account methodologies and definitions of agricultural sector and its sub-sectors, the agricultural contribution to the over all economy, in terms of percentage share of gross national products (GDP), decreased as the whole economy growth (Kuznets, S., 1964). However, for countries in the ESCAP region, agricultural sector still remain as one big sector of the economy that large proportion of total population depends upon. For example, in China, the rural population is 73 per cent of the total (1,130,511 thousands) in 1990, and the employment in agriculture is 48 per cent of the total employed person (699,570 thousands) in 1998. In Sri Lanka, 84 per cent of the total population (12,5011 thousands) in 1994 live in the rural area, and 42 per cent of the total employed persons (5,946 thousands) work in the agricultural sector in 1998 (United Nations, 2000).

In general, the agricultural sector in most of the developing countries in ESCAP region has been playing a major role in the economic development. In 1997, the percentage share of agricultural GDP was 19 per cent in China, 25 per cent in India, 16 per cent in Indonesia, 52 per cent in Lao People's Democratic Republic, 59 per cent in Myanmar, 39 per cent in Nepal, 20 per cent in Sri Lanka, 11 per cent in Thailand and 30 per cent in Tonga.

The ESCAP regional statistics of agriculture shows that production of cereals of total ESCAP countries increased from 812.1 million tons in 1988 to 1,061.1 million tons in 1998. During this period, the ESCAP's percentage share of the world increased from 47 per cent to 52 per cent. However, the share of production from ESCAP developing countries decreased from 96 per cent to 91 per cent. This would imply that the developing countries in the regions have been undertaking some adjustment of the production mixes or diversifying away from cereals to non cereal productions.

The total exports of agricultural products from countries in the ESCAP region including food, beverage, tobacco (SITC 0+1) and cereals (SITC 041-045), increased from 49,341 million US dollars in 1988 to 95,100 million US dollars in 1997. As increase was almost twofold. Nevertheless, the share of the agricultural exports decreased from7.8 per cent of the total exports of all products to 6.1 per cent, in the respective year.

It should be noted that the ESCAP's total exports have been very much dominated by the export of non-agricultural products from the developed countries in the ESCAP region. Therefore, the decrease in percentage share should not be regarded as an indicator of decreasing role of agricultural exports in the region, especially for the least developed country (LDC) and developing country (DC).

Agricultural exports of LDCs and DCs in the ESCAP region have been depending very much on a few major commodities. In 1997/1998, the percentage share of major agricultural exports was 50 per cent for Cambodia (timber, rubber and maize), 62 per cent for Lao People's Democratic Republic (coffee, timber and wood products), 25 per cent for Bangladesh (fishery products, jute, leather and tea), 32 per cent for India (agricultural products, cotton, yarns and seafood), 47 per cent for Nepal (woolen products, pulses, jute products, hides and skin), 64 per cent for Myanmar (pules, prawns, rice, fishery products and rubber) and 13 per cent for Malaysia (palm oil, timber, wood products, rubber and cocoa) (Abdul Aziz Adul Rahman, 2000).

1.2 Agricultural Diversification at the National Level

During 1970 to 1988, developing countries in ESCAP region have been experienced with the technological changes, decreasing suitable and productive agricultural resources (i.e. water resource, suitable land and fertile soil) as well as downward agricultural commodity prices (e.g. rice, maize, cassava, soybean etc.). All these induced countries to shift agricultural production from the countries' traditional commodities to non-traditional commodities such as fruits, vegetables, root and tubers, palm oil, sugar, poultry and pork (Petit Michel and Barghouti Shawki 1992).

The expansion of fruit production was observed in Indonesia, Malaysia, the Philippines, Thailand, and Turkey. The total fruit production in Indonesia increased from 3.53 million tons in 1970 to 6.35 million tons in 1988, followed by Thailand from 2.37 to 5.56 million tons, and the Philippines from 2.04 to 5.11 million tons. However, Malaysia increased from 0.84 to 1.17 million tons and Turkey from 6.29 to 8.92 million tons in the same period.

Thailand and Turkey experienced a rapid increase in vegetable production of almost twofold. The production of vegetable in Thailand increased from 1.93 million tons in 1970 to 2.48 in 1988 and Turkey increased from 9.17 to 16.87 million tons in the respective year.

Production of roots and tubers, which are cash crop for some countries especially Thailand, has been one of the commodity diversification that was observed in Indonesia, the Philippines, Thailand, and Turkey. The production of roots and tubers in Thailand increased tremendously from 3.82 million tons in 1970 to 22.53 million tons in 1988 followed by Turkey from 1.92 o 4.35 million tons, the Philippines from 1.33 to 2.75 million tons and Indonesia from 13.95 to 18.27 million tons. In Thailand, there has been a rapid increase in cassava production and the expansion of cassava products as animal feed ingredients (e.g. cassava chips and cassava pellets). These products were produced in response to the increasing demand for non-grain (or non cereal) feed ingredient in the EU. Eventually, all these products development created a success cassava industry in Thailand during 1980s. (Titapiwatanakun B., 1999).

Diversification to palm oil production has been a major movement in Malaysia and Indonesia. During the period of 1970-1988, production of palm oil in Malaysia increased from 0.43 million tons to 5.03 million tons, while that of Indonesia from 0.22 to 1.44 million tons. The expansion of palm oil production and the development of the industry marked a success of the Malaysian palm oil industry (Nola Reinhardt, 2000).

However, palm oil production in the Philippines and Thailand started in 1975 and 1980, respectively. Production of palm oil in the Philippines increased 4 times from 0.01 million tons in 1975 to 0.04 million tons in 1988, while that of Thailand increased more rapidly from 0.02 million tons in 1980 to 0.16 million tons in 1988. Data of size of holding of oil palm farmer obtained from the 1988 agricultural census in Thailand showed that the percentage of size of holding were:(1)less than 0.96 hectare was 2.6, (2) between 0.96 to 1.58 hectare was 0.75, (3) between 1.6 to 6.38 hectare was 61.82, (4) between 6.4 to 22.38 hectare was 32.21, and (5) more than 22.4 hectare was 2.5. However, the percentage of planted areas of the 5 categories of holding were: (1) 0.2, (2) 0.16, (3) 30.89, (4) 30.0, and (5) 37.46. This means that if classified size of holding for categories (1) and (2) as small farmers (farm size less than 1.58 hectare), then there were 3.35 per cent of small farmers with planted areas only 0.36 per cent.

Sugar cane production has been one of the commodity diversification strategy adopted by Indonesia, Malaysia, the Philippines, and Thailand. Sugar cane production in Thailand increased more than 6 times from 0.41 million tons in 1970 to 2.70 million tons in 1988, while that of Indonesia increased more than twofold from 0.71 to 1.86 million tons and Malaysia from 0.65 to 1.41 million tons respectively. Nevertheless, the production of sugar cane in the Philippines decreased from 2.39 million tons in 1975 to 1.34 million tons in 1988. Sugar cane diversification in Thailand has been supporting by favorable government policies and institutional arrangement within the industry.

Increase in poultry production in Indonesia, Malaysia, the Philippines, Thailand and Turkey revealed another commodity diversification from traditional cereal growing to livestock raising. Among these countries, poultry production in Thailand increased more than 6 times from 90.00 million tons in 1970 to 556.00 million tons in 1988, while Indonesia increased almost 6 times from 75.00 to 445.00 million tons in the respective year. Production of poultry in the Philippines, Turkey and Malaysia increased between 2 to 3 times, which were from 96.00 to 237.00 million tons, from 105.00 to 290.00 million tons and from 85.00 to 278.00 million tons, respectively. Poultry production in Thailand was initiated as a diversification and integration of maize and feed industries' strategies by introducing new technologies of breeding, raising and processing that eventually further developed into a successful export commodity in the 1990s. However, poultry production in the Philippines was increased in response to the domestic demand. (Mangabat C. Minda, 1998)

Factors induce the agricultural diversification process during 1970-1988 in the Asian countries were identified by Michel Petit and Shawki Barghouti, as follows:

"The diversification process in Southeast Asia and the Middle East had been spurred by several factors: (a) declining returns from cereal-based farming operation; (b) the availability of advanced irrigation technology; (c) increased domestic and regional demand for friuts, vegetables, and livestock prodcuts; (e) the growth of private agribusiness involved in processing and marketing; (f) the shift of labor out of agriculture as employment opportunities in other sectors became increasingly available and rewarding; and (g) reduced government intervention in farmers' decisionmaking and the removal of distortionary policies that favor selected crops and limited commodities"
(Petit Michel and Barghouti Shawki 1992).

Apart from the above mentioned factors, the diversification process depends largely on the overall macro economic policy such as monetary and fiscal policy, foreign exchange policy etc. Certainly, agricultural diversification is a process of agricultural development. Study on the long-term prospect of agricultural development conducted by FAO concluded:

"Agriculture's performance is affected not only by policies specifically designed for it (e.g., price supports, taxes and subsidies) but also, and often more deeply, by policies affecting the overall macro-economic environment (e.g., public sector deficits, inflation, interest rates and exchange rates) as well as policies for the other sectors (e.g., the rate of protection accorded to manufacturing if it renders more expensive manufactured inputs and consumer goods purchased by agriculture). The lesson is that agriculture cannot prosper in an environment of high inflation, overvalued exchanged rates and generally in conditions which turn incentives against it" (FAO, 1995).

II. Domestic linkages conducive to the attainment of benefits to small producers and exports.

In this section, the domestic linkages or connections among agricultural input providers, farmers, processors, marketing firms, and government agencies along the marketing chains will be discussed. Experiences of favorable public sector policies and initiatives, research and provision of infrastructures, extension services and institutional supports of selected countries in Asia, are discussed. Then favorable private sector initiatives on research, information and technological promotion, and organization of local marketing, processing and traded are described using Thailand as an example. Finally, the Links between export-oriented commodity sectors and other sectors of economic activities are reviewed.

2.1 Favorable public sector policies and initiatives to the attainment of benefit to small producers and exports

A. Favorable public policies

Favorable public polices on food crop (rice), root crop (cassava), feed grain (maize) and oil crop (soybean) in selected countries in Asia were reviewed. Information was based on the study on "Market Prospect on Upland Crop Productions and Policy Analysis in Selected Asian Countries" conducted by ESCAP, CGPRT Center, Bogor, Indonesia.

In all the selected countries, many small farmers are involved in the productions of rice, cassava, maize and soybean. In Thailand, for example, the national average farm size was 25.37 rai or 4.1 hectare in 1993. However, the percentage of size of holding, which was less than the national average, engaged in the production of rice, cassava, maize and soybean were at 57.7, 44.3, 45.6, and 56.4, respectively. Each of the selected commodities plays an important role in food security and export earning of the selected Asian countries. Among these commodities, rice is a staple for almost all countries in Asia, and it is an export commodity that generated significant foreign exchange earning especially for Thailand, and Vietnam. Cassava is an upland crop that is consumed as stable food in some region of Indonesia and Philippines. However, it is an export commodity for Thailand. In general, maize is produced and consumed as feed with relatively small quantity used for direct human consumption and industrial usage. Soybean is one of the important oil crops that are utilized in food and non-food industries and it plays an important role as protein source for human diet and feed rations.

