PART I

DISTRIBUTION AND MARKETING

1. DISTRIBUTION AND REGIONAL DEVELOPMENT

1.1 Distribution Sector in Regional Economy

Distribution sector plays an important role in modernized economies. It connects production with consumer sectors. With a further division of works in production in response to urbanization and economic growth, the distribution of agricultural products between the urban area, especially Bangkok, and the rural area has been of increasing importance. The distribution sector contributes mainly to the stability of supplies and prices, and gives efficient channels in response to various preferences of the consumer sector. The stable supplies and prices are achieved by fair transaction in the competitive market with adequate market information, quality control and efficient transportation.

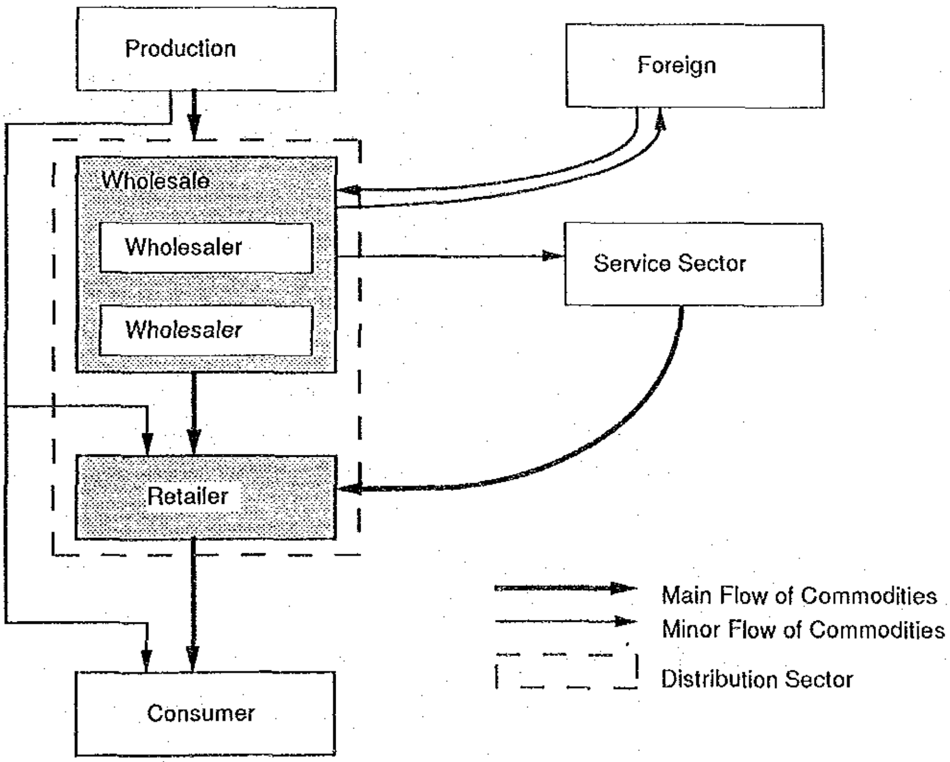


Fig. 1.1 Structure of Commodity Flow

1.2 Magnitude and Characteristics of Distribution Sector

1.2.1 Definition of Distribution Sector

The distribution sector covers a variety of the activities which link production and consumption. It is concerned with transaction, distribution, marketing and other related activities. According to the Thailand Standard Industrial Classification by Ministry of Interior, the distribution sector is classified into 92 industries as shown in Table 1.1.

Table 1.1 Classification of Distribution Sector

Major Division	Division	Major Group
6 Wholesale Trade, Retail Trade, Reataurant and Hotel	61 Wholesale Trade	
		611 Mixed Wholesaling
		612 Agricultural Raw Materialsexcept Food
		613 Food, Beverages andTobacco
		614 Textile, Weraring Apparels and Leasther Goods
		615 Furniture, home Furnishing and Household Equipment
		616 Construction Materials
		617 Machinery, Equipment and Supplies
		618 Transprt Equipment
		619 Miscellaneous Wholesales
	62 Retail Trade	
		621 General Stores
		622 Food, Beverages and Tobbaco Stores
		623 Textile, Wearing Apparel and Leather Products Stores
		624 Furniture, Home Furnishing and Household Equipment Stores
		625 Paper and OPaper Products, Book and Stationary Stores
		626 Pharmacy and Cosmetic Stores
		627 Building Materials deals and Hardware Stores
		628 Transprt Equipment Deals and Gasoline Service Stations
		629 Miscellaneous Retail Stores
7 Transport, Storage and Communication	71	711 Land Transprt
		712 Water Transport
		713 Air Transprt
		719 Services allied Transprt

Source: Thailand Standard Industrial Classification, MOI

1.2.2 Magnitude of Distribution Sector

1) Magnitude in Gross Provincial Products (GPP)

Table 1.2 shows a magnitude of the distribution sector in Gross Provincial Products (GPP). The distribution sector represents approximately 29% of GPP in the Upper Central Region (UCR). This proportion is almost same as in Bangkok and national average, while it has gradually been increasing.

In the meantime, the distribution sector of the UCR holds a share of 4.2% in the Whole Kingdom. This share is same as that in terms of total GPP. Bangkok accounts for a large portion in the distribution sector. Approximately 37% of the national distribution activities take place in Bangkok.

2) Magnitude in business establishments

In the distribution sector, 22% of business establishments are wholesale traders, 72% are retail traders and the rest are transporters. This composition is common to the UCR, Bangkok and the Whole Kingdom.

In the UCR, the wholesalers dealing with food, beverages and tobacco, agricultural raw materials except food, and construction materials have significant share among other kinds of wholesalers, and the retailers dealing with building materials and hardware have significant share among other kinds of retailers. In the transporters, the services related to transport, storage in particular, are significant as shown in Table 1.3.

Proportion of the distribution sector in the total business establishments is 29.5% in the UCR, while it is 37.6% in the Whole Kingdom. The wholesale traders account for 1.7% of the total business establishments in the UCR, while they account for 2.2% in the Whole Kingdom. Proportion of the UCR in the Whole Kingdom is small in terms of distribution; only 3% of the national distribution sector exist in the UCR, while 3% of national total business establishments and 4.1% of GNP exist in the UCR.

Table 1.2 Magnitude of Distribution Sector in GRP

		1980	(%)	% for Whole Kingdom	1985	(%)	% for whole Kingdom
UCR	Distribution Sector	7,383	26.1%	4.2%	12,448	28.6%	4.3%
	GPP	28,323		4.1%	43,464		4.2%
Bangkok	Distribution Sector	68,241	28.6%	39.2%	106,934	27.5%	37.3%
	GPP	238,291		34.8%	389,056		37.1%
Whole Kingdom	Distribution Sector	173,991	25.4%		286,928	27.4%	
	GPP	684,912			1,047,292		

Note: Distribution sector is including communication.
Souce: NESDB

Table 1.3 Business Establishments in Distribution Sector

	UCR	Bangkok	Whole Kingdom
Wholesale Trade			
611 Mixed Wholesaling	2	143	163
612 Agricultural Raw Materialsexcept Food	67	508	1,888
613 Food, Beverages andTobacco	89	1,076	1,341
614 Textile, Weraring Apparels and Leasther Goods	0	1,299	1,853
615 Furniture, home Furnishing and Household Equipment	0	759	936
616 Construction Materials	52	654	1,804
617 Machinery, Equipment and Supplies	26	853	1,037
618 Transprt Equipment	2	462	500
619 Miscellaneous Wholesales	16	2,243	2,702
Total	254	7,997	12,224
	(17.0%)	(32.6%)	(21.7%)
Retail Trade			
621 General Stores	22	301	1,820
622 Food, Beverages and Tobbaco Stores	191	1,859	5,549
623 Textile, Wearing Apparel and Leather Products Stores	84	1,805	4,726
624 Furniture, Home Furnishing and Household Equipment Stores	122	2,067	4,869
625 Paper and OPaper Products, Book and Stationary Stores	18	381	931
626 Pharmacy and Cosmetic Stores	35	560	1,826
627 Building Materials deals and Hardware Stores	203	2,370	5,700
628 Transprt Equipment Deals and Gasoline Service Stations	377	2,643	8,115
629 Miscellaneous Retail Stores	96	2,426	6,851
Total	1,148	14,412	40,387
	(76.7%)	(58.8%)	(71.7%)
Transportation			
711 Land Transprt	55	570	1,816
712 Water Transport	3	263	301
713 Air Transprt	0	82	102
719 Services allied Transprt	37	1,170	1,463
Total	95	2,085	3,682
	(6.3%)	(8.5%)	(6.5%)
Total	1,497	24,494	56,293

Note: ( ) shows percentage to total.
Source: Department of Labr, 1988

Distribution activities, particularly wholesaling activities are at a low level in the UCR in terms of number of business establishments as shown in Table 1.4.

Table 1.4 Functional and Geographical Composition of Business Establishment for Distribution

	Wholesale (a)		Retail (b)		Transport (c)		Distribution (a+b+c)		All Activities	
UCR	254	(0.17) <0.02>	1,148	(0.23) <0.03>	95	(0.02) <0.03>	1,497	(0.29) <0.03>	5,083	<0.03>
Bangkok	7,997	(0.33) <0.65>	14,412	(0.24) <0.36>	2,085	(0.03) <0.57>	24,494	(0.40) <0.44>	61,326	<0.41>
Whole Kingdom	12,224	(0.22)	40,387	(0.27)	3,682	(0.02)	56,293	(0.38)	149,611	

Note: ( ) shows propotion to total activities in the area
< > shows propotion to activitiy of Whole Kingdom
Source: Department of Labor,1988

3) Magnitude in Employment

Finally, magnitude of the distribution sector is examined in terms of employment. Table 1.5 shows the number of employment by kind of activities. Of the national total employment in the distribution activities, 31.5% is engaged in the wholesale trade, 40.8% in the retail trade and 27.7% in the transport. In the UCR, 20.6% is engaged in the wholesale trade, 57.8% in the retail trade and 21.6% in the transport. This shows that wholesaling function is not developed in the UCR in terms of employment as in the case with business establishment.

Size of distribution firms is rather small in the UCR; average number of employees per firms is 6.4 persons in the UCR, while 9.6 in the Whole Kingdom. Wholesale trader is especially small. Its average size is 7.7 persons per firm in the UCR.