In 1995, almost all of the selected countries adopted an input subsidy policy by providing low interest credit to farmers, however, China, India, Indonesia, the Philippines and Thailand provided different scheme of subsidies on fertilizer. It is interesting to note that the Thai government has been providing subsidy in seed for all studied commodities, while such subsidy was not mentioned (or may be there was no policy) in China, India, and Viet Nam (Table 2.1).

In terms of investment grant for irrigation system and land development at the farm level, China, India, Pakistan and Viet Nam provided grant for all selected commodities, except cassava. However, investment grant in Indonesia, the Philippines and Thailand was limited to rice and soybean (Table 2.1). This may be due to the fact that in these countries cassava and maize are mostly produced under rain-fed condition.

China, India, Indonesia and Pakistan implemented price guarantee and price support programs for achieving these countries' food security objective. The focus on food security objective of these countries was also reflected by the food subsidies on rice. Nevertheless, the Philippines, Thailand and Viet Nam implemented mostly price support programs, while there was no food subsidy policy in these countries (Table 2.1).

China implemented industrial promotion policies by giving special tax concession on marketing and processing industry of rice, maize and soybean, while India implemented only for soybean. However, these policies were not mentioned in the other selected countries' studies (Table 2.1). It should be noted that the industrial promotion policy on commodities in each country changed from time to time according to the priority of the country. For example, in the 1980s Thailand provided investment privilege with tax concessions to cassava industry, then the investment privilege for agricultural commodities was almost not included the priority list during 1990s.

As far as trade policies are concerned, almost all selected commodities' imports are charged with import tariff. In addition, imports of these commodities were faced with some sort of non-tariff barriers in China, India and Pakistan, while Indonesia, the Philippines, Thailand, and Vietnam did not implement such policy.

It is observed that all countries implement favorable public investment policies that include research, training and extension for all selected commodities. At any rate, the intensity of research in each commodity is, to some extent, different among the selected countries and the extent to which farmer be benefited is also varied among crops and countries. Thailand, for example, much of the research, training and extension activities have been involving in rice, maize and soybean, while comparatively less attention has been given to cassava since 1970s.

The reviewed studies on favorable policies implemented by the selected countries did not include evaluation of impacts of each policy. However, based on interviews with farmers in some of these countries, almost all interviewed farmers expressed the needs for government to provide subsidies on inputs. Moreover, farmers preferred agricultural price guarantee policies to input subsidies, because they believed it would provide more stable income. There is no information regarding the impacts of the mentioned policies on small farmers in particular. By and large, all these policies aim for farmers as a whole rather than for a small target group of small farmers.

Table 2.1 Favorable government policies intervention in selected countries in Asia on rice (Ri.), cassava (Ca.), maize (Ma.) and soybean (So.), 1995

Policies	China				India				Indonesia				Pakistan				Philippines				Thailand				Vietnam			
	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.	Ri.	Ca.	Ma.	So.
1. Input subsidies																												
Fertilizer	x		x	x	X	x	x	x	x	x	x							x	x	x	x	x	x	x				
Seed									x				x		x	X			x		x	x	x	x				
Credit	x		x	x	X	x	x	x	x				x		x	X			x		x	x	x	x	x	x	x	x
2. Investment grant																												
Irrigation system	x		x	x	X	x	x	x	x				x		x	X			x		x			x	x	x	x	x
land development	x		x	x	X	x	x	x	x				x		x	X					x			x	x	x	x	x
3. Guarantee price	x		x	x	X		x	x	x				x			X								x				
4. Price support programs.	x		x	x	X		x	x	x				x			X			x		x				x		x	
5. Food subsidies	x				X				x																			
6. Special tax concession.	x		x	x				x																				
7. Import tariff	x		x	x	X	x	x	x	x			X	x		x	X			x	x			x	x		x	x	x
8. Non-tariff barriers	x		x		X		x						x		x			x	x									
9. Public investment	x		x	x	X	x	x	x	x	x	x	X	x		x	X	x	x	x	x	x	x	x	x	x	x	x	x

Remarks: 1) China and Pakistan report did not cover cassava and rice was not covered in the Philippines.

2) Special tax concession is an investment promotion or support to marketing and processing industry of the commodity.

3) Public investments include research, training and extension

4) Blank cells mean no policy or not mentioned in the respective country's report

Source: Derived from Inoue S., and Titapiwatanakun B., 1997, "Integrated Report of the Project "Market Prospect of Upland Crop Products and Policy Analysis in Selected Asian Countries", the CGPRT Center Working paper No. 28, Bogor, Indonesia,

B. Research and provision of infrastructure

The national agricultural research system of countries in Asia has been playing significant role in increasing household food security and farmers income in the region. Researches on variety improvement and appropriate agricultural practices have been carrying out in the national and regional agricultural research and experiment stations in almost all countries in Asia.

The activities and research priorities are different not only among countries but also commodities. Thailand, for example, the total annual budget for agricultural research institutes increased from 265.6 million bahts in 1982 to 2,059.8 million bahts in 1995. In terms for percentage share of major research institutes in 1982, the Rice Research Institute (RRI) was the highest at 33.2 per cent, followed by the Field Crops Research Institute (FCRI) at 23.33 per cent, Others (other agricultural research institutes) at 22.38 per cent, and the Horticulture Research Institute (HRI) and the Rubber Research Institute (RRI) were at 12.89 and 8.2 per cent, respectively. However, in 1995, the percentage share of budget changed significantly toward the Others, the RRI and HRI that was increased to 43.29 per cent, 12.47 per cent, and 15.61 per cent, respectively. And the budget share of the RRI sharply decreased to 13.8 per cent while that of the FCRI decreased to 14.82 per cent.

Such a shift in percentage share of research budget reflects research priority of commodities and indicates a tendency of crop diversification in agricultural production. Study showed that in Thailand the diversification of research and extension followed the adoption of farmers' diversification. This was due to the fact that both government and farmers are responsive to the market conditions, but farmers tend to move quicker than the government (TDRI, 1995).

Rice research is one of the highest priorities of the national research agenda in almost all rice producing and consuming countries in Asia. In general, most of the researches focus on higher yield and disease resistance. There are successful researches on increasing rice yield in China especially the hybrid rice. The hybrid rice technology has increased more than 2 tons per hectare over the traditional variety. The success of hybrid rice technology was due to the strong and effective support from the Chinese government. To ensure further technology transfer and adequate low price hybrid seed, the Chinese government subsidized the production of commercial hybrid rice seed as well as providing subsidies on fertilizers and pesticides which are essential inputs for hybrid rice production (Lou Xizhi, C.X. Mao, 1994).

As far as rice research is concerned, the improvement of rice quality especially the fragrant or aromatic rice has been one of the research agenda of provincial rice research center in Thailand since 1950s. It was recorded that Mr. Soonthorn Sihanoan, extension officer of sub-district Bangkla, Chachoengsao Province in Central Plain Region of Thailand collected 199 ears of paddy in crop year 1950. All the collected ears of paddy were delivered to Khon Samrong rice experiment station for seed selection. The rice quality improvement experiment went through the process until 25 May 1956 the seed was officially named as Khao Dok Mali 105 or Aromatic Rice KDML 105 and released for seed multiplication. There are many favorable characteristics of this variety, for example, it is draught tolerance and it grows well on salinity soil condition as well as acidity soil condition. When it is cooked, it has good cooking property with aroma and tenderness (Thutjamnong P., 1998).

The available statistics showed that Aromatic Rice KDML 105 production, which is mostly grown one crop per year as major crop, increased from 2.5 million tons in 1989/90 to 4.05 million tons in 1995/96. In the respective crop year, the northeastern regional of Thailand produced 2.11 and 3.12 million tons (a growth rate of 6 per cent per annum). The Aromatic Rice KDML 105 or commonly called "Thai Jasmine Rice" has been well accepted by foreign markets, and proven to be one of the best fragrant rice in the world market, especially in oriental community in the world (mostly ethnic Chinese). Export statistics from the Office of Agricultural Economics and the Department of Foreign Trade showed that the quantity export increased from 148.5 thousand tons in 1988 to 1,448.9 thousand tons in 1996. That equals to an annual rate of growth of 22.4 per cent.

Maize research in Thailand was cited as the most outstanding success case in 1970s. The success was a research team effort, which was composed of scientists from Kasetsart University, Department of Agricultural and the Rockefellor Foundation. The team released 2 varieties that are resistant to downy mildew disease namely: Suwan 1 and Suwan 2. These bought about a rapid expansion of maize production in the northeastern and lower northern province in Thailand. The Suwan 1 variety becomes one of the parent stock seed that is internationally used in maize breeding programs (TDRI, 1995). The success and expansion of maize production made it became one of the major export commodity during 1970s to 1980s and it also enabled the development of livestock industry in Thailand, especially poultry industry.

Production and export of baby corn in Thailand is regarded as one of a success diversification in crop production. In the irrigated area, baby corn can be grown four crops per year and proven to be a good alternative to rice. Development of baby corn in Thailand has been made possible through significant funding in research with the introduction of new source of germplasm that started in the 1970s. In addition, the promotion and extension of baby corn production were carried out through the so-called "get the word out" about baby corn. The extension program was a joint effort between government and private sector (Chamnan Chutkacw and R.S. Paroda 1994). As a result, statistics obtained from the Department of Agricultural Extension showed that the total area planted to baby corn increased from 8,835 hectare in 1986 to 27,124 hectare in 1998 with a growth rate of 9.8 per cent per annual. During the same period, the total production increased from 54,249 tons to 193,634 tons (a growth rate of 11.2 per cent per year) which in turn generated an increase in export of canned baby corn from 11.465 tons to 54,634 tons (a growth rate of 13.9 per cent per year).

In 1980, the success of hatchery technique developed by the Department of Fisheries (DOF) made a significant contributed to the development and the success of marine shrimp culture industry and shrimp exports of Thailand in the 1980s and early 1990s. The ablation technique creates a rapid shift of shrimp culture from extensive to semi-intensive and intensive culture. The DOF transferred the ablation technique to private hatcheries, then the number of hatcheries increased from about one hundred hatcheries in 1985 to 686 hatcheries in 1987 (Hanvivatanakit P., 1989).

Malaysia has been experiencing with successful diversification from rubber to oil palm since 1970s. Now a day, Malaysia's palm oil industry is the most developed industry among the oil palm producing countries, and Malaysia is the largest exporter of palm oil and palm kernel oil in the world. The key factor of the success was the research and development efforts that were supported by the Malaysian government through tax collected from palm oil mill. In addition, the Malaysian government has created a specialized research institution (The Palm Oil Research Institute of Malaysia: PORIM) to carry out integrated research activities for the whole palm oil industry (Yusof B. Basiron 1995).

In Pakistan, cotton has been an important export commodity for a long time. The increase in domestic cotton consumption due to the development of downstream industries decreased the dependency of cotton export. However, cotton export earning still contributed more than 15 per cent of the total export value in 1997 (ESCAP, 2000). It was documented that factors contributed to the success of cotton production in Pakistan were the introduction of new varieties and the standardized packages improved technology which has contributed an increase in the yield of upland cotton at about five times since 1947-48 (Badaruddin Soomro, Parvez Khaliq, 1996).

Study on the impacts of research and extension in Indonesia showed the investments of the Central Research Institute for Food Crop(CRIFC), which is one of the most important units within the Agency for Agricultural Research and Development (AARD), gave a high play off. The study concluded that:

"It is reasonable to conclude that Indonesia research programs have performed well over the past 15 to 20 years. They have used staff well and they have accomplished large impacts. They have paid huge dividends to the Indonesian public and have enabled Indonesian agricultural sectors to contribute to Indonesian general development and programs." (Evenson R.E., 1993).

As mentioned before that government provided irrigation systems for agricultural production in most of the countries in Asia. Although most of the road and highway were not constructed mainly for agricultural sector, the diversification of agriculture was facilitated by the road construction. Thailand, for example, the construction of the Friendship road from Bangkok to the Northeast in the 1950's generated the expansion of upland cropping areas, which in turned enabled farmers to diversify their production.

During 1983 to 1997, the total Thai government budget allocated for transportation and communication programs, which included transportation and communication administration, land transportation, water transportation, air transportation, and tele-communication, increased from 544 to 3,584.75 millions of baht that increased at a rate of 17.8 per cent per year. The budget for land transportation, which has more than 91 per cent share, increased from 512 million bahts in 1983 to 3,285.9 million bahts in 1997. This enable a low inland transportation costs of export commodities. As a result, it is one factor that contributed significantly to the competitiveness of Thai agriculture in the world market.

The expansion on road construction was also observed in China and Indonesia. The total length of highways in China registered an increase from 88.33 thousand kilometers in 1980 to122.64 thousand kilometers in 1997 in which more than 80 per cent is paved highways. Indonesian statistics showed that during 1990 to 1997 the total length of road increased from 283.5 thousand kilometers to 336.4 thousand kilometers with an annual growth rate of 2.9 per cent. The percentage share of asphalted road and good condition road were 44 and 33 per cent in 1990 and increased to 54 and 44 per cent in 1997, respectively. However, the length of roads in the Philippines increased slightly from 151.9 thousand kilometers in 1980 to 160.6 thousand kilometers in 1990 and to 161.3 thousand kilometers in 1997. That means the road development in the Philippines has been almost standing still during the period of 1990 to 1997 (Mangabat C. Minda 1998).

Post harvest facilities were also provided by state enterprises or government subsidies, for example, the National Food Authority (NFA) of the Philippines owned different types of warehouse for grains storage (Mangabat C. Minda, 1998). In 1996, there were 3 central (or terminal) markets for agricultural products that received grants from the Bank for Agriculture and Agricultural Cooperatives in Thailand. In addition, 582 central markets were constructed at the sub-district level that were subsidized by the Department of Cooperatives Promotion, Ministry of Agriculture and Co-operatives of Thailand (Itharattana K., 1999).

Farmers usually receive information on agricultural research such as HYV variety through extension officers or farmers group. In the absence of information on the extent to which small farmers receive information and to be benefited from public research, one may expected that small farmers would have comparatively less benefit than medium and large farmers, because small and poor farmers have less land and lack of capital to fully capitalize the benefit of new agricultural research and development. Nevertheless, infrastructure, especially public road, will provide both direct and indirect benefit to all farmers, whereas state own post harvest and marketing infrastructure will generate indirect benefits to small farmers. Since most of these facilities and infrastructure are located near to central or local markets, it may not be easily accessible to small farmers.

C. Extension services and institutional supportive frameworks of the production of export-oriented commodity sectors.

The role of extension services in agricultural production of countries in the ESCAP region is well recognized. The ratio between farmers and extension officers/workers varied among countries. Generally, extension officers are responsible for a certain group of commodities such as cereal crops, upland crops, livestock, fishery etc. In addition, there are extension officers responsible for marketing and processing of agricultural products. Nevertheless, in some countries special program for promoting export-oriented commodity was set up.

As far as technological promotion at the farm level is concerned, countries in the ESCAP region mostly set up demonstration farms at the regional and provincial level for both experiment and demonstration of new varieties and new technologies, especially for rice. In Thailand, only in recent years demonstration farm and training center for cassava has been set up and actively participated by cassava farmers in the Northeast of Thailand.

Currently, export of agricultural trade is still, to a great extent, under the supervision and control of the Chinese government. The State Economic and Trade Commission (SETC) carries out the administration and operation of export. It is mainly in charge of the domestic trade and procurement of commodities for export through its network institutions at the provincial level. One may say that the Chinese government is very much involving in both policy on and institutional supports for agricultural exports (Jikun Huang and Chunlai Chen, 1999).

In India, the National Agricultural Cooperative Marketing Federation of India Limited (NAFED) is the only permitted exporter of onion. The NAFED provided marketing and institutional supports through its subsidiary institution such as the state level marketing federations and the National Cooperative Development Corporation. Essentially, the NAFED is a vertical and horizontal integrated institution. Its operation involve from the production and marketing of agricultural inputs to the price support operation, domestic marketing and international trade of not only onion but also food grain and other commodities (Praduman Kumar, 1996).

There were at least 3 institutes that have been actively involving in the diversification and development process of palm oil industry in Malaysia, excluding research institutions. These institutions are the Federal Land Development Authority (FELDA), the Federal Land Reclamation Authority (FELCRA), and the Rubber Industry Smallholders' Development Authority (RISDA). All these institutions undertook heavy investments in land development for oil palm production and also set up both upstream and downstream palm oil processing and marketing operations for farmers' organizations. In 1997, 41 per cent of the total 2.5 million-hectare of oil palm plantation in Malaysia was under the government-organized land schemes. These schemes were implemented by the mentioned 3 federal institutions and the respective State Economic Development Corporations (SEDCs) (Tengku Mohd Ariff Tengku Ahmad, 1998).

In Pakistan, the Rice Export Corporation of Pakistan (RECP) which was founded in 1974 as the sole rice exporter to carry out all operation and promotion of rice exports of Pakistan. Under RECP paddy procurement, milling, clearing, storage and exporting network were set up as a whole vertical integration frameworks. The performance of RECP could not stand for the test of competition from private sector and the privatization policy adopted by the government. Finally, the RECP completely stopped its rice export operation in 1997 (Muhammas Ramzan Akhtar, 1998).

Nevertheless, the Cotton Export Corporation of Pakistan (Private) Limited (CEC) was established in 1973 as a solely owned enterprise of the government of Pakistan to handle trading of raw cotton exclusively. The CEC's functions were further extended to implement government policies on cotton industry. Therefore, the CEC owned necessary infrastructure and institutions for handling virtually all trading of cotton industry of Pakistan. Undoubtedly, there are favorable and unfavorable contributions of CEC to the Pakistan's cotton industry as a whole. One of the key factors contributed to the success of cotton production was institutional support to boost up cotton research, extension, quality control, training and co-ordination (Muhammas Ramzan Akhtar, 1998).

In most of the Asian countries, there are institutional supportive frameworks for promoting and facilitating exports. Institution responsible for the promotion and facilitation of exports are, for example, the Agricultural Produce Export Development Authority (APEDA) in India, the Export Promotion Bureau (EPB) in Pakistan, the Department of Trade and Industry (DTI) in the Philippines, and the Department of Export Promotion in Thailand. The main responsibilities of these institutions are organizing trade mission and trade exhibitions, providing trade information services, and conducting training on export.

There are institutions providing inspection and certification services for agricultural commodity which are required by importing country. In Thailand, at least 8 government institutions involve in quality and standard inspecting and issuing of certificate for export food and agricultural products. These agencies are: Department of Agriculture, Fisheries Department, Medical Science Department, Food and Drug Administration, Thai Industrial Standard Institute, Foreign Trade Department, Department of Science Service and Customs Department (Itharattana K. 1999). There are, to a certain extent, overlapping responsibilities among these institutions, therefore, continuous attempts to streamline the quality standardization for food and agricultural products, have been undertaking by all concerned institutions since the 1990s.

Export financing is one among other important services that are indispensable for all exporters. Export – import banks or Eximbanks are set up in most of the Asian countries for providing financial services and facilitate international trade activities. By and large, the key function of Eximbanks in each country is quite similar. The Export-import Bank of Thailand, for example, was established and started fully operational in 1994. The main responsibilities are to provide: a) export refinancing services through commercial bank; b) direct short and long term credit to exporters; c) medium-term credit for export business expansion; d) short and medium term credit to foreign banks to finance the imports of goods from Thailand; e) financial services as well as equity participation to support overseas investments of Thai investors; f) export insurance services to Thai exporters; and g) credit to overseas projects which benefit Thailand (Itharattana K., 1999).

In general, agricultural extension services are provided for all farmers with different farm sizes, unless there is a special programme designed for small farmers. Without any review of evaluation on agricultural extension service and special programme for small farmers, one can observe that small farmers would receive comparatively less benefit from the extensional service, because small farmers are normally lack of productive capitals. The reviewed institutional supportive frameworks for export-oriented commodity sectors, especially state enterprises and government agencies, created both positive and negative impacts on all farmers, especially the state own marketing and exporting institutions. However, the government institutions supplying services for export such as certification and financing, which are vital for the commodity export and trade, will generate indirect benefits through market price to all farmers. That is all these services induce decreases in marketing and exporting costs which in turn increase the domestic market price of export commodities. Certainly, those small and poor farmers in the remote rural areas will have lesser benefits, because of the high transfer costs.

2.2 Favorable private sector initiatives and organizations to the attainment of benefits to small producers and exports:

A. Research, information and technological promotion at farm level

In most countries in Asia, private sector has been playing an important role in research and extension on agricultural input industry (e.g. seed, fertilizer, insecticide, and farm machinery). Private firms are actively involving in the research and productions of high yield variety, especially the hybrid seed of maize and vegetable seed. It has been a common practice for major private seed companies in carrying out promotion and extension programs of seed through video or movie advertisement as well as on farm demonstration for promoting new seeds and other agricultural inputs or through their agencies at the local level.

In Thailand, there are multi-national seed companies and Thai joint venture seed companies established plant breeding programs on hybrid seed (corn and sorghum), soybean sunflower and vegetable seeds. In 1992, there were 9 active private seed companies equipped with qualified staff, seed testing laboratories, processing facilities and domestic and overseas marketing networks. These companies utilized 4 main seed distribution channels for marketing their seeds to farmers. These channels are 1) through the Bank for Agricultural and Agricultural Cooperative (BAAC); 2) through local representatives or dealers; 3) through government special procurement programs which created for natural disaster relief; and 4) through direct sale to farmers (Suyasri, S., 1993). In addition, some seeds were exported. The total value of seed exports, which included vegetable seed and other seed for planting, increased from 526.7 million bahts in 1993 to 857.6 million bahts in 1998.

Thai local private agricultural input dealers or merchants are not only supplying agricultural inputs but also providing and promoting technological information as well as some basic technology advice to farmers. In fact, it is not unusual to find these local merchants also giving credit to farmers, especially for those firms or local merchants trading in the major cash crops (maize, soybean, mungbean, cassava, etc.) producing regions of Thailand (Titapiwatanakun B., 1990).

The Thai Tapioca Development Institute Foundation (TTDIF), which was founded in 1992 with an endowment fund of 600 millions of baht, has been actively carrying out research and technological transfer at the farm level in cooperation with research institutions, universities, government agencies and private firms particularly tapioca factories and traders. During 1994 to 1995, The TTDIF conducted training courses on good agricultural practice on cassava production for cassava farmers and distributed new high yielding variety (e.g. KU 50 and Rayong 90) cassava stems at low cost to farmers for further propagation. As a result, the cassava yield at the farmer level increased substantially. According to a survey conducted by the Thailand Development Research Institute Foundation (TDRI) in September 1998 in Nakhon Rachasima Province, it was reported that the yield of cassava increased from 12.50 tons per hectare to 21.87 tons per hectare (TDRI, 1999).