Table 1.5 Employment in Distribution Sector

		UCR	Bangkok	Whole Kingdom
	Wholesale Trade			
611	Mixed Wholesaling	16	10,291	10,405
612	Agricultural Raw Materialsexcept Food	769	7,229	19,474
613	Food, Beverages andTobacco	763	21,991	36,418
614	Textile, Weraring Apparels and Leasther Goods	0	15,607	15,767
615	Furniture, home Furnishing and Household Equipment	0	14,196	15,100
616	Construction Materials	245	6,961	9,304
617	Machinery, Equipment and Supplies	85	15,561	16,544
618	Transprt Equipment	18	5,570	6,157
619	Miscellaneous Wholesales	65	37,529	41,291
	Total	1,961	134,935	170,460
		(20.6%)	(36.3%)	(31.5%)
	Retail Trade			
621	General Stores	124	22,409	29,912
622	Food, Beverages and Tobbaco Stores	599	7,259	16,720
623	Textile, Wearing Apparel and Leather Products Stores	187	8,358	15,378
624	Furniture, Home Furnishing and Household Equipment Stores	1,032	13,365	24,965
625	Paper and OPaper Products, Book and Stationary Stores	66	3,421	4,916
626	Pharmacy and Cosmetic Stores	70	4,219	6,907
627	Building Materials deals and Hardware Stores	1,110	12,439	30,382
628	Transprt Equipment Deals and Gasoline Service Stations	2,062	27,738	60,032
629	Miscellaneous Retail Stores	239	20,338	31,450
	Total	5,489	119,546	220,662
		(57.8%)	(32.2%)	(40.8%)
	Transportation			
711	Land Transprt	1,335	58,187	84,298
712	Water Transport	7	12,495	13,178
713	Air Transprt	0	27,543	27,888
719	Services allied Transprt	708	18,782	23,957
	Total	2,050	117,007	149,321
		(21.6%)	(31.5%)	(27.7%)
	Total	9,500	371,488	540,443

Note: ( ) shows percentage to total.
Source: Department of Labr, 1988

Table 1.6 Functional and Geographical Composition of Employment in Distribution Sector

	Wholesale (a)		Retail (b)		Transport (c)		Distribution (a+b+c)		All Activities	
UCR	1,961	(0.21)	5,489	(0.07)	2,070	(0.03)	9,520	(0.12)	82,112	
		<0.01>		<0.02>		<0.01>		<0.02>		<0.03>
Bangkok	134,935	(0.36)	119,546	(0.09)	117,007	(0.09)	371,488	(0.28)	1,316,425	
		<0.79>		<0.54>		<0.78>		<0.69>		<0.53>
Whole Kingdom	170,460	(0.32)	220,662	(0.09)	149,321	(0.06)	540,443	(0.22)	2,494,702	

Note: ( ) shows propotion to total activities in the area
< > shows propotion to activitiy of Whole Kingdom
Source: Department of Labor, 1988

Table 1.7 Size of Business Establishment

	Wholesale	Retail	Transport	Distribution	All Activities
UCR	7.7	4.8	21.8	6.4	16.2
Bangkok	16.9	8.3	56.1	15.2	21.5
Whole Kingdom	13.9	5.5	40.6	9.6	16.7

Source: Department of Labour, 1988

1.3 Importance of Distribution and Marketing in Regional Economy of the Upper Central Region

1.3.1 Importance in Regional Economy

In modernized economy, distribution sector is necessary for efficient supply of products. "Efficiency" in distribution and marketing is to be realized by efficient transaction system and efficient goods transportation. The efficient *transaction system consists of fairness, minimum and stable price and* minimum marketing risk. The efficient goods transportation is based on stable, rapid, accurate and secure transport. Both of them contribute to not only businesses but also consumers.

Distribution sector plays important role not merely in transporting goods but in providing information of consumers preferences and market demand. Along with urbanization and rising income level, variety and quality become increasingly important factors of the consumers' preferences, with a consequence that market demand leads changes in production sector. If a producer seeks for higher benefits, it must be sensitive to end users' preference: In other words, distribution sector fosters entrepreneurship of producers, especially those in agricultural sector.

For agricultural sector, improvement in distribution sector contributes to maintaining and enhancing reliability of production through ensuring the stability in quality and quantity of product supply . In addition, distribution sector supports agricultural development by providing stable market channels and creating value added through distribution processing. From the individual farmers point of view, distribution is closely related with their income increase. Through the stable market channels provided by distribution sector, farmers realize the importance of responding to market demand and quality needs. The stable market channel may automatically bring an appropriate allocation of returns between farmers and middlemen.

For urban sector, improvement of the market system in accordance with a hierarchy of cities is important to strengthen the centrality of urban places because marketing is one of the most important functions of urban sector.

Table 1.8 shows the importance of the distribution improvement at the national, regional and individual levels.

Table 1.8 Importance of Distribution in Economies

	Marketing and Transaction Improvement	Physical Distribution Improvement
National Level	Responding various demand from change of consumption pattern in accordance with urbanization and economic growth	Improvement of physical distribution efficiency to meet with transport of huge amount and various kinds of commodities
	Strengthening connection between production sector and consumption sector through information	
	Minimizing price fluctuation for sale of reducing market risk	
Regional Level	Creating producing center of the certain commodity	Fostering rural center cities based on wholesale distribution center functions
	Supporting agricultural development, particularly agricultural diversification, through providing secure market channels	Stable supply and shipping of both industrial materials/parts and products
	Creating value added in the UCR with distribution processing	
Individual Level	Realizing farmers the importance of quality control and respondence to new market demand through arising entrepreneurship of farmers	Minimizing farmers' cost of transporting products
	Improving and stabilizing the farmers' income through keeping fairness of transaction between farmers and middlemen	

1.3.2 Scope

The distribution improvement involves the following factors:

1) Transaction

The transaction system aims basically at achieving the fair transaction under adequate competition, the stable and reliable supply at reasonable prices, and the quality control and development to meet with demand, and market exploitation.

(1) Fair transaction under adequate competition

The fair transaction with adequate market information under adequate competition creates reasonable prices and reliability of trade.

(2) Stable and reliable supply

Stable and reliable supply is necessary for any company to manage efficient logistics. It can be achieved only by the management of proper storing and shipping with adequate market information.

(3) Quality control and development

To meet with demand, quality control and development are required especially to keep products in better condition.

(4) Market exploitation

Marketing activities contribute to promoting high value added products especially through creating "brand" products and new sales channels. This is an essential element in agricultural diversification.

2) Physical distribution

The main issue of improving physical distribution system is to establish efficient transport system. It realizes the stable and reliable movement of goods at a minimum cost, the less damages of cargo on transportation and security of goods.

(1) Stable and reliable transport at a minimum cost

In response to the increase of volume of cargo, more stability and reliability will be required in transport. Accurate and punctual transportation is an essential element. An integrated and efficient transport system has to be realized by strengthening and linking different means and stages of transport.

(2) Reducing damages of cargo

To prevent damages of cargo, improved storage, certain equipment and standards are necessary.

3) Specific Focus for the UCR

The UCR is at a strategic location for its proximity to the Bangkok Metropolitan Region (BMR) and the national highway routes 1 and 2 passing through the UCR. Therefore, almost all commodities have to pass the UCR. At present, export-oriented agricultural products are concentrated in the UCR, especially Ayutthaya, for the sake of minimizing transport transport cost by combining land, inland waterway and sea transport in the most economical way.

Ayutthaya has a large concentration of the silos and warehouses which deal mainly with maize and tapioca pellet, especially at Amphoe Tha Rua and Bang Sai. These silos and warehouses have been developed on the basis of the inland waterway transportation in Chao Phraya and Pasak Rivers. As far as the handling and transportation of crops for direct export are concerned, these well-established river-based system will still have cost competitiveness and economy of scale of their own. It is important to determine the utilization and development of this distribution systems in view of the present patterns of nation-wide distribution systems as well as the future diversification of agricultural products for export.

Meanwhile, the UCR is a gateway toward the northern and the northeastern region as well. This is also an advantage of the UCR for distributing industrial products and consumer goods from the BMR. More facilities of physical distribution have potential to be located in the UCR.

2. NATIONAL PERSPECTIVES

Distribution and marketing activities reflect changes in production and consumption sectors. This chapter examines those production and consumption factors which determine an efficient distribution and marketing system.

2.1 Production

2.1.1 Agriculture

In agricultural development, a lot of efforts have been made to expand cultivatable area and improve yield by irrigation and land consolidation. Recently, agricultural diversification has gradually been taking place nation-wide. As a result, many regions have been able to produce various kinds of agricultural products.

At the same time, agricultural products have increasingly been produced in particular regions in correspondence with comparative advantages of respective regions. Table 2.1 shows total value of agricultural products by region. For example, rice, maize and sorghum are specialized in the central region, while vegetables are specialized in the northern region.

Regional specialization of agricultural products causes the situation in which even farmers have to buy some agricultural products for their consumption. This means that the distance between production area and consumption area is increasing as a whole. Distribution activities will therefore be increasingly important to ensure the products in different regions and localities.

Thai agriculture has increasingly been commercialized in terms of quick response to changes in market demand and price. It is said that planted area of maize depends on the comparison of return between maize and sugarcane or

Table 2.1 Agricultural Products by Region

(Bath)

Region	Products	1981 Product	1981 L/Q	1986 Product	1986 L/Q
Central	Rice	2,278,789	1.929	3,026,896	1.611
	Maize	730,005	2.492	640,761	3.578
	Sorghum	95,368	6.775	97,771	5.275
	Mung Bean	71,024	1.345	59,587	1.579
	Dairy Products	15,599	8.067	38,633	8.312
East	Sugarcane	643,855	1.279	793,896	1.543
	Cassava	2,167,054	2.265	1,841,061	2.767
	Fruits	1,432,208	1.333	1,631,313	1.313
	Egg (Hen)	435,419	1.796	654,250	1.450
	Marine Fish	702,033	1.542	1,019,680	1.149
West	Coconut	82,321	1.952	98,039	1.782
	Sugarcane	2,140,787	5.454	2,829,109	4.725
	Vegetable	307,226	1.613	505,273	2.010
	Dairy Products	13,316	4.295	33,553	3.879
	Daens	10,702	2.799	4,002	1.577
Northeast	Cassava	3,722,475	2.211	1,062,485	0.728
	Kenaf	486,145	3.939	533,826	4.398
	Jute	55,642	3.961	39,126	4.228
	Shallot	244,662	2.414	263,080	2.547
	Buffalo	353,323	2.548	469,118	3.234
North	Mung Bean	518,895	2.996	563,736	3.490
	Soy Bean	262,673	3.439	556,554	3.466
	Tobacco	1,563,840	3.420	1,123,340	3.404
	Garlic	454,154	3.740	477,621	3.850
	Teak	143,967	4.150	115,961	4.295
South	Rubber	2,107,992	6.709	3,647,000	5.673
	Coconut	194,061	3.483	477,000	3.060
	Fruits	2,808,740	2.200	10,238,000	1.839
	Marine Fish	1,677,142	2.345	5,531,000	3.481
	Takien	7,257	3.321	10,000	1.607

Source: Agricultural Economics Statistical Office

Note : Agricultural products are selected in terms of magnitude of locational quatient between maize and soybean. The farmers choose the crop to be planted in next year in terms of the amount of return.