Private sector also engaged in agricultural technology research and promotion of farm mechanization or machinery and appliances for agricultural purposes. In Thailand these local firms of various sizes according to the number of employees produce or assemble farm machinery such as two wheels walking tractors, water pump, grain threshing equipment, and sprayer for both domestic and foreign markets. Statistics showed that the export value of machinery and appliances for agricultural purpose increased from 88 million bahts in 1989 to 2,104.7 million bahts in 1998. It is believed that most of the exports are carried out by both medium and large firms. A few large firms are also designed and installed rice mill, cassava pellets and starch factories for local companies and companies in Asian countries. It is observed that farm machinery firms in Thailand have been playing a significant role in introducing the locally made rice harvester. This machine is proven to be quite adaptable to the Thai paddy field condition. In 2000, it was estimated that roughly 20 per cent of major crop of rice in Nakhon Rachasima Province was harvested by the locally made rice harvester. There are private operators offering services to harvest rice with harvester. It was told that these operators have their networks in almost all provinces (interviews conducted by the author in December 2000).

Technological promotion at the farm level was observed for those commodities under contract farming arrangements. There were at least one fragrant rice exporting company in Pakistan and one in Thailand that have been adopting vertical integration of their rice export operation all the way to seeds. The company in Pakistan has their own breeding program of basmati variety and producing their own seeds. The basmati variety seeds are provided to rice farmers in the Punjab under a contract farming system. The company gives information and advice on good rice production practice to the contracted farmers as well as supervising the farming process. The harvested paddy is sold to the company under a guarantee price scheme. Paddy is milled into rice and exported under the company's brand name to major rice markets in the world.

The rice exporting company in Thailand implements a similar scheme of rice integrated operation like the above-mentioned company in Pakistan. However, the Thai company owns a rice plantation in Surin Province, in northeastern region of Thailand on which the company grows rice by using its own selected seed. The company promotes fragrant rice production and exports the fragrant rice under its own brand through its dealers in major world markets.

It is normal for private firms to engage in agricultural research, information and promotion of technologies along the line of profit seeking objectives, except a few firms adopted as one strategy for improving the firm's image and public relation. There are incidences that private firms cheated farmers and were the defaulters in contract farming in many countries in Asia. However, countries under free market system such as Thailand, it is inevitable for private sector to play the key roles in agricultural commodity trade and exports. In fact, private firms realize the mutual benefit and interdependent relationship among all market participants. The cases of contract farming on fragrant rice in Pakistan and Thailand are good example of enhancing linkage of mutual benefit between farmers and exporters. Nevertheless, it is difficult to cite an example of such arrangement between small farmers (or poor small farmers) and small exporter, especially in rice.

B. The organization of local marketing and processing and traders in their export-oriented activities

By and large, local market participants of the export oriented-commodity are either formally or informally organized themselves into associations. In Thailand, most of the businessmen are members of provincial or national associations. It is required by the Ministry of Commerce that exporter of agricultural products has to be a member of the specified trade association of that commodity. For example, to be qualified as an exporter of tapioca products (e.g. chips or pellets) one must be a member of the Thai Tapioca Trade Association (TTTA). Therefore, local tapioca processing factories that are also operating as exporter are members of the TTTA. In addition, the local processors of tapioca products are also formed a regional processor association. In some regions, there are of particular products such as tapioca chips and pellets, and tapioca starch or flour. Furthermore, there are also associations of cassava farmers in regions. It was observed that there were dialogue and consultative meetings in formal and informal forum among these associations. In general, the representatives from all these associations are invited to participate in most of the official or formal meetings or seminars.

One of the visible activities relating to export commodities, of the local processing association is the establishment of grade and standard for commodity such as cassava roots, baby corn, and logan in Thailand. In principle, standardization enhances market competition, which in turn generates higher price for producers or farmers. However, it is interesting to note that there are still discrepancies in the grading of cassava roots in different regions and different factories such as tapioca chip and pellet factories and tapioca starch factories.

Occasionally the local processors and traders participated in the trade mission and trade exhibition organized by either national associations or the Department of Export Promotion. Nevertheless, impacts of such mission and exhibition on the local small farmers have not been clearly evaluated.

Studies and evaluation on the impact of the associations of local marketing, processing and traders in their export oriented activities on small farmers and exporters were not available in Thailand. Therefore, it is difficult to draw conclusion on this issue. It was, however, observed that small firms' involvement in their associations was normally not so active in comparison to the large firms. Nevertheless, there are a few small traders or exporters (in terms market share) are elected as the president of local or national commodity associations in Thailand.

C. Links between export-oriented commodity sectors and other sectors of economic activity

The extent to which the forward and backward linkages of export-oriented commodity sectors with the other sectors of the economic activity depend very much upon input-out coefficients of the production under given production technology, processing and marketing process requirement as well as the domestic utilization of the commodity.

Production linkage of agriculture can be divided into backward linkages which is the utilization of farm input, and forward linkages that includes sales of agricultural sectors at the farm level. A study showed that the production linkage of traditional agriculture tended to have a relatively weak backward linkage as compared to forward linkages, because less modern agricultural inputs were utilized. Whereas the modern agriculture that used high yielding varieties and fertilizers created more strong backward linkages. In general, agricultural processing industry or agro-industry, both food (e.g. sugar, vegetable oil, and other food products) and non-food (e.g. cotton textile, jute, leather products and rubber products) generated strong backward linkages and given a medium weak forward linkages (Mudahar S. Mohinder, 1982),

At any rate, as farmers' income increased through the sale of their products, obviously, farmers consumption demand also increased. In addition, as the production of agricultural products, which are mostly raw materials, increases, the demand for processing and marketing facilities will also be increased which in turn increases investments. Furthermore, employment in the agro-industry will also be expanded. Consequently, the dynamic sectoral linkages and interdependence are at work. A sub-sectoral econometric model will provide the magnitude and direction of these linkages.

One may consider the linkage between export-oriented commodity and other sectors in terms of services or facilities that can be provided or shared. For example, the Thai cassava industry has invested in a large storage capacities and export handling facilities. At present, the total storage capacity of the tapioca industry was more than 6 million tons. Some of the tapioca storage capacities in cassava producing province are being rented out for storing other food and beverage products. In addition, there were evidences that excess printing and packaging capacities of canning manufacturers in Thailand offered services to other industries.

III. Marketing chain and market accessibility for small producers

In this section, major marketing channels for agricultural products in selected Asian countries are reviewed. Then, the direct marketing chain of contract farming system is discussed using Thailand as an example, in which the linkages of producers, exporters and transnational corporations are depicted.

A. Marketing channel

In general, marketing channels for agricultural products vary among commodities, market condition, market structure, contractual arrangement and government interventions. For commodities under control of the government through a state enterprise, marketing board or authority, a special marketing channels equipped with infrastructures and facilities are set up. For example, those institutions were discussed earlier such as SETC in China, NAFED in India, and CEC in Pakistan.

For simplicity, marketing channels for agricultural products can be divided according to the market levels namely: farm, local, province, wholesale or terminal, and export. Within these market levels, there are combinations of marketing channels in which the major market institutions are middlemen, agents, processors, wholesalers, retailers, and exporters. At each level of market, many factors or determinants decide whether commodity is to be directly or indirectly traded and forwarded to the next market level for further processing or distributing to ultimate consumers (Table 3.1).

At the farm market level, farmers have at least 3 channels for selling their products. First, selling the products before harvested to middlemen who offer harvesting and transporting services. There are some small rice farms, cassava farmers, and other cash crops producers in Thailand and other countries in Asia adopted such practices. In some cases, standing rice crops of small farmers are sold to the local merchant in advance at a relatively low price, because farmers are faced with problems on cash flow shortage.

Studies showed small producers of fruits (e.g. logan, mangoes, etc.) in Thailand sold their fruits in lump sump arrangements for whole orchard before harvesting time.

Second marketing channel is to sell the products after harvested to the local assembler or collector. It was revealed by most of the agricultural marketing studies in Asia that a large proportion of agricultural products was marketed in this manner. There were cases that small producers sold their products immediately without going through simple post-harvest treatment, for example, in Thailand, the harvested paddy is sold to local paddy collector or assembler without drying, due to the lack of drying floor.

Third marketing channel is to sell as a group or individual directly to local merchants or central markets. There are central markets, which are either owned by private enterprise or public, located in rural areas that are accessible during the harvesting season. The Thai government has promoted the establishment of central markets for agricultural products located in provincial level in the late 1980s. Nevertheless, at present only few of these central markets are actively operated.

Local merchants are the key players in the market at local level and provincial level. Local market level normally refers to market that is close to the producers or farmers, while provincial market level is comparatively far away from farmers. In addition, there are more marketing infrastructure and marketing services available at the provincial level than the local level. In general, the utilization of the marketing channels within these two market levels is determined by factors such as financial credit availability, transportation, storage capacity, price level, location of agro-processing and the major consuming markets (Table 3.1).

Wholesale or terminal market level is the main redistributing of agricultural products to the users or consumers. At this level, there are marketing agents or marketing firms (commission agents) that provide marketing services to both buyers and sellers. In Thailand, the commission agents have been playing a significant role in facilitating trade of agricultural commodities, especially trading of export-oriented commodities for a long time. At present, there are commission agents located in Bangkok operating in rice, tapioca products, and beans.

Exporters operate their trades at the export market level. Exporters can be further classified according to the ownership of firms. That are: (a) local exporters; (b) joint venture exporters; and (c) transnational corporations. In practice, many agro-processors are also exporters, especially in food and fruit canning industry. The links between exporters and importers, marketing system of importing countries, and existing of trade barriers are the key determinants of marketing channels to be utilized (Table 3.1).