Stable and high quality is a major market requirement recently, thus, contract farming has been spot-lighted partly in place of traditional distribution and marketing systems, for changing an entire existing system involves many difficulties. The contract farming shows a success in managing quick and delicate response of production to changes in end-user's requirement.

2.1.2 Industrialization

Among other factors, manufacturing industry requires the distribution network to ensure diversified sources and channels of product supply. Industrialization is related closely with distribution. For example, the relationship between products of manufacturing and volume of transportation is significant as shown by a value of correlation coefficient being 0.88. Moreover, elasticity of manufacturing to transport sector is 0.94, which means that growth of one unit of manufacturing creates more than one unit of growth of transportation.

Rapid industrialization is observed in the Table 2.3. At present, the BMR still absorbs a large portion of industries, but other regions have also been industrialized, even though speed of industrialization is not as rapid as in the BMR. In the future, distribution will be more important in response to the spread of industrialization to the rural areas.

Table 2.2 Growth of Volume of Transport

Unit : thousand ton in volume of transport and million baht in GDP

	1983	1984	1985	1986	1987
Volume of Transport	27,762	38,335	37,364	40,840	45,288
Products of Manufacturing	76,713	81,962	81,463	89,305	101,414

Source: Transport Statistics, 1989
Gross Regional and Provincial Products, 1989

Table 2.3 Growth of Manufacturing

Unit : Million baht

REGION	1975	1980	1985
BMR	26,745.1	46,538.3	60,545.6
Central	1,149.1	1,900.2	2,307.5
Western	1,419.2	1,778.6	3,120.9
Eastern	2,710.0	3,678.7	4,923.5
Northern	1,443.1	2,001.6	2,450.3
Northeastern	2,494.6	3,229.8	4,069.3
Southern	870.6	1,512.0	1,510.2
Whole Kingdom	36,831.7	60,639.2	78,927.3

at constant 1972 prices
Source: Gross Regional and Provincial Products, 1985

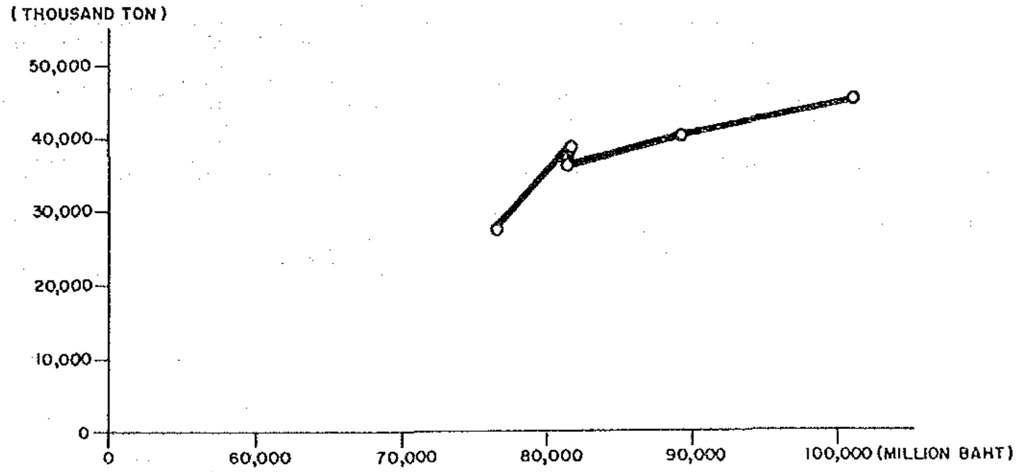


Fig. 2.1 Relationship between Volume of Transport and Manufacturing

2.2 Transportation

In traditional agricultural society, trading and goods distribution are not necessary to be developed because economy is self-sufficient. In response to the diversification of regional economic activities as well as to the widening distance and travel time between production and consumption, better distribution has been required.

Urbanization and industrialization in both the BMR and the rest of the country and the agricultural diversification nation-wide cause a rapid growth of distribution in Thailand. Table 2.4 shows the volume of distribution by year. During the period 1983 to 1987, the volume increased by 1.63 times in ton and 1.57 times in ton-kilos, while GDP expanded by 1.25 times during the same period.

Table 2.4 Increasing Volume of Transport

Unit : Thousand ton in ton
Million Baht in GDP

	1983	1984	1985	1986	1987
Volume of (ton) Transport	27,762	38,375	37,364	40,840	45,288
GDP	355,408	380,739	394,113	411,814	446,361

Source: Transport Statistics, 1989
Gross Regional and Provincial Products, 1989

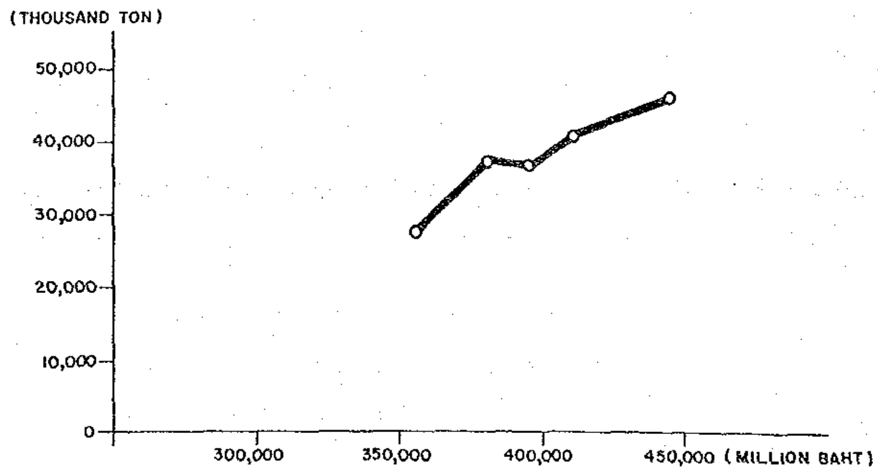


Fig. 2.2 Relationship between Volume of Transport and GDP

The distribution as a system of transaction and logistics of economic activities is closely related with the GDP. The correlation coefficient between volume of transport and GDP shows a very high value of 0.94. Elasticity of GDP to volume of transport is 1.3. It shows that volume of transport increases largely with economic growth. Therefore, it is obvious that distribution will be more and more important for sustained national economic growth.

In response to the increase in transport volume, physical distribution facilities have to be strengthened. To this end, various agencies and private sector are encouraged to invest in this field. Board of Investment (BOI) has given privilege for storage facilities since the 1960's. After that, the Promotion of Investment Act was applied not simply to strage but also to cold storage, silo and drying in 1977.

Goods transport depends heavily on trucks, comprising those in the private trucking companies and Express Transportation Organization (ETO).Each trucking company in Bangkok covers particular region with some special business connection, while trucking company in the rural area is connected with Bangkok. Cargo of trucking companies in Bangkok is mainly industrial products and consumer products, while local trucking companies mainly take care agricultural products. Therefore, their transportation sometimes fails to be single loading. Moreover, at present, collection, delivery and line-haul are undertaken by the same company. It means that one trucking company works as both an area trucking company and a line-haul trucking company.

To improve efficiency of goods distribution, Land Transport Department (LTD) has proposed a truck terminal system. Pick-up services are to be provided for small-lot cargoes by pick-up trucks from consignors to the departure terminals, where cargoes are loaded into large vehicles for the transport to distribution terminals. Through these process, the small-lot cargoes which are inefficient to transport are transported efficiently because trucks can carry more cargoes. Fig. 2.3 shows basic functions of the truck terminals.

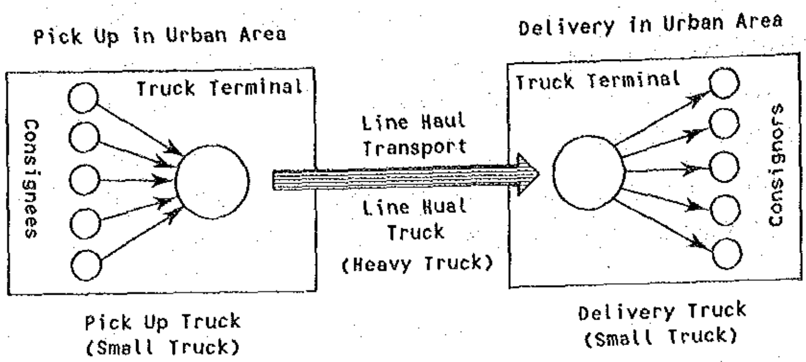


Fig. 2.3 Functions of Truck Terminals

LTD has proposed truck terminals to be developed in both Bangkok and regional cities such as Chiang Mai, Khon Kaen, Nakhon Ratchasima, Nakhon Sawan and Hat Yai/Songkhla.

To reduce damages to cargo, efforts have been made to develop distribution equipment such as packing, pallet, sheet pallet and container. These equipment are not only for lessening damage to cargoes but also for improving transport efficiency and creating more value added through beautification. Ministry of Industry promotes standardization of equipment, while Thai Institute for Science and Technological Research (TISTR) develops standard package for vegetables and fruits. With these public support, private companies of packaging have recently grown.

2.3 Trade Policy

The role of government in trade and goods distribution is to facilitate the fairness of trade and competition, and the stability of price and supply. For this, regulations, acts and governmental agencies have been established.

Regarding the competition, Thailand has traditionally maintained so call "free trade policy" under which government does not intervene in the market activities. It means that trading is carried out by tne private sector on the basis of competition. Anyone can therefore join the trading business.