Table 3.1 Market levels, alternative marketing channels within each market level, determinants of using channels , issues and constraints

Market Levels	Determinants of using channels	Issues and Constraints
A. Farm		
1. Sale before harvested	i) financial credit availability	1) existence and implementing of grading and standardization
2. Sale after harvested	ii) transportation	2) existence of market for harvesting and handling services
Through middlemen	iii) post-harvest handling facilities; threshing,	3) performance, strength and weakness of grouping or cooperatives
3. Sale through groups	clearing, drying, grading, packaging, storage	4) special requirements of commodity
Or cooperatives	iv) existence of central markets	5) financial arrangement between farmers and marketing middlemen or factories
4. Sale direct to local or markets	v) grouping	6) local infrastructure and mode of transportation
5. Sale direct at provincial	vi) quantity produced	7) government policy and involvement
Or central markets	vii) price level	8) availability of market information
B. Local		
1. Sale to provincial or central markets	i) financial credit availability	1) dependency of farmer on necessary marketing functions to be performed
2. Sale to agro-processing factories	ii) transportation	2) degree of competition
3. Sale to terminal markets	iii) storage capacity	3) possession of marketing facilities
Through middlemen	iv) price level	
4. Sale direct to terminal markets		
C. Province		
1. Sale to terminal markets	i) financial credit availability	1) availability and accessibility of efficient communication system
Through middlemen	ii) transportation	2) existing infrastructure and marketing facilities
2. Sale direct to terminal markets	iii) storage capacity	3) quantum of the commodity produced
3. Sale to agro-processing	iv) price level	4) natural location advantage
Factories through middlemen	v) location of agro-industry	5) degree of physical processing requirement of commodity
4. Sale direct to agro-processing factories	vi) major consuming markets	
D. Wholesale or terminal		
1. Sale to retailers	i) domestic retailing systems	1) proportion of domestic consumption
2. Sale to exporters	ii) existing exporters marketing systems	2) centralization of export services and location of port facilities
E. Export		
1. Sale through trading firms	i) marketing system of importing countries	1) product forms
2. Sale direct to wholesale chains	ii) marketing networks of exporting countries	2) degree of competition in the world market
3. Sale direct to users	iii) existing trade barriers	3) role of the transnational corporation

Source: Compiled by the author

As a matter of fact, marketing at each level evolves through time. A good example is the development process of Thai exporters of tapioca products to the EU market. These exporters have been selling their products through the transnational corporations since the initiate stage of the industrial development. Then in the early 1980s, the Thai exporters adopted forward integration by establishing their own firms and carried out direct trade in the EU market. It was believed that the Thai Tapioca Trade Association played a significant role in the formation of a group of Thai exporters to establish Thai tapioca trading firms in the EU. Presently, more than 70 per cent of Thai tapioca exports to the EU market are handled directly by the Thai firms.

It was observed that marketing of export-oriented commodities in Thailand has turned into some degrees of commodity specialization. Market participants at each level of market used to trade many commodities through the same marketing channels. In the 1970s, the development of transportation networks and expansion of production increased competition in trading. And rapid flow of foreign markets information into the domestic market necessitated closer monitoring and decision making. As a result, traders at all market levels shifted to concentrate in certain commodities that they have comparative advantage (Tongpan S., and Titapiwatanakun B., 1983).

In general, small farmers and small exporters are not active in the exports of traditional agricultural commodities of Thailand. This is partly due to the specialization of commodity trades and partly to the economy of scale in production and marketing operations. Under the changing environment of trading of traditional agricultural export commodities, it would be safe to say that small and poor farmers and small exporters are at the edge of worsen comparative advantage especially those endowed with limited resources and opportunities to adjust their operations.

B. Contract farming

The direct-links marketing channel or the contract farming with technological support and supervision practices is commonly adopted by vegetable canning factories in Thailand. Canning factories have been implementing contract-farming arrangement as a strategy for securing the raw material supply, especially at the initiate stage of development of the industry and in promoting production of raw material in the new areas.

In brief, the general practice of contract farming arrangement starts with a selection and formation of a group of farmers. The group leaders are treated as the focal point for initiating the contractual arrangements. The company will organize demonstration and training on production technology for the group. Then necessary input supplies (e.g. seeds, fertilizer, insecticide and others) are given to farmers for growing according to the cropping schedule. The extensional staff of the company will follow up and supervise all the way from planting to harvesting. Following the instruction and schedule set up by the company, the product is harvested and delivered to the factory, then farmers are paid according to the established grade and guarantee price scheme that are stated in the contract. This means that under the contractual arrangements, the firms provide essential assistance and guarantee to farmers namely; 1) agricultural inputs which are mostly cash inputs e.g. seeds, fertilizers and insecticides 2) know how and good agricultural practices; 3) close advice and supervision; and 4) price guarantee for the product.

In Thailand, baby corn canning factories and frozen vegetables, which are mainly for export, implement the above mentioned contract farming arrangement. For baby corn, the maturity, size, and freshness are very crucial grading attributes for achieving good quality standard. Therefore, contract farming is not only for securing supply but also for accomplishing and maintaining certain quality standard of the canned products. As for the case of frozen vegetable, a strict implementation of integrated pest management program is required so as to meet the sanitary regulation and sanitary and phytosanitary measures (SPS measures) of the importing countries. Under such constraint, vegetable to be used as raw materials can not be procured from the existing available supply, therefore, a special production system must be created for obtaining and securing raw materials supply that meets required standards.

With close scrutiny of the contract farming system of the above mentioned commodities especially for the case of corn and vegetable, it can be observed that the companies and farmers are forced to engage in such a scheme, which is, indeed, indispensable for the mutual benefit of both parties. However, for the case of rice contracting farming implemented by Pakistan rice exporter and Thai rice exporter that was mentioned earlier, the necessity for having contract farming may be somewhat less than the cases of baby corn and frozen vegetables.

Although there are problems on farmers or firms default of contract, contract farming at least gives a strong and direct linkage between farmers and firms either small or large. Individually, small farmers and small exporters have weak bargaining power in the agricultural commodity marketing and export. Through appropriate arrangement of contract farming and integration, one could expect a better chance for all parties concerned to secure resources and know-how for productivity and efficiency improvement so as to enhance their comparative advantage. In addition, under contract farming selected small and poor farmers or target groups can be identified so that a special tailor-made contractual arrangement can be formulated with appropriate government supports (e.g. investment incentives and privileges) to reduce poverty.

C. Transnational corporations

Transnational corporations have been playing important role in the development of agricultural commodities marketing and trading in development countries in Asia for long a time. Some commodity markets were initiated by the transnational corporations from Europe, for example, cassava products as animal feed ingredients that were developed in Thailand in the 1960s.

In the mid 1980s, transnational corporations from Japan started the development of and investments in food processing and ready made foods industries in countries like Republic of Korea, Singapore, China, Taiwan and Hong Kong provinces of China, Malaysia, Thailand, the Philippines and Viet Nam. Most of the Japanese firms have been involved in food processing industries such as canning, frozen, and ready to eat foods. The major commodities are vegetables and fruits, fish and shellfish, confectionery, meat, and instant foods. There were different relationships or arrangements between the local firms and Japanese firms in different countries. The arrangement varied from financing of consignment to joint venture and partnership. State of economic and social development and political circumstances in each country are the key factors that decide the relationships (Itagaki keishio, 1997).

Although information on the relationships of the small producers and the transnational corporations is not available, one could envisage that small farmers are connected indirectly with the transnational corporations through the contract farming arrangement that implemented by the local firms. Certainly, the Japanese firms not only created employment opportunity to the local community but also expanded demand for agricultural raw materials in which small farmers participated. In addition, high standard and food sanitary requirement in Japan market induce technological transfer in production, processing and management from Japanese firms to the local producers.

In the last few years, there has been a consumer group movement in Japan and the so-called Fair Trade arrangement was initiated. It was reported that Fair Trade arrangement in Japan started with direct imports of bananas, which were produced under certain organic farming practice, from the Philippines and Thailand. At this juncture, it is still too early to assess the future direction and impacts of Fair Trade arrangement on conventional marketing practices of agricultural commodities in this region. However, such direct links marketing arrangement deserves close observation and study.

Quality, standardization, sanitary and phytosanitary are increasing important and crucial in agricultural commodity trade, especially the processed products and fresh fruits and vegetables. Development of new processing and transportation technologies and socio-economic condition in agricultural producing and food importing countries, especially the developed countries, create new opportunity and comparative advantage for agricultural producing and food exporting countries. Transnational corporations play a vital role in transferring new technologies to the producing developing countries and keep them informed of market demand in the developed countries. Therefore, both parties mutually benefit from capturing the new market opportunities. Although it is difficult to envisage impact of transnational companies' roles on small farmers and their poverty, farmers at large will be benefited and poverty incidence will be decreased.

IV. Poverty, agricultural income and small farmers participation in selected commodities

This section started with a review of overall poverty situation in the ESCAP region. Then poverty and agricultural income issues in Thailand were discussed. In addition, the size of holding and areas planted of selected crops were analyzed, using agricultural census data, in order to show as examples of commodity production of small farmers in poverty reduction.

4.1 Overall Poverty in ESCAP region

In general, developing countries in ESCAP region have been undergoing major economic policy adjustment since 1970s. The economic development policies adopted in these countries changed from inward looking and import substitution policies, which were the main characteristics of the pre-adjustment period, to outward looking, opening up and free market policies that marked the post-adjustment period. Nevertheless, the year that embarked the policy or economic adjustment was quite different among countries. For example China started economic adjustment in the year 1978, followed by Thailand in 1980, the Philippines in 1983, Indonesia and Malaysia in 1984, Bangladesh in 1986, and India in 1991 (Asian Development Bank, 1992).

The economic adjustment of these countries generated impacts on poverty reduction in each country. Available statistics of head count ratio of poverty showed that the total poverty in China decreased from 33.0 in the pre-adjustment period (1978) to 10.0 in the post-adjustment period (1985), while the rural poverty of India decreased from 49.0 in the pre-adjustment (1980) to 41.7 in the post-adjustment (1992). Indonesia has also experienced with poverty reduction that rural head count poverty ratio in pre-adjustment (1984) of 21.0 reduced to post-adjustment of 17.0 and 14.0 in 1987 and 1993, respectively. Rural poverty in the Philippines also decreased from 66.0 in pre-adjustment period (1971) to 54.0 in post-adjustment (1988). Rural poverty in Thailand decreased from 36.0 in 1975/76 (pre-adjustment) to 26.3 in 1988 (post-adjustment), and Bangladesh's rural poverty decreased from 50.0 in 1983/84 to 43.8 in 1988/89.

Experiences of poverty reduction in the ESCAP region reveals that the incidence of rural poverty is high correlated with access to land, overall economic growth and agricultural growth and level of social development (e.g. infant mortality rate, life expectancy at birth, adult literacy rate, primary school enrolment ratio etc.). In addition, the role of land distribution, labor-intensive growth, agriculture and non-agricultural sector growth, trade and investment, and technology transfer are significant factors that effect poverty reductions (ESCAP 1998).

Recent statistics of national and international poverty lines of selected countries in the ESCAP region showed that the percentage of population below the national poverty line in rural area, urban area and national level in almost all countries was decreased. There was a decrease from 7.9 per cent in the 1995-96 to 4.6 per cent in 1998 in the rural

China. In the same period, China at the national level was also decreased from 6.0 per cent to 4.6 per cent. In India, the population below the national poverty line in 1992 was at 43.5, 33.7 and 40.9 per cent, in rural area, urban area, and national level, respectively, and it decreased to 36.7, 30.5 and 35.0 per cent in 1998. The Philippines and Sri Lanka also depicted a decrease in percentage of population below the poverty line. However, percentage of population below the national poverty line in Indonesia in rural area, urban area, and national level in 1996 and 1999 survey showed that the percentage increase from 12.3, 9.7, and 11.3 to 22.0, 17.8, and 20.0, respectively. Such an increase may due to impacts of the Asian financial crisis and political situation in Indonesia during 1997-98. From the available statistics, it is obvious to see that in all countries the percentage of population below the national poverty line in the rural area is the highest (Table 4.1).

In terms of international poverty line, India has the highest percentage of population having below US$ 1.0 a day at 44.2 per cent in 1997, followed by Nepal 37.7 in 1995, Pakistan 31.0 in 1996, China 18.5 in 1998, Indonesia 15.2 in 1999, Sri Lanka 6.6 in 1995, and Thailand less than 2.0 in 1998. The percentage of population having below US$ 2.0 per day in these countries showed almost the same patterns. Based on the available statistic of the international poverty lines, one can observe that poverty incidences are comparatively higher in India, Nepal and Pakistan than that in China, Sri Lanka and Thailand (Table 4.1).

Table 4.1 National and international poverty lines of selected countries in the ESCAP region.

	National poverty lines								International poverty lines				
		Population below the Poverty line (%)				Population below the Poverty line (%)				Pop. Below $1 a day	Pov. gap at $ 1 a day	Pop. below $2 a day	Pov. Gap at $ 2 a day
Economy Or country	Survey Year	Rural	Urban	National	Survey Year	Rural	Urban	National	Survey Year	%	%	%	%
China	1996	7.9	<2	6.0	1998	4.6	<2	4.6	1998	18.5	4.2	53.7	21.0
India	1992	43.5	33.7	40.9	1994	36.7	30.5	35.0	1997	44.2	12.0	86.2	41.4
Indonesia	1996	12.3	9.7	11.3	1998	22.0	17.8	20.3	1999	15.2	2.5	66.1	22.6
Korea, Rep.		N/A.	N/A.	N/A.		N/A.	N/A.	N/A.	1993	<2	<0.5	<2	<0.5
Lao PDR	1993	53.0	24.0	46.1		N/A.	N/A.	N/A.		N/A.	N/A.	N/A.	N/A.
Malaysia	1989	N/A.	N/A.	15.5		N/A.	N/A.	N/A.		N/A.	N/A.	N/A.	N/A.
Nepal	1995-6	44.0	23.0	42.0		N/A.	N/A.	N/A.	1995	37.7	9.7	82.5	37.5
Pakistan	1991	36.9	28.0	34.0		N/A.	N/A.	N/A.	1996	31.0	6.2	84.7	35.0
Philippines	1994	53.1	28.0	40.6	1997	51.2	22.5	40.6		N/A.	N/A.	N/A.	N/A.
Sri Lanka	1985-6	45.5	26.8	40.6	1990-1	38.1	28.4	35.3	1995	6.6	1	45.4	13.5
Thailand	1990	N/A.	N/A.	18.0	1992	15.5	10.2	13.1	1998	<2	<0.5	28.2	7.1
Vietnam	1993	57.2	25.9	50.9		N/A.	N/A.	N/A.		N/A.	N/A.	N/A.	N/A.

Source: The World Bank "World Development Report 2000/2001: Attacking Poverty" Published for the World Bank by Oxford University Press, 2000

4.2 Poverty and agricultural income in Thailand

In order to identify where is the poverty and how it related to agricultural sector, Thailand was used as an example. The national and regional percentage of the poor that computed by the new method or new poverty line, which retains the distinction between food and non-food needs in the derivation, and the World Bank's (WB) poverty line have been decreasing since 1988. Among the four regions, northeast region had the highest percentage of poor at 48.4 in 1988 and 19.4 in 1996 under the new poverty line, and 34.51 in 1988 and 15.7 in 1994 under the WB poverty line. The percentage of poverty in the central region is the lowest at 26.6 in 1988 and 11.5 in 1996 under new poverty line, and 16.0 in 1988 and 5.2 in 1994 under the WB poverty line. Nevertheless, percentage of poverty in Bangkok was at 6.5 in 1988 and decreased to only 0.8 in 1994 (Table 4.2).

Table 4.2 Thailand, percentage of poor: old and new poverty lines

Location	Percentage of Poor New Poverty line					Percentage of Poor World Bank's Poverty Lines			
	1988	1990	1992	1994	1996	1988	1990	1992	1994
North	32	23.2	22.6	13.2	11.2	20.7	16.6	13.6	8.5
Northeast	48.4	43.1	39.9	28.6	19.4	34.51	28.27	22.31	15.7
Central	26.6	22.3	13.3	9.2	6.3	16	12.9	6	5.2
South	32.5	27.6	19.7	17.3	11.5	21.5	17.6	11.8	11.7
Bangkok	N/A	N/A	N/A	N/A	N/A	6.5	2.8	1.3	0.8
Whole Kingdom	32.6	27.2	23.2	16.3	11.4	22.2	18	13.1	9.6

Source: United Nations Development Programme "Human Development Report of Thailand 1999"

The percentage of poor by main community in Thailand showed that it was the highest in the villages at 40.3 in 1988 and 14.9 in 1996, followed by sanitary districts at 21.8 in 1988 and 5.8 in 1996, and municipal areas at 8.0 in 1988 and 1.6 in 1996. All the percentage of the three main communities depicted a decreasing trend during the period of 1988 to 1996. Although, the percentage of poor in villages has been decreasing, the magnitude of the percentage was still much more than that of the sanitary districts and municipal areas. This is due to fact that poverty reduction in the villages was decreased at a lower rate as compared to that of the sanitary and municipal areas (Table 4.3).

Table 4.3 Percentage of poor by main community type in Thailand, 1988-96

Community Type	Percentage of Poor				
	1988	1990	1992	1994	1996
Municipal areas	8.0	6.9	3.6	2.4	1.6
Sanitary districts	21.8	18.2	12.7	9.6	5.8
Villages	40.3	33.8	29.7	21.2	14.9

Source: "Poverty and Inequality During the Economic Crisis in Thailand" Indictors of Well-Being and Policy Analysis, NESDB, Newsletter, Jan. 1999

In 1988, the percentage of poor by occupation of the household head in Thailand revealed that farmer was the highest at 45.6 followed by unskilled laborer 37.7 and retired workers 36.9. In general, the by occupational percentage of poor decreased every year, during 1988 to 1996. The ranking of the percentage of poor changed in 1996, however, that of farmer is still the highest at 18.8 followed by disabled worker at 15.8 and retired worker at 13.5 (Table 4.4).

Table 4.4 Percentage of poor by occupation of household head in Thailand, 1988-96

Occupational Status	Percentage of Poor				
	1988	1990	1992	1994	1996
Professional and technical	2.4	1	1.1	0.7	0.4
Executives	0	2.9	2	3.1	1.7
Clerical workers	2.5	0.9	0.7	0.1	0
Sales workers	8.3	6.9	5.4	3.1	1.3
Services workers	6	6.6	3.4	2.3	1.1
Farmers	45.6	38.6	35.7	26.6	18.8
Production workers	13.7	11	6.1	5.1	3.3
Unskilled labourers	37.7	34.3	22.8	14.5	5.6
Housework	20.7	12.3	13.5	9.1	5.2
Students	4.6	3.9	14	1.8	5.5
Retired workers	36.9	27.7	23	16	13.5
Disabled workers	35.1	42.9	35	25.1	15.8
Unemployed workers	15.5	56.9	9.8	2	7.5
No occupation	21.7	21.2	25.1	4.5	6.7

Source: "Poverty Profiles for Thailand", Indicator of Well-Being and Policy Analysis, NESDB news letter, May 1998

As far as the farmers' income is concerned, the whole kingdom's average net cash income of farm household increased from 24,683.71 bahts in 1980/81 to 80,870.39 bahts in 1995/96. During this period, the net farm cash income increased from 1,353.84 bahts to 29,811.57 bahts, while its percentage of the total average net cash income was decreased from 54.1 to 36.9 per cent. In the same period, the non-farm net cash income increased from 11,329.87 bahts to 51,058.82 bahts that was an increased of 45.9 to 63.14 per cent of the total net cash income. This implies that farmers increasingly depend upon income from off farm employment. In fact, in the northeastern region, farmers have been earning more than 50 per cent of their net cash income from non-farm activities, and the dependency on non-farm cash income has increased to 81 per cent 1995/96 (Table 4.5).

On the national average, the percentage share of net farm cash income from crop is comparatively high at more than 32 per cent, while that of livestock is about 6 per cent. It is observed that the percentage share of net farm cash income from crop in the northeastern region is the lowest and declining One reason is the lack of irrigation systems and water in the northeast region where mostly are under rain fed agricultural condition. Therefore, there are high risks in rain fed condition which in turn causes more incidence of poverty, especially if there were severe weather conditions or a sudden decrease of commodity prices (Table 4.5).

4.3 Size of holding and areas planted of selected crops in Thailand

Equitable land holding is one among other factors that has significant impact on poverty reduction. Although size of holding or farm size of actual crop production may or may not directly related to the land holding and ownership, the percentage share of area planted of small farm can be used as a proxy indicator of commodity production contributed to poverty reduction.

Table 4.5 Average net cash income of farm household in Thailand by region, in selected crop years

Region	Farm household net cash income		Net farm cash income				non-farm cash income	
	bahts	%	Total	%	Crop	Livestock	bahts	%
Whole Kingdom					(%)	(%)		
1980/81	24,683.71	100	13,353.84	54.1	44.15	6.27	11,329.87	45.9
1986/87	22,306.44	100	9,010.13	40.39	37.61	8.38	13,296.31	59.61
1991/92	34,161.45	100	11,230.76	32.88	38.78	3.47	22,930.69	67.12
1995/96	80,870.39	100	29,811.57	36.86	31.56	5.83	51,058.82	63.14
North Eastern								
1980/81	19,066.99	100	9,448.87	49.56	40.11	8.26	9,618.12	50.44
1986/87	17,910.06	100	6,664.06	37.21	29.13	11.6	11,246.00	62.79
1991/92	25,210.46	100	6,062.79	24.05	22.07	6.08	19,147.66	75.95
1995/96	62,695.96	100	11,808.01	18.83	13.53	7.82	50,890.95	81.17
North								
1980/81	23,928.77	100	14,129.89	59.05	47.55	7.58	9,798.88	40.95
1986/87	18,596.97	100	8,652.02	46.52	47.55	6.37	9,944.95	53.48
1991/92	31,411.51	100	14,134.67	45	85.97	2.77	17,276.84	55
1995/96	64,755.83	100	26,093.76	40.3	39.89	3.41	38,662.07	59.7
Central								
1980/81	33,248.13	100	18,933.31	56.95	46.32	6.23	14,314.82	43.05
1986/87	30,997.82	100	13,392.68	43.21	44.76	5.33	17,605.14	56.79
1991/92	55,036.21	100	19,299.84	35.07	47.71	-3.53	35,736.36	64.93
1995/96	121,308.68	100	55,751.83	45.96	39.74	1.79	65,736.85	54.19
South								
1980/81	30,470.00	100	15,117.40	49.61	42.27	5.36	15,352.60	50.39
1986/87	33,955.98	100	12,268.43	36.13	33.66	8.28	21,687.60	63.87
1991/92	49,637.32	100	18,579.40	37.43	36.68	-0.25	31,057.92	62.57
1995/96	125,426.69	100	67,130.05	53.52	44.7	8.51	58,323.64	46.5

Source: Office of Agricultural Economic, Ministry of Agriculture and Cooperatives, Bangkok, Thailand.