Regarding the fairness of trade, Thailand has "Price Fixing and Anti-Monopoly Act" set in 1979. This act was established "in order to prevent unfair fixing or buying or selling price or condition and trading" (Section 23 of Act), and prevent monopoly or restrictive trade practices in any business (Section 31 of Act). This act also has a power to control price of commodity when the committee issues a notification.

To achieve stable supply and price, Thailand has Public Warehouse Organization (PWO) under Ministry of Commerce. The PWO is established in 1955 to supply farmers the basic commodities which are imported by the government. At the same time, the PWO has been authorized by the government to intervene in the market by buying and selling commodities. For this purpose, the PWO has storage facilities in several regions and rents some of them out for private storage.

In the past, the trade of sugar, matches, cooking gas, steel bar, rice, paddy, maize, red onion, soybean, garlic and other basic consumer goods were intervened by the PWO to control demand and supply.

2.4 Consumption

Peoples life style is changing gradually in accordance with modernization of society. Under a favorable rapid economic growth, Thailand has experienced a drastic change of life style in both urban and rural areas. Three remarkable changes take place in relation with distribution and marketing sector.

2.4.1 Food Habit

According to the "Availability of Dietary Calories" of Food and Agricultural Organization (FAO) in Table 2.5, main source of calories is still rice, though its relative portion is decreasing. Fruits, vegetables, sugar and honey are growing instead. Variety of food has been increasing in Thailand. This tendency is considered to continue in the future, with a possible consequence that variety of agricultural products will also increase.

Table 2.5 Availability of Dietary Calories

	1964-66	(%)	1974-76)	(%)	1983-85	(%)
Rice	1593	0.730	1575	0.701	1451	0.624
Wheat	10	0.005	17	0.008	24	0.010
Root & Tubers	48	0.022	59	0.026	63	0.027
Pulses & Beans	21	0.010	12	0.005	20	0.009
Nuts & Oilseeds	109	0.050	68	0.030	107	0.046
Fruit & Vegetables	94	0.043	113	0.050	149	0.064
Sugar & Honey	112	0.051	206	0.092	210	0.090
Fats & Oils	40	0.018	45	0.020	60	0.026
Alcoholic Beverages	10	0.005	12	0.005	70	0.030
Meat & Offals	75	0.034	67	0.030	93	0.040
Milk & Milk Products	18	0.008	7	0.003	12	0.005
Eggs	13	0.006	14	0.006	19	0.008
Fish & Sea Foods	29	0.013	40	0.018	36	0.015
Others	9	0.004	12	0.005	13	0.006
Total	2181		2247		2327	

Source : FAO

2.4.2 Life Style in the Rural Area

Table 2.6 shows household expenditure by region. In the BMR, the food and beverage expenditures account for 36% of total expenditure, while in other regions they represent a little higher percentage. The apparel and footware expenditures have relatively been decreasing in all regions. In all regions, expense for housing have been expanding recently. On top of this trend, the expenses for furniture and electric appliances are increasing in the rural areas. In the BMR, however, these expenses are not increasing though expense for housing is increasing. It means that consumption of the furniture and electric appliances which are fundamental goods for urban life has increasingly been common in the rural life. This trend is considered as one phenomenon of urbanization. Manufactured consumers products as support urban life style will be more demanded in the rural areas.

2.4.3 Changes in Shopping Style

At one time, a consumer chooses only one or two commodities from among a variety of commodities and seeks higher value added commodity to realize higher quality of life. This requirement gives rise to the changes in shopping behavior. In Bangkok, there is keen competition between super markets, department stores and traditional markets. Newly opened supermarkets and department stores have been getting larger share in commerce. Location of those are expanding from central areas to suburban residential areas at present.

Moreover, the consumers prefer better looking commodity, which is also one of the value added factors. Under this preference, packaging industry has grown very rapidly in the 1980s for not only export but also domestic market.

It is variety and quality that distribution and marketing system, particularly of the retail level, should be able to offer for any commodity.

Table 2.6 Household Expenditure by Region

(1) Expenditure in 1981 and 1986

	BANGKOK		CENTRAL		NORTHEASTERN		NORTHERN		SOUTHERN		WHOLE KINGDOM	
	1981	1986	1981	1986	1981	1986	1981	1986	1981	1986	1981	1986
TOTAL EXPENDITURES	68844	79044	45540	50244	30660	34248	33384	38904	40116	46812	40488	48396
FOOD $ BEVERAGES	28476	28752	19380	19572	14472	14076	14832	15096	18096	18228	17844	17664
APPAREL $ FOOTWEAR	4080	3600	2928	2592	2532	2472	2652	2664	3504	3444	2964	2808
HOUSING	15924	19740	9912	12024	5820	7752	6912	9288	7044	9648	8364	10608

(2) Percentage to Total Expenditure

	BANGKOK		CENTRAL		NORTHEASTERN		NORTHERN		SOUTHERN		WHOLE KINGDOM	
	1981	1986	1981	1986	1981	1986	1981	1986	1981	1986	1981	1986
TOTAL EXPENDITURES	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
FOOD $ BEVERAGES	0.414	0.364	0.426	0.390	0.472	0.411	0.444	0.388	0.451	0.389	0.441	0.365
APPAREL $ FOOTWEAR	0.059	0.046	0.064	0.052	0.083	0.072	0.079	0.068	0.087	0.074	0.073	0.058
HOUSING	0.231	0.250	0.218	0.239	0.190	0.226	0.207	0.239	0.176	0.206	0.207	0.219

(3) Locational Quotient

	BANGKOK		CENTRAL		NORTHEASTERN		NORTHERN		SOUTHERN		WHOLE KINGDOM	
	86/81	RATIO	86/81	RATIO	86/81	RATIO	86/81	RATIO	86/81	RATIO	86/81	RATIO
TOTAL EXPENDITURES	1.148		1.103		1.117		1.165		1.167		1.195	
FOOD $ BEVERAGES	1.010	0.879	1.010	0.915	0.973	0.871	1.018	0.873	1.007	0.863	0.990	0.828
APPAREL $ FOOTWEAR	0.882	0.768	0.885	0.802	0.976	0.874	1.005	0.862	0.983	0.842	0.947	0.793
HOUSING	1.240	1.080	1.213	1.100	1.332	1.192	1.344	1.153	1.370	1.174	1.268	1.061

Source : Household Survey, NSO

3. IMPLICATIONS OF FARMERS ECONOMIC CONDITIONS

3.1 Price of Agricultural Products

3.1.1 Price Fluctuation

Price fluctuation of agricultural products can be divided into two; one is annual fluctuation and the other is seasonal fluctuation. Fig. 3.1 slows the annual price fluctuation of major crops such as rice, maize, sorghum, cassava and sugarcane. Price of those products fluctuates in accordance with international prices. The international prices of agricultural products move depending on various external elements. Therefore, there has hardly been successful effort to stabilize prices of agricultural products. Under this condition, farmers can not make a production plan without sure prospect of their income from farming.

Seasonal price fluctuation is observed in Fig.3.2 and Fig.3.3. The seasonal price fluctuation is caused mainly by difference between supply and demand. It is simple in that price of agricultural products is low at the peak season of product harvest and prices go up at the off-peak season, hence, it can be minimized with an appropriate manipulation of the agricultural products supply to market.

Price fluctuation of agricultural products causes marketing risk on the part of distributors. To manage the marketing risk, distributors traditionally take huge profits from trading.