In order to investigate the role of commodity production of small farmers in poverty reduction, the agricultural census data of cassava, maize, soybean and sugar cane in Thailand were analyzed. The size of holding data, which obtained from the agricultural census in 1988, 1993 and 1998 were classified into 3 categories namely; (a) small for holding less than 1.6 hectare; (b) medium for holding between 1.6 to 22.4 hectare; and (c) large for holding more than 22.4 hectare. It showed that the percentage of number of small holding in cassava was rather constant in the range of 11.2 to 13.3, and the planted areas was in between 3 to 4.2 per cent of the total. The percentage of number of small holding in maize was increased from 6.2 in 1988 to 19.6 in 1993 and 19.2 in 1998, in which the percentage of planted areas also increased from 1.3 to 4.9 and 4.4 in the respective year. In the case of soybean, the percentage share of number of small holding was fluctuated between 38.1 (1993) and 48.4 (1998), while the percentage of planted areas was between 14.1 (1988) to 20.2 (1998). However, in the sugar cane production, percentage of number of small holding decreased from 18.7 in 1988 to 13.3

in 1992 and to 8.1 in 1998. The percentage of planted areas of sugar cane also decreased accordingly from 2.7 in 1988 to 1.7 in 1993 and 1.4 in 1998 (Table 4.6)

The above suggests that small farmers participation in the Thai export commodities is quite high for cassava production, however, percentage of its contribution in total production is comparatively low. For sugar cane, which is an export commodity, there is a decrease in the number of small farmers and their planted areas. As for the case of maize, that used to be an export commodity before 1990, an increase in percentage of small holding and its planted areas were observed. Soybean, the importing commodity of Thailand, has high percentage of small holding and planted areas. It suffices one to conclude that the export commodities in Thailand may not contribute much to small farmer poverty reduction as compared to the importing commodity. Nevertheless, one would expect increasing poverty incidence, if the conventional export commodities market prices were decreased.

Table 4.6 Number of holdings, planted and harvested area of cassava, maize, soybean, and sugar cane, in 1988, 1993 and 1998

Name of Field Corps and Size of Holding	1988			1993			1998		
	No. Holding	Planted Area	Harvested Area	No. Holding	Planted Area	Harvested Area	No. Holding	Planted Area	Harvested Area
Cassava									
All Size (%)	100	100	100	100	100	N/A.	100	100	100
Under 0.96 ha.	4.3	1.0	1.0	5.9	1.5	N/A.	3.7	0.9	0.8
0.96 - 1.59 ha.	6.9	2.2	2.2	7.4	2.7	N/A.	7.3	2.1	2.1
1.6 - 6.38 ha.	66.2	51.1	51.0	63.1	49.2	N/A.	69.8	54.7	54.9
6.4 - 22.38 ha.	21.7	38.5	38.6	22.6	40.7	N/A.	18.3	35.6	35.5
22.4 and over ha.	0.9	7.3	7.3	0.9	6.0	N/A.	0.9	6.6	6.6
Maize									
All Size (%)	100	100	100	100	100	N/A.	100	100	100
Under 0.96 ha.	2.4	0.4	0.4	9.1	1.8	N/A.	10.1	1.8	1.9
0.96 - 1.59 ha.	3.8	0.9	0.8	10.5	3.1	N/A.	9.1	2.6	2.7
1.6 - 6.38 ha.	54.0	32.5	32.2	58.7	45.0	N/A.	62.3	49.4	49.5
6.4 - 22.38 ha.	36.8	54.4	54.8	20.6	42.4	N/A.	17.5	37.5	37.3
22.4 and over ha.	3.0	11.9	11.7	1.1	7.7	N/A.	1.1	8.6	8.6
Soybean									
All Size (%)	100	100	100	100	100	N/A.	100	100	100
Under 0.96 ha.	27.4	9.6	10.2	21.6	6.9	N/A.	30.3	13.0	13.2
0.96 - 1.59 ha.	18.9	10.6	11.2	17.5	8.9	N/A.	18.1	11.1	11.2
1.6 - 6.38 ha.	43.1	50.8	49.5	50.8	57.1	N/A.	46.0	58.3	58.1
6.4 - 22.38 ha.	10.1	25.8	25.7	9.8	24.3	N/A.	5.3	15.2	15.1
22.4 and over ha.	0.5	3.3	3.4	0.4	2.9	N/A.	0.4	2.4	2.4
Sugar cane									
All Size (%)	100	100	100	100	100	N/A.	100	100	100
Under 0.96 ha.	8.6	0.9	0.9	6.0	6.6	N/A.	2.7	0.5	0.5
0.96 - 1.59 ha.	10.1	1.8	1.9	7.3	1.2	N/A.	5.4	1.0	1.0
1.6 - 6.38 ha.	55.7	26.2	26.2	52.8	21.7	N/A.	65.0	36.1	36.0
6.4 - 22.38 ha.	21.1	28.1	28.2	28.2	34.1	N/A.	23.8	35.7	35.3
22.4 and over ha.	4.6	43.0	42.8	5.7	42.3	N/A.	23.8	26.8	27.3

Source: National Statistical Office, 1988, 1993 and 1998 Agricultural Census, Bangkok, Thailand.

V. Conclusion and Recommendation

5.1 Conclusion

In ESCAP region, as the overall economy of the developing countries grows, it is normal to find that the agricultural contribution in percentage terms declines. However, the agricultural sector is still a relatively large sector that employs a large proportion of the population.

During 1988-1998, statistics showed that developing countries in the ESCAP region have been under adjusting the production mix and diversifying away from cereals to non-cereal products. In the same period, the total value of agricultural product exports increased almost twofold. However, agricultural exports of developing countries in the region have been depending upon a few major commodities such as rice, coffee, tea, pulses fishery products, palm oil, timber, rubber and products, jute, and cotton.

Developing countries in the ESCAP region have been facing with changes in technology, availability and suitability of natural resources, and downward trend of agricultural commodity prices during 1970-1988. Therefore, countries shifted their agricultural production from traditional commodities to non-traditional commodities (e.g. fruits, vegetables, root and tubers, palm oil, sugar, poultry and pork). Up to now, at least 3 commodities were successful namely; a) palm oil in Malaysia; and b) cassava and poultry in Thailand. Many factors contributed to the success of these commodities in these two countries, however, it should be noted that these two countries have been experiencing with excellent overall economic performance before the Asian financial crisis in 1997.

In 1995, there were favorable government policies on rice, cassava, maize and soybean implemented in China, India, Indonesia, Pakistan, the Philippines, Thailand and Vietnam. There were some degrees of subsidies in agricultural inputs such as fertilizer, seed, credit, and investment grants for irrigation system and development. In addition, guarantee price and price support programs were also set up for these commodities which were also protected by import tariff and non-tariff barriers. Furthermore, all government invested in research, training and extension service of the mentioned commodities. In general, all favorable policies are for farmers as a whole rather than specifically for small farmers.

Agricultural research and extension efforts and investments in developing countries in the ESCAP region generated success cases of commodities, for example, rice, maize or corn, baby corn, shrimp culture, and palm oil, cassava, and cotton. The achievement of research and extension on high yielding varieties, high product quality (aroma) rice seeds, disease resistance, good agricultural practice package are factors contributed to the success of these commodities. Apart from irrigation system, there are public investments in infrastructure such as road networks and post harvest facilities (e.g. storage capacity and central markets) that enable farmers to diversify their productions. It is expected that small farmers benefited from agricultural research, extension efforts, and public infrastructure, but lacking of productive capitals prevents small farmers to fully realize all the potential benefits.

There were state enterprises that were vertically integrated and entrusted with some degree of monopoly power for handling certain agricultural commodities' marketing and trade. Food security may be one of the most important reasons for the existence of state enterprises. Although some state enterprises were unsuccessfully operated, some were quite successful and efficient in carry out their tasks and operations.

The governments in ESCAP region have been providing institutional support for agricultural commodity exports through export promoting agencies. There are agencies that are facilitating trade by providing inspection and certification services for agricultural commodities. In addition, some countries also facilitate export with special credit and financial services through the export-import bank, which is a state enterprise. All the supporting services, to some extent, reduce the marketing and exporting costs that enable an increase in domestic price of export commodities. However, benefits received by small farmers in the remote rural area may be less due to high transfer costs.

Private firms in the region have been playing significant role in research and extension of agricultural inputs such as seeds, fertilizers, insecticides and farm machinery. National and international private firms engaged in breeding programs and producing high quality seeds that were distributed to farmers through private marketing channels. It was observed that private farm-machinery firms contributed greatly in agricultural mechanization in Thailand such as two-wheel tractor and rice harvester.

Private export-oriented firms are either formally of informally organized themselves into associations. There are associations for producers (farmers), processors (factories), and exporters at the regional and national level, especially in Thailand. In many cases, these associations are actively participating in issues concerned with their interests, and facilitate marketing and trade with some degree of consensus on quality of commodity. It is believed that the participation of small farmers and exporters in associations is not so active.

There are backward and forward linkages of export-oriented commodity sector with other sectors in the economy. The degree of these linkages depends on the technology used, processing and marketing requirement, and the domestic utilization of the commodity. Normally, both food and non-food agro-processing industries provided more linkages in production, investment, and employment. The links between export-oriented commodities and other sectors can be seen in terms of facilities sharing and providing services, for example, the case of cassava exporting firms in Thailand rented out storage facilities to food and beverage firms.

There are combinations of marketing channels for agricultural producers to sell their products either at the farm or to markets at different levels. Several factors determine the utilization of marketing channels such as financial credit availability, transportation, post-harvest handling facilities, existence of central markets, producers grouping, quantity produced and price level. These factors are constrained by the existence and implementation of grading and standardization, strength and weakness of grouping, financial commitments, local infrastructure, market information, and government policies. There are direct-links marketing channels through contract farming arrangement. It was observed that contract-farming arrangement was adopted in rice and vegetable processing for exports, especially in Pakistan and Thailand. Despite of problems on contract farming, the contractual arrangement can provide better chance for securing resources and technologies to small farmers and exporters so that their bargaining power and comparative advantage position can be strengthened. Furthermore, through contract farming, target group of small and poor farmers can be identified and special contractual arrangement designed can also be made to suit the local condition so as to reduce poverty.

The transnational corporations have been playing key roles in the development and trading of agricultural commodities in Asia. Transnational corporations from Europe contributed significantly to the success of Thai tapioca industry. Transnational corporations from Japan initiated and enhanced the food processing industries in many countries in Asia. These transnational corporations contributed in investments, production technology, marketing and management to the local producers and private firms through various types of relationships. Certainly, small farmers benefited through increasing local employment, the expanding demand for agricultural products and contract farming with technological supports and supervision practices implemented by the local private firms.

Recent statistics of poverty lines in the ESCAP region showed that there was an improvement of poverty situation in most of the developing countries. Thailand’s poverty incidence decreased while rural areas (villages) and farmers were still having the highest percentage of poor of the total. However, available statistics of farmers’ net cash income showed that percentage of net farm income decreased during 1980/81 to 1995/96 and the non-farm net income became more and more important for farmers.

Available census information on size of holding and areas planted of cassava, maize, soybean, and sugar cane in Thailand were used as a proxy indicator of commodity production contributed to poverty reduction of small farmers. It can be concluded that traditional export commodities (cassava and sugar cane) contributed less to poverty reduction of small farmer in comparison to the quasi import and import commodities (maize and soybean).

5.2 Recommendation

At least 4 recommendations and policy issues emerged from the study as follows.

1) Countries in Asia are providing subsidies for agricultural inputs that are crucial for agricultural production. Such subsidies will be eventually decreased and eventually abolish according to the WTO commitments.

However, there is still a lack of practical policies on minimizing unfavorable impacts on small farmers. Therefore, appropriate and special programme for assisting small farmers during the transition period should be set up to support adjustment.

2) The pay-off of research and extension was positive in some countries. There were success cases of commodity such as aromatic rice of Thailand, which was officially released in 1956 and was successfully commercialized by private sector in 1980s. Therefore, there is a need for enhancing and strengthening the role of research and extension conducted by both public and private sectors. In addition, to further induce small farmers to benefit from research and extension, a special package of promotion and assistance programme should be designed so as to overcome basic impediments that prevent them to derive the potential benefits. This calls for some adjustment of government policies and commitments such as land reform, fiscal and financial policies.

3) The conventional agricultural marketing channels and links evolved, but there was no insurance that the evolution process would in favor of small producers. However, the existing direct-links marketing channel such as contract farming seems to be more effective in reaching small farmers in terms of technological transfer and income generation, and it is indeed a mutual benefit among parties concerned. Therefore, attractive incentives and favorable policy measures should be set up (e.g. tax and investment privileges) for promoting and enhancing contract farming arrangement. In addition, study and evaluation of the recent "fair trade" movement should be conducted so that alternative direct marketing channel can be explored.

4) The pace of agricultural diversification and the case of success as well as sustainability were different among countries. All these are obviously affected by the overall economic performance and international competitiveness of the country. Under the free trade environment that enhanced by the commitments of WTO member countries and applying countries, there is no guarantee that agricultural price will be more stable and the unfavorable changes will be minimized. One would anticipate that the situation would be rather unstable and would be not so promising for small farmers. Under such dynamic environment, the adaptability of small farmers deserves more attention. To this end, more specific studies on poverty and agricultural commodity production should be conducted so that appropriate policy and programme can be formulated.

REFERENCES

Abdul Aziz Adul Rahman, 2000 “Chances and Challenges of Commodity Diversification” Paper present at the Symposium on Commodities and Development at the Turn of the Millennium, Bangkok, 13 February 2000

Altemeier K., and Bottema T., 1991 “Agricultural Diversification in Indonesia: Price Responses and Linkage in the Foodcrop Sector, 1969-1988; an Outlook to 2000”, the CGPRT Centre Working paper 11, Bogor, Indonesia.

Asian Productivity Organization (APO), 1999, “Rural Poverty Alleviation in Asia and the Pacific” APO, Tokyo

Badaruddin Soomro, Parvez Khaliq, 1996 “ Cotton Production in Pakistan” APPAARI, FAO, New Delhi, India.

Cheng Guoqiang, 1997, “ Market Prospect of Upland Crop Products in China” the CGPRT Centre Working Paper 24, Bogor, Indonesia.

Chutkacw Chamnan and R.S. Paroda 1994 “Baby Corn Production in Thailand” APPAARI, FAO, New Delhi, India.

Economic and Social Commission for Asia and the Pacific (ESCAP), 1998 “ Economic Reforms and Rural Poverty Alleviation: An Enquiry into the Asian Experience”, ST/ESCAP/1894, United Nations, Bangkok, Thailand.

Economic and Social Commission for Asia and the Pacific (ESCAP), 1998 “Foreign Direct Investment in Selected Asian Countries: Policies, Related Institution-Building and Regional Cooperation”, Development Papers No.19, ST/ESCAP/1809, United Nations, Bangkok, Thailand.

Economic and Social Commission for Asia and the Pacific (ESCAP), 1999 “Rural Industrialization as a Means of Poverty Alleviation”, ST/ESCAP/1976, United Nations, Bangkok, Thailand.

Erwidodo, 1999, “Effects of Trade Liberalization on Agriculture in Indonesia: Institutional and Structural Aspects”, The CGPR Centre, Working Paper 41, Bogor, Indonesia.

Evenson, R.E.,1993, “Research and Extension Impacts on Food Crop Production in Indonesia” Paper presented at the “Workshop on Upland Agriculture in Asia” April 6-8 1993 CGPRT Centre, Bogor Indonesia)

FAO, 1995 “World Agriculture: Towards 2010” FAO Rome

Goletti Francesco, 1999, " Agricultural Diversification and Rural Industrialization as Strategy for Rural Income Growth and Poverty Reduction in Indochina and Myanmar" MSS Discussion Paper No.30 , International Food Policy Research Institute

Hanvivatanakit P., 1989 "An Economic Analysis on Black Tiger Shrimp Production in Thailand", Master thesis, Kasetsart University written in Thai.

Hazell, B.R., Peter, and Ramasamy C., 1991 "The Green Revolution Reconsidered: the Impact of High-Yielding Rice Varieties in South India", Published for the International Food Policy Research Institute, the Johns Hopkins University Press, Baltimore and London.

Heierli Urs, 2000, "Marketing and Development an Effective Strategy for Poverty Alleviation with and through the Private Sector" Draft of a study of 5 SDC projects in Asia and Latin America, paper presented at the "Business Service for Small Enterprises in Asia: Development Markets and Measuring Performance, International Conference" 3-6 April, 2000, Hanoi, Vietnam, International Labour Organizationm (ILO), http://www/ilo.org/public/english/employment/ent/papers/heierli.htm

Huang Jikun and Chunlai Chen, 1999 "Effects of Trade Liberalization on Agriculture in China: Institutional and Structural Aspects" The CGPR Centre, Working Paper 42, Bogor, Indonesia.

Inoue S., and Titapiwatanakun B., 1997, " Integrated Report of the Project "Market Prospect of Upland Crop Products and Policy Analysis in Selected Asian Countries", the CGPRT Centre Working Paper 28, Bogor, Indonesia.

Inoue S., Titapiwatanakun B., and Stoltz D.R. , 1997, "Market Prospect for Upland Crops in Asia: Proceeding of a Workshop Held in Bogar, Indonesia, February 25-28, 1997", the CGPRT Centre Working Paper 34, Bogor, Indonesia.

Itagaki keishio, 1997 "Development of Food Processing Industries in Asian Countries: with special reference to foreign Direct Investment by Japanese Firms" Journal of the International Society of Southeast Asian Agricultural Sciences Volume 3 Number 1-2.

Itharattana K. 1999 " Effects of Trade Liberalization on Agriculture in Thailand: Institutional and Structural Aspects" The CGPR Centre, Working Paper 39, Bogor, Indonesia.

Kanai M., and Titapiwatanakun B. 2000, "Integrated Report of the Project "Effects of Trade Liberalization on Agriculture in Selected Asian Countries with Special Focus on CGPRT Crops" The CGPR Centre, Working Paper 53, Bogor, Indonesia.

Kerr John and Kolavalli Shashi, 1999, "Impact of Agricultural Research on Poverty Alleviation: Conceptual Framework with Illustrations form the Literature" EPTD Discussion Paper No.56, International Food Policy Research Institute, Washington, USA.

Koko Ari, and Zejan Mario, 1996, “Planned and Failed Foreign Direct Investment in Viet Nam” Asia-Pacifi Development Journal Vo. 3 No. 1, June 1996, ST/ESCAP/1698, ESCAP, United Nations, Bangkok.

Kuznets, S., 1964, “Economic Growth and Contribution of Agriculture” in Eicher, C.K. and Witt, L.W. (eds), Agriculture in Economic Development, McGraw-Hill, New York.

Lou Xizhi, C.X. Mao, 1994 “Hybrid Rice in China” APPAARI, FAO, New Delhi, India.

Mangabat C. Minda 1998 “ Effects of Trade Liberalization on Agriculture in the Philippines: Institutional and Structural Aspects” The CGPR Centre, Working Paper 37, Bogor, Indonesia.

Mudahar S. Mohinder, 1982, “Backward and Forward Linkages in Agricultural Sector Analysis Models” Paper in “Agricultural Sector Analysis in Asia” Edited by Max R. Langham and Ralph H. Retzlaff, Published by Singapore University Press for Agricultural Development Council, 1982

Office of Agricultural Economics, 1999, “ Agricultural Statistics of Thailand 1997/98”, Ministry of Agriculture & Co-operatives, Bangkok Thailand, many issues.

Petit Michel and Barghouti Shawki, 1992, “ Diversification: Challenges and Opportunities” in Shawki, Barghouti, Lisa Garbus, and Dina Umali, Editors, 1992 “Trends in Agricultural Diversification Regional Perspectives” World Bank Technical Paper Number 180

Praduman Kumar, 1996 “Market Prospects for Upland Crops in India”, The CGPR Centre, Working Paper 20, Bogor, Indonesia.

Ramesh Chand, 1998, “Effects of Trade Liberalization on Agriculture in India: Institutional and Structural Aspects”, The CGPR Centre, Working Paper 38, Bogor, Indonesia.

Ramesh Chand, 1999, “Agricultural Diversification in India” Mittal Publications, New Delhi, India.

Reinhardt Nola 2000, “Back to Basic in Malaysia and Thailand: The Role of Resource-Based Exports in Their Export-Led Growth” World Development Vol.28 No.1, pp.57-77, 2000

Suyasri, S., 1993, “Thailand (2)” in Asian Productivity Organization, 1995, “Seed Production and Marketing in Asia and the Pacific”, APO, Tokyo.

TDRI, (Thailand Development Research Institute) 1995 “Agricultural Diversification / Restructuring of Agricultural Production Systems: Prepared for FAO” unpublished

TDRI, 1999, "Evaluation the 1996/97 Market Intervention Policy on Cassava: Report Submitted to Cassava Foundation" unpublished report, written in Thai.

Tengku Mohd Ariff Tengku Ahmad, 1998 " Effects of Trade Liberalization on Agriculture in Malaysia: Institutional and Structural Aspects" The CGPR Centre, Working Paper 34, Bogor, Indonesia.

The National Statistical Office,1990 "1988 Agricultural Census", Office of the Prime Minister, Bangkok, Thailand

The National Statistical Office,1995 "1993 Agricultural Census", Office of the Prime Minister, Bangkok, Thailand

The National Statistical Office,1999 "1998 Agricultural Census", Office of the Prime Minister, Bangkok, Thailand

The Work Bank 2001 "World Development Report 2000/2001" Oxford University Press, Publishe for the World Bank

Thutjamnong P., 1998 "An Analysis of Production Function and Cost of Aromatic Rice KDML 105 Crop year 1993/94", Master degree thesis Kasetsart University, Bangkok, Thailand, written in Thai.

Tongpan S., and Titapiwatanakun B., 1983 "Final Report: Policy Study on Agricultural Development and Related Activities, Volume 5" Regional Research & Development Center and Asian Institute of Technology (AIT), Bangkok, Thailand. r

Titapiwatanakun B., 1990 "Production and Marketing of Mungbean in Thailand: the Role of Private Sector" The CGPRT Working Paper 6, Bogor, Indonesia
.

Titapiwatanakun B., 1996 "Study on Strategy Crops of Thailand: Cassava" report submitted to Ministry of Agriculture and Cooperatives of Thailand, written in Thai).

Titapiwatanakun B., 1999 "Case Study: Thailand", in dTp Studies Inc., (assembled) "Global Cassava Market Study: Business Opportunities for the Use of Cassava" Funded IDRC and IFAD, July 1999, Revised October 1999.

United Nations, 2000 "Statistical Yearbook for Asia and the Pacific 1999", Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand, 2000

Vali Jamal, and Karel Jansen, 1998, "Agrarian Transition in Viet Nam" SAP 2.74/WP.128, International Labour Office, Geneva

Yusof B. Basiron 1995 " Palm Oil Industry in Malaysia" APPAARI, FAO, New Delhi, India.