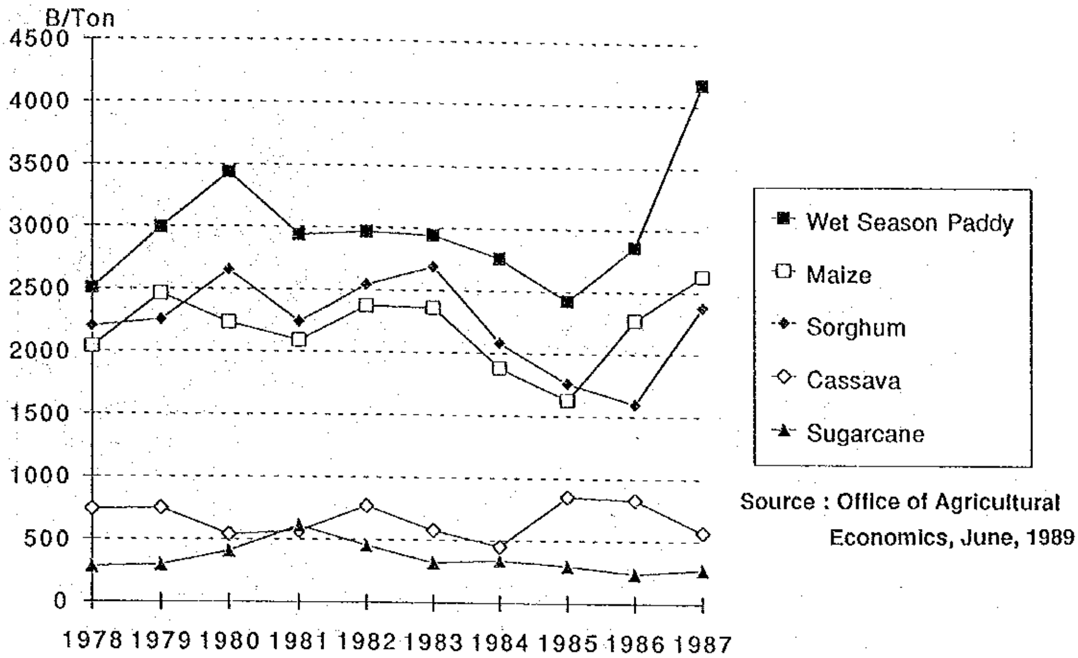


Fig. 3.1 Annual Price Fluctuation of Selected Crops

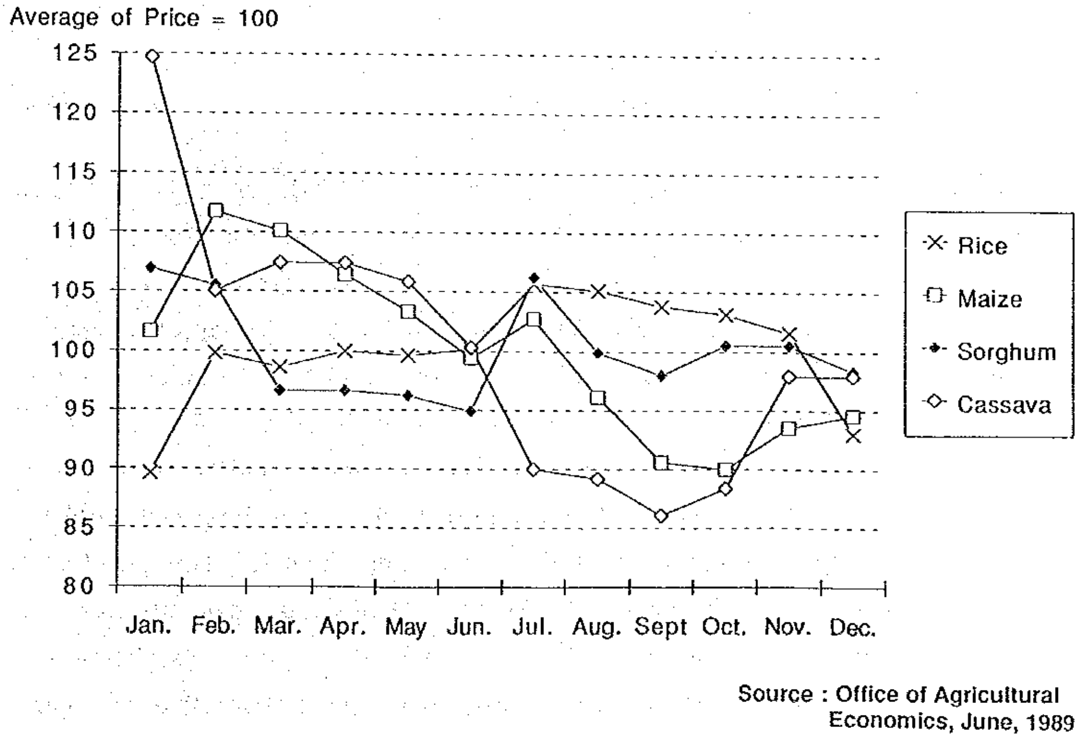
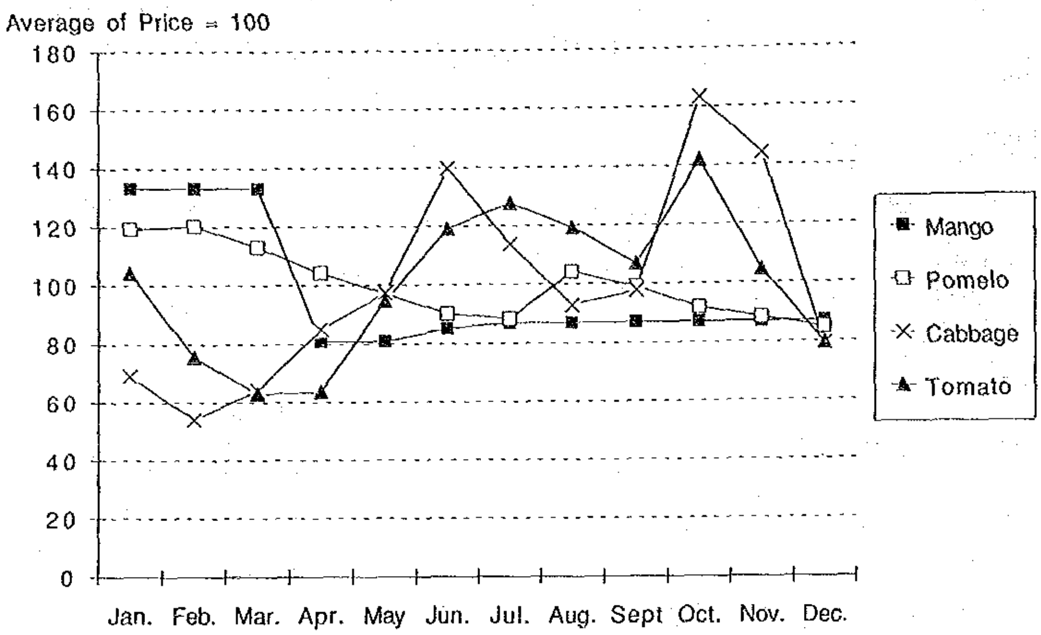


Fig. 3.2 Seasonal Price Fluctuation of Selected Crops

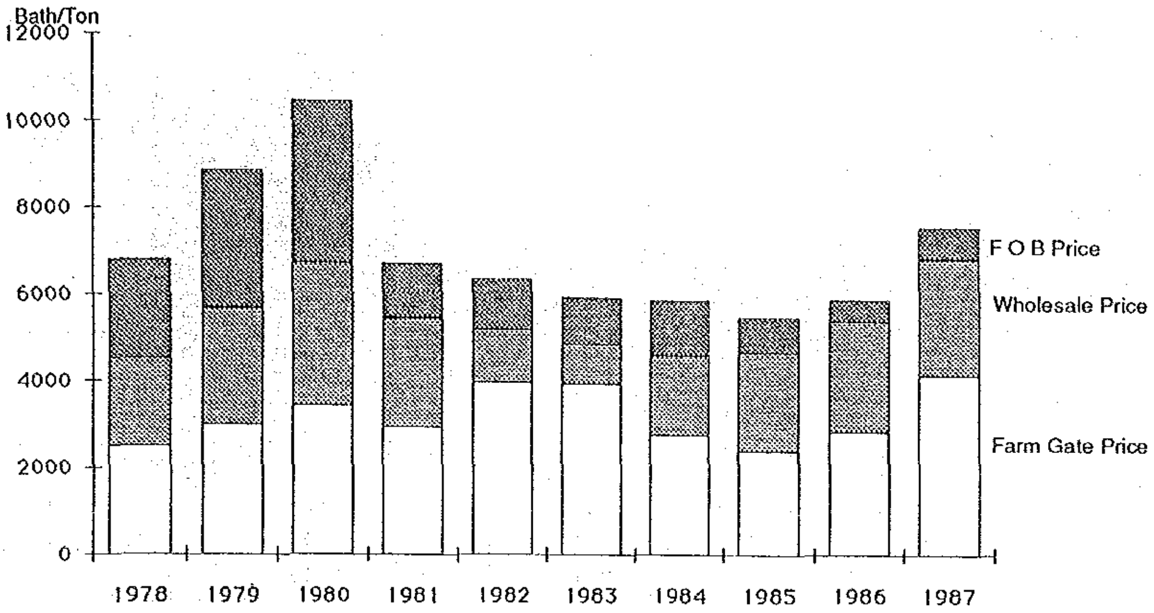


Source : Office of Agricultural Economics, June, 1989

Fig. 3.3 Seasonal Price Fluctuation of Vegetables and Fruits

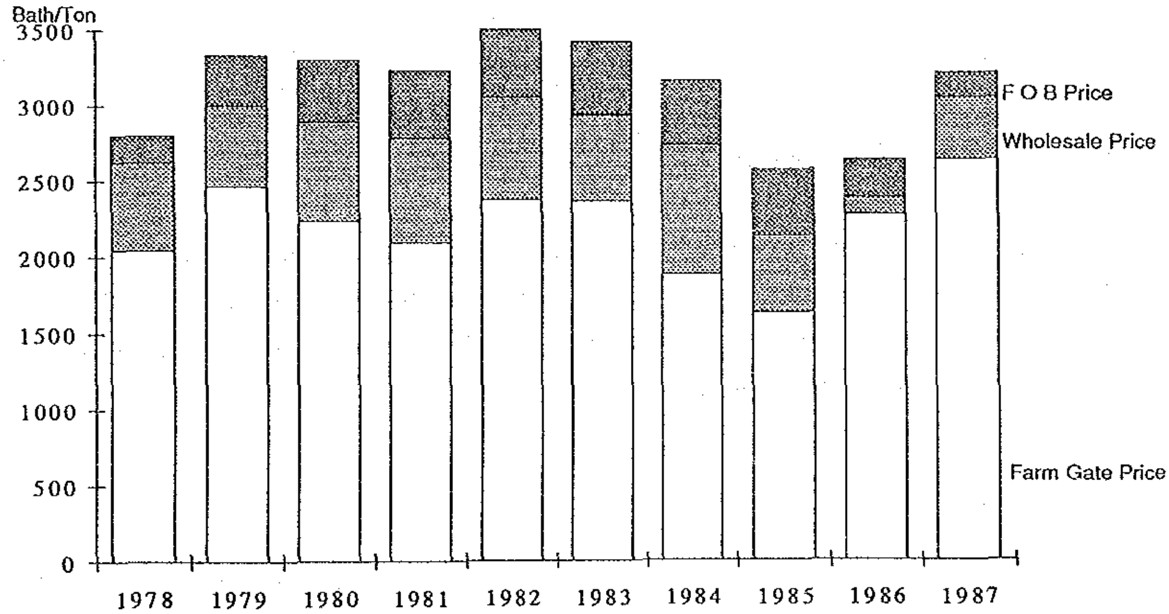
3.1.2 Price Increase at Various Stages of Trade

Difference among farm gate price, wholesale price and FOB price shows a step-wise process of adding value to agricultural products, distribution cost and margin. For example, farm gate price of rice in 1987 is approximately 4.2 thousand baht per ton, whereas wholesale and FOB prices are approximately 6.7 thousand baht and 7.6 thousand baht. This shows that the wholesale price is 1.6 times higher than the farm gate price and the FOB price is 1.1 times higher than the wholesale price. Maize and tapioca show similar trend; wholesale price being 1.16 times and 3.84 times higher than farm gate price, and FOB prices being 1.06 times and 1.57 times further higher. This trend also suggests that there are more merchants in the distribution channels from farm gate to wholesale than in those after the wholesale. Price escalation is even greater in the distribution process of rice and tapioca than that of maize because processing is involved in the distribution. Distribution of some agricultural products thus increase value of commodities by not only trading but also processing.



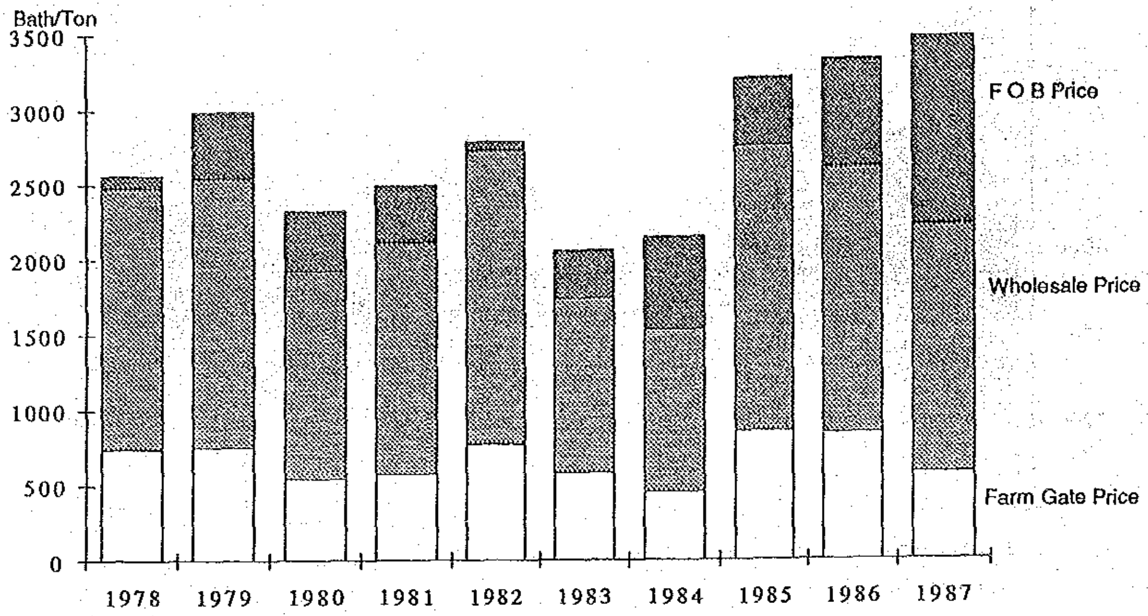
Source : Office of Agricultural Economics, June 1989

Fig. 3.4 Price Difference of Rice



Source : Office of Agricultural Economics, June 1989

Fig. 3.5 Price Difference of Maize



Source Office of Agricultural Economics, June, 1989

Fig. 3.6 Price Difference of Tapioca Pellet

3.2 Farm to Market Shipping

After harvesting, farmers immediately sell their products mainly to middlemen, because they get the advance payment for initial cost from the middlemen. This is a major factor to the fact that farmers can not maximize profit from trading their products.

Table 3.1 shows where farmers sell their products in the UCR. Approximately 60% of the farmers sell products in their farm. Particularly, 82% of rice are sold in the farm. On the other hand, vegetables and fruits are more often sold at local markets and Amphoe markets. It seems that traditional major crops such as rice and maize tend to be sold at the farm because traditionally organized distribution channels function well for these crops.

Reasons for selling are shown in the Table 3.2. The main reason for selling at the farm is to save transport cost. This reason accounts for 77% of the reasons for selling at the farm. Reasons for selling at the local markets and Amphoe markets are to save transport cost and to get services available there. When miller and processor are preferred, the reason for this is the availability of contractual prices, particularly those set under contract farming.

When farmers sell their products, prices of the products are determined mainly by buyers. Buyers have large power, which is ensured mainly by the adequate knowledge, skills and information for marketing as well as the capability to bear market risks. However, there are some cases of price determination on the basis of mutual contract as shown in the Table 3.3.

Table 3.1 Place of Product Sold

	Farm	(%)	Local Market	(%)	Amphoe Market	(%)	Miller,Processor	(%)	Others	(%)	Total
Rice	50	0.82			1	0.02	10	0.16			61
Maize	12	0.80			2	0.13			1	0.07	15
Cotton	3	0.75			1	0.25					4
Vegetable	8	0.42			11	0.58					19
Fruits	2	0.22	6	0.67	1	0.11					9
Sorghum	11	0.85	2	0.15							13
Cattle	4	0.80							1	0.20	5
Hog	11	0.92			1	0.08					12
Others	20	0.87			3	0.13					23
Sugarcane							23	1.00			23
Milk									19	1.00	19
Total	121	0.60	8	0.04	20	0.10	33	0.16	21	0.10	203

SouRce: Study Team Survey

Table 3.2 Reason for Selling

	Farm	(%)	Local Market	(%)	Amphoe Market	(%)	Miller,Processor	(%)	others	(%)	Total	(%)
Save Transport Cost	81	0.77	2	0.25	10	0.50	3	0.09	1	0.05	97	0.52
Contractual Price	5	0.05	1	0.13	2	0.10	24	0.71	14	0.67	46	0.24
Provide Service	5	0.05	4	0.50	5	0.25	6	0.18	1	0.05	21	0.11
Better Price	11	0.10									11	0.06
Better Information	1	0.01	1	0.13	1	0.05	1	0.03	5	0.24	9	0.05
Others	2	0.02			2	0.10					4	0.02
Total	105	1.00	8	1.00	20	1.00	34	1.00	21	1.00	188	1.00

Source: Syudy Team Survy

Table 3.3 Price Determinant of Agricultural Products

	Seller	Buyer	Contract	Both S & B	Total
Rice	60	6	2	4	72
Maize		19	1		20
Soybean,Mungbean		12			12
Cotton		4			4
Sugarcane			24		24
Sorghum		14	1		15
Vegetable		8			8
Fruits	9	13			22
Milk		19			19
Cattle	5	4			9
Hog	8	2	6	2	18
Others	4	1	2	1	8
Total	69	76	28	4	177

Source: Study Team Survey

3.3 Rural Credit

As mentioned in Agricultural Development of SECTOR REPORT Vol.4 of UCR Study Report, average net farm income of the UCR is 12,092 baht, non-farm income is 18,379 baht, with a total income of 30,471 baht in 1986/87. On the other hand, household expenditure is 29,313 baht, of which cash saving is only 1,158 baht. This amount is approximately one-third of the national average. These figures suggest that cash saving of farmers is not enough to finance the initial investment for next year cultivation. Farmers, therefore, need loans.

According to our survey, 26% of the farmers borrow money from informal money lenders such as relatives, neighborers and local merchants. 72% of the farmers borrow money from formal lending institutions such as Bank of Agriculture and Agricultural Cooperatives (BAAC), commercial banks and cooperatives. Interest rate is very much different between informal money lenders and formal lending institutions, offering 28-36% per year and 12-15% per year, respectively. However, reflecting the government policy to increase rural credit provision by imposing on the commercial banks a minimum of 15% of their total lending to be extended to the agricultural sector as well as by strengthening BAAC, the informal money lending has been decreasing at present.

There are three main purposes of borrowing money. 78% of the farmers borrow money for farming purposes, 15% for household expenditure, 1% for clearing debt and 6% for other purposes. For farming purposes, small farmers aim at buying small agricultural inputs such as seeds and fertilizers, medium farms aim at buying agricultural inputs and machine, and large farmers aim at buying machine and land. Table 3.4 shows detailed conditions of loans in the UCR.

Because modernized agricultural method, which use machines, fertilizers, insecticides and pesticides, has spread over the rural areas, cost for agricultural inputs including machine has been increasing. Thus, reducing the cost for agricultural inputs and providing low interest loan is essential for increasing the farmers income.

3.4 Market Information

Price information is collected daily at several markets by Ministry of Commerce through its surveyers, then, Ministry of Commerce disseminates the price information by radio, TV, newspaper and official letter for provincial commercial offices. Another channel to disseminates the price information is market itself or, more specifically, regional assemblers and rice millers in the market. The latter is more popular, easier and faster than the former to obtain the price information. Middlemen negotiate prices of agricultural products based on their own price information sources.

Table 3.5 shows source of market information. About 30% of the farmers get information from radio, TV or newspaper are. Other sources of market information are agriculture extension officers, merchants, village headmen and neighborers. However, 15% of the farmers do not use these market information. Moreover, 53% of the farmers believe that these market information are not reliable. Under the practice of cross trading prevailing in markets, it is very difficult to collect accurate price information.

3.5 Contract Farming

The idea of contract farming is not new, but it has been practiced in its traditional form for a long time. The farmers cultivate certain crop under contract with a processor. However, contract farming has recently been modified into a new system, in which processors provide a package of seeds, fertilizer, technologies and initial investment and farmers produce in accordance with the specifications determined in contract. This contract farming is increasingly adopted in the production and marketing of chicken, shrimp, sugarcane and vegetables. Fig. 3.7a shows conceptual framework of contract farming.

Table 3.4 Conditions of Farmers Loan

	No.	Ave. Amount	Ave. of Credit Duration	Ave. of Interest	Purpose of Credit				Collateral		
					Ferming	household	Clear Debt	Others	Land Title	Gold	Guarantors
Relatives	11	30,800	No Limited	34.60%	6	3	1	0	3	1	
Neigbhor	11	24,500	1.3 years	31%	6	4	0	1	3		2
Local Merchant	3	35,000	1 year	28.30%	1	1	0	1	3		
Money Lender	4	28,750	1 year	36%	3	1	0	0	1		
BAAC	36	31,800	2.3 years	12.70%	35	0	0	2	19		18
Cooperative	12	18,500	1.5 year	15.20%	0	0	0	0			
Commercial Bank	33	53,000	2.7 year	14.20%	26	5	0	2	32		1
Others	2	6,200	1 year	12%	1	1	0	0			2
Total					78	15	1	6	61	1	23

Sorce: Suudy Team Survey

Table 3.5 Market Information

	Ayutthaya	Lop Buri	Sara Buri	Sing Buri	Chai Nat	Ang Thong	Total	Percent
Radio, TV	24	16	20	24	21	23	128	22.7
Newspaper	4	8	5	13	5	15	50	8.7
Ag. extension Officer	16	21	17	22	17	21	114	20.2
Merchant	4	11	1	2	0	0	18	3.2
Teacher	7	2	1	3	3	7	23	4.1
Village Headman	17	20	15	21	20	14	107	18.9
Neighbor	19	20	13	19	20	15	106	18.8
Other	1	5	5	1	5	2	19	3.4
Total	92	103	77	105	91	97	565	100.0
	16.3	18.2	13.6	18.6	16.1	17.2	100.0	

Source : Team Survey

Table 3.6 Use of Market Information

	Ayutthaya	Lop Buri	Sara Buri	Sing Buri	Chai nat	Ang Thong	Total
Use	22	17	20	22	23	23	127
	17.3%	13.4%	15.7%	17.3%	18.1%	18.1%	100.0%
No Use	2	7	5	3	2	2	21
	9.5%	33.3%	23.8%	14.3%	9.5%	9.5%	100.0%
Total	24	24	25	25	25	25	148

Source:Study Team Servey

Table 3.7 Reliability of Market Information

	Ayutthaya	Lop Buri	Sara Buri	Sing Buri	Chai nal	Ang Thong	Total
Reliable	13	8	10	11	8	9	59
	22.0%	13.6%	16.9%	18.6%	13.6%	15.3%	100.0%
Sometimes Reliable	6	9	10	10	14	14	63
	9.5%	14.3%	15.9%	15.9%	22.2%	22.2%	100.0%
Unreliable	3	0	0	1	1	0	5
	60.0%	0.0%	0.0%	20.0%	20.0%	0.0%	100.0%
Total	22	17	20	22	23	23	127

Source:Study Team Servey

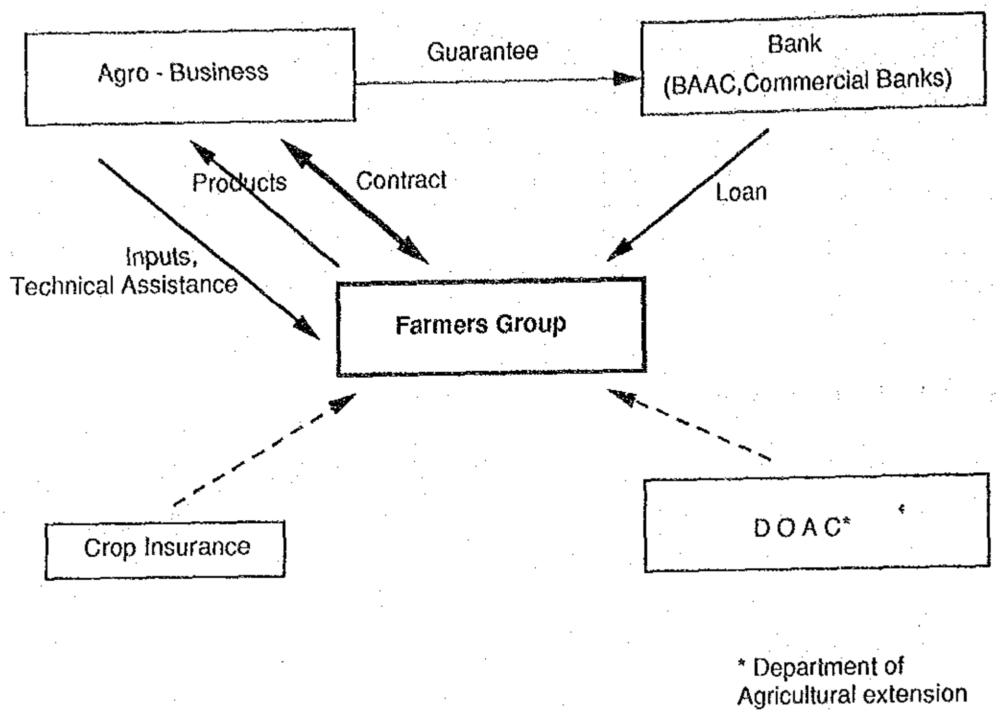


Fig. 3.7 Conceptual System of Contract Farming

According to the Social Development in Rural Economic Survey in the UCR conducted by our team, reliable market and increased income are one of the main advantages of the contract farming, while delay in payment is a problem.

In the contract farming, seeds, equipment, fertilizer, insecticides, training in production technique, extension service, loan and advanced cash, are provided by an agro-business, and their prices are determined by the agro-business.

Background of contract farming expansion has to be considered in two aspects; price and market demand.

As mentioned in the Section 3.1, price of agricultural products fluctuates annually and seasonaly. This price fluctuation has brought about a large amount of profits for distributors and processors, while substantial market risks have been born by them. Along with modernization of society and economy, the distributors and processors need modernized management of their firms in order to minimize risk and systematically plan business schedule. The firms need scheduled supply and standardized quality of materials to secure their business in markets. The contract farming responds to this requirement through provision of inputs and organizing of farmers.

Another reason is to respond to various market needs. In an advanced society, consumers preference is various and sharp. High and stable quality is particularly required. Production sector has not responded to these requirements of the consumption sector under the traditional distribution and marketing system. The contract farming is realizing direct connections between market needs and production mainly under the management of large agro-business firms.

It can be concluded that expansion of the contract farming system responds to a new movement of market needs in place of the traditional distribution and marketing system.

PART II of this report concentrates on the assessment of present situation and potential of the contract farming in the context of UCR development.

3.6 Farmers Groups

Farmers have been organized into various kinds of group for various purposes. Thai agricultural cooperative is created originally for mutual credit assistance, while registered farmers group is created originally to improve agricultural extension. In addition, there are BAAC's farmers group, land reform group, water users' association and certain crop producers' group. Table 3.8 shows various groups existing in the UCR. Among these groups, agricultural cooperative and registered farmers group are dominant.

Table 3.9 and 3.10 show degrees of farmers participation in agricultural cooperatives and registered farmers groups. The UCR has 100 agricultural cooperatives with 79,637 members, which represent 32.8% of the farmers in the UCR in 1987/88. There is a federation of cooperatives in each changwat. The share of farmers participating in the cooperatives is much higher in the UCR than the national average which is 17.9%. Average number of members is 796. There are 292 registered farmers groups with 30,389 members, which represent 12.5% of the farmers in the UCR. In the UCR, 45.3% of the farmers participate either in the agricultural cooperatives or in the registered farmers groups.

Activities of both institutions are practically the same, namely, provision of loans to members. In addition, the BAAC's farmers groups also provide loans to their members.

As a result, three different institutes play almost the same activity, even though their origin is different.

However, some of agricultural cooperatives try to diversify their works in selling, marketing and farm guidance, which are the most important tasks of agricultural cooperative. For example, Phatthana Nikhom Agricultural Cooperative has bought maize, sorghum and cassava, and sold them to middlemen and processors after simple processing. Moreover, seed, fertilizer and insecticide are sold to the members. If the Agricultural Cooperative get profits from the activities including credit provision, returns are distributed to the members. In 1989, each member got 280 baht as return.

Manorom Agricultural Cooperative is also an outstanding one. This agricultural cooperative buys rice of 3,300 ton per year from farmers and sell it to Changwat Federation, using its own 5 storages. This cooperative has been able to convince its member farmers to save their money in the cooperative with a result of 81 million baht saving, which now finances 80% of cooperative loan. Thus, this cooperative can provide loan at a low interest rate, and offer reduction of interest rate for the members as a incentive for more intensive cultivation and more participation in the agricultural cooperative's activities, if the cooperative gets profits from its activities including credit and marketing.

These two agricultural cooperative have 1,800 members and 3,942 members respectively. These cases suggest that developing those activities of agricultural cooperative will automatically promote farmers participation in cooperative and offer large benefit for the farmers rather than lending money only.

Table 3.8 Participation of Various Groups

	Ayutthaya	Lop Buri	Sara Buri	Sing Buri	Chai nat	Ang Thong	Total
Agri. Cooperatives	7	4	4	1	11	8	35
	22.6%	21.1%	13.8%	2.1%	37.9%	27.6%	19.0%
BAAC	13	12	6	12	3	13	59
	41.9%	63.2%	20.7%	25.5%	10.3%	44.8%	32.1%
Land Reform Group	1	0	0	6	5	0	17
	3.2%	0.0%	0.0%	12.8%	17.2%	0.0%	9.2%
Saving Group	5	2	1	4	5	1	18
	16.1%	10.5%	3.4%	8.5%	17.2%	3.4%	9.8%
Upland Crop Group	1	0	0	14	1	0	16
	3.2%	0.0%	0.0%	29.8%	3.4%	0.0%	8.7%
Orchard Group	0	0	1	0	0	2	3
	0.0%	0.0%	3.4%	0.0%	0.0%	6.9%	1.6%
Livestck Group	0	0	2	1	0	0	3
	0.0%	0.0%	6.9%	2.1%	0.0%	0.0%	1.6%
Other	4	1	15	9	4	5	38
	12.9%	5.3%	51.7%	19.1%	13.8%	17.2%	20.7%
Total	31	19	29	47	29	29	184

Percentage shows propotion to total number of participation to several group by Changwat.
Source: Study Team Survey

Table 3.9 Participation for Agricultural Cooperatives

	No.of Cooperatives	No. of Coop. in Federation	No.of Members	No.of Farms	Participation Rate	No. of Member per Coop.
Cai Nat	12	8	14,961	41,867	0.36	1,247
Sing Buri	10	6	9,198	22,647	0.41	920
Ang thong	9	8	8,901	24,422	0.36	989
Ayutthaya	25	19	16,986	41,146	0.41	679
Lop Buri	21	17	17,801	72,026	0.25	848
Sara Buri	23	17	11,790	40,346	0.29	513
UCR	100	75	79,637	242,454	0.33	796
Whole Kingdom	1,157	966	883,694	4,940,616	0.18	764

Souce: Agricultural Statistics of Thailand 1987/88

Table 3.10 Participation of Registered Farmers Groups

	No.of R.F.G*	No. of Members	Participation Rate	No. of Members per R.F.G*
Cai Nat	44	5,608	0.13	127
Sing Buri	9	1,318	0.06	146
Ang thong	47	3,684	0.15	78
Ayutthaya	93	8,796	0.21	95
Lop Buri	33	4,710	0.07	143
Sara Buri	66	6,272	0.16	95
UCR	292	30,388	0.13	104
Whole Kingdom	3,886	500,901	0.10	129

*: Registerd Fermers Group
Souce: Agricultural Statistics of Thailand 1987/88

4. DISTRIBUTION CHANNELS

4.1 Nation-wide Distribution Network

4.1.1 Physical Distribution Pattern

Goods distribution throughout Thailand is very much dependent on truck transportation, while railways and water transportation have less importance in terms of cargo volume except specific goods such as agricultural products and petroleum products. Almost 90% of goods are distributed by trucks.

Other characteristics of goods distribution is dominance of the BMR based on its economic activities and population. The BMR is the place of origin of industrial products and consumer goods, and also the place of destination of agricultural products and low materials as shown in Fig.4.1 and 4.2. Each region supplies different products to the BMR in accordance with regional characteristics by resources and economic activities. Northern region supplies rice, maize and mineral resources; northeastern region supplies mainly rice, maize and tapioca; western region supplies sugar, soil, gravel and sand; eastern region supplies maize, fish, fertilizer and petroleum products; and southern region supplies rubber products and forest products. The UCR supplies rice, cement, soil, gravel and sand. However, the goods from the BMR to the other regions show almost the same pattern. Petroleum products, fertilizers and other manufactures products are the main products distributed from the BMR.

These facts suggest that all regions are the hinterland of the BMR. They supply raw materials to the BMR and buy processed products from the BMR. The UCR is not only the supply center of agricultural product, cement, soil, gravel and sand but also the place where all of products from the northern region and the northeastern region pass through.

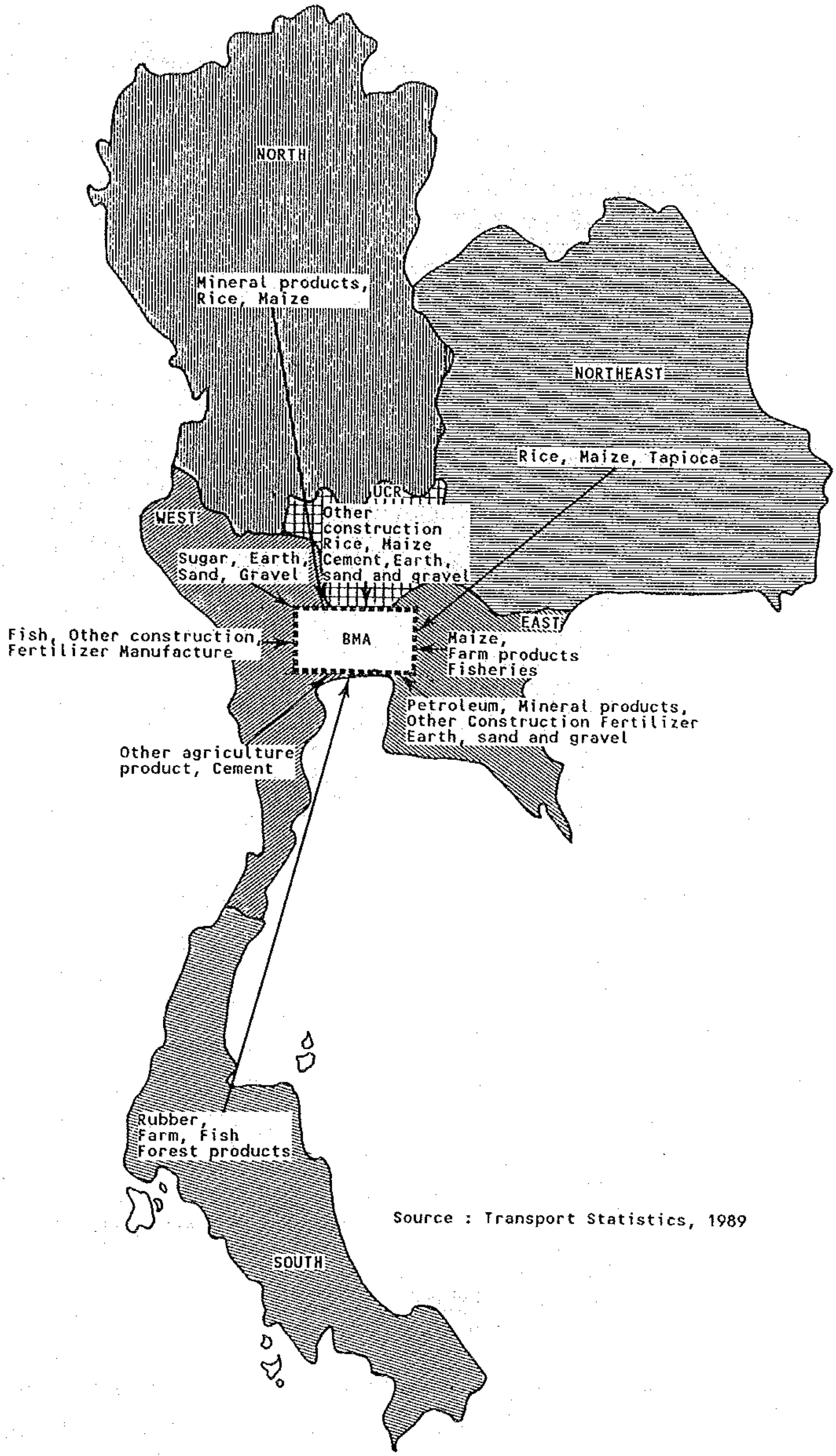


Fig. 4.1 Physical Distribution Pattern to Bangkok

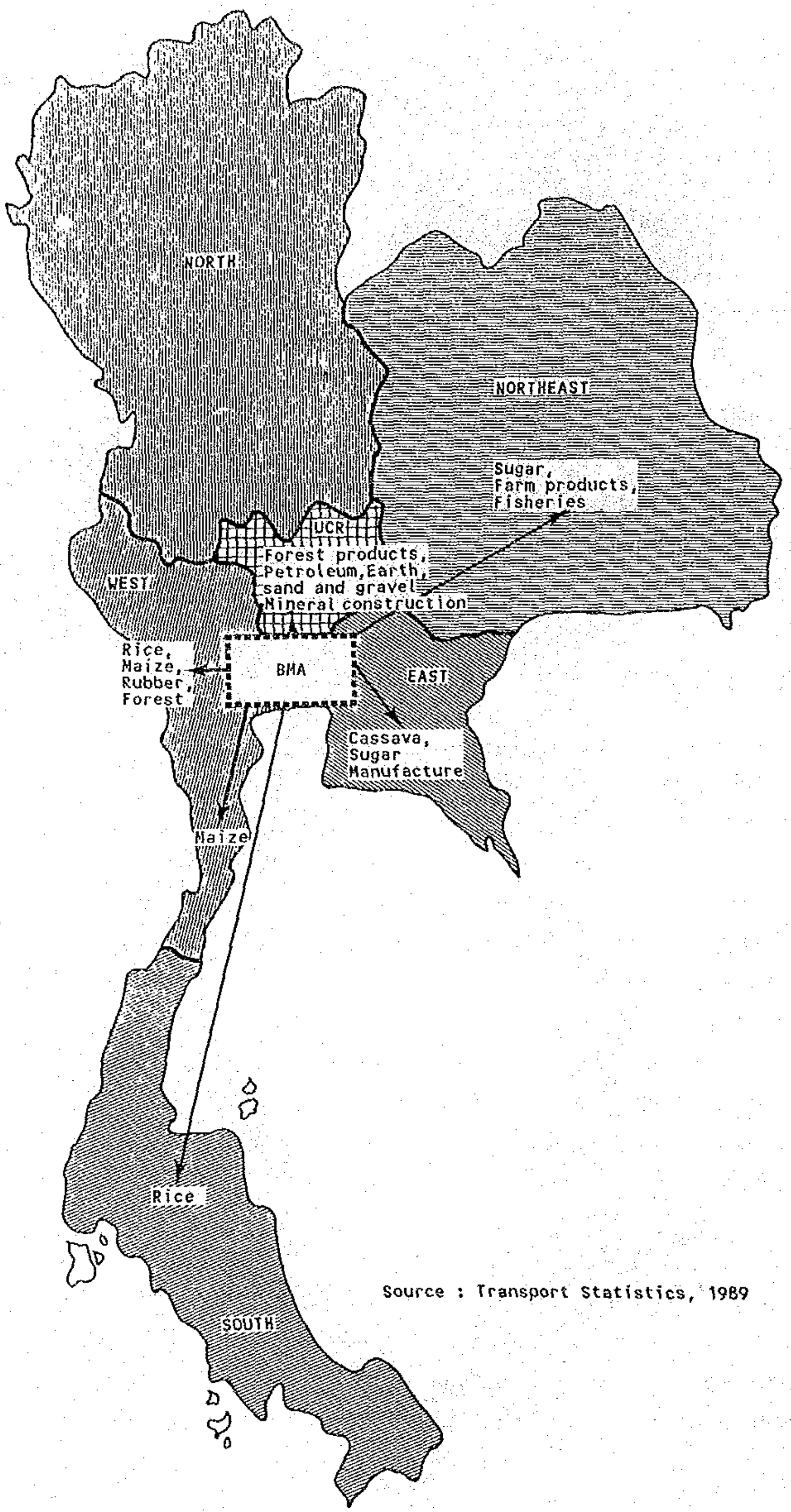


Fig. 4.2 Physical Distribution Pattern from Bangkok

4.1.2 Distribution Channels of Agricultural Products

Distribution channels of agricultural products are categorized roughly into 4 types; agricultural products not passing through local markets, agricultural products passing through local markets, agricultural products through auction and agricultural products through contract farming. Different products involve different ways of trading, relevant persons and commercial customs if observed in detail, but these four patterns are useful to overview the distribution channels as a whole.

1) Agricultural products not passing through the local markets

The products through this channel consist of export-oriented agricultural products like maize, tapioca and rice. The products produced by farmers are transported through the middlemen at various stages between farm gate and processing factories.

Processing factories are usually located near the production area because those products are too heavy to carry on long distance. Those products have very small value-added. After processing, they are transported mainly by truck to warehouses at Ayutthaya, Bangkok and Chon Buri to wait for shipping. From warehouse, they are loaded mainly by large barge to Ko Si Chang and reloaded to ship at offshore of Ko Si Chang, because Chao Phraya River has shallow parts, namely Bangkok Bar.

However, materials for animal feed such as maize and tapioca are recently used increasingly for domestic consumption in response to the expansion of livestock production. Competition between exporter and domestic dealer are taking place. Fig.4.3 shows a broad picture of the distribution channels of agricultural products not passing through the local markets.

2) Agricultural products passing through the local markets

The products through this channel consist of perishable agricultural products such as vegetable and fruits, though fish, meat and chicken do not go through this channel. Perishable agricultural products have basically been distributed within small area for local consumption. However, the area of distribution service has gradually been expanding in response to urbanization and clearer division of works between agricultural and non-agricultural sectors. Those products are mainly for domestic consumption, while quite small portion is exported at present. The perishable agricultural products collected by middlemen are directly transported to several markets. The middlemen undertake transaction with wholesaler or retailer in market. In the UCR, Sara Buri, Ang Thong and Sing Buri are the primary places of wholesaling. This transaction is usually done in the mid-night. After that, retailing starts in early morning. Fig.4.4 shows the distribution channels of agricultural products passing through the local markets.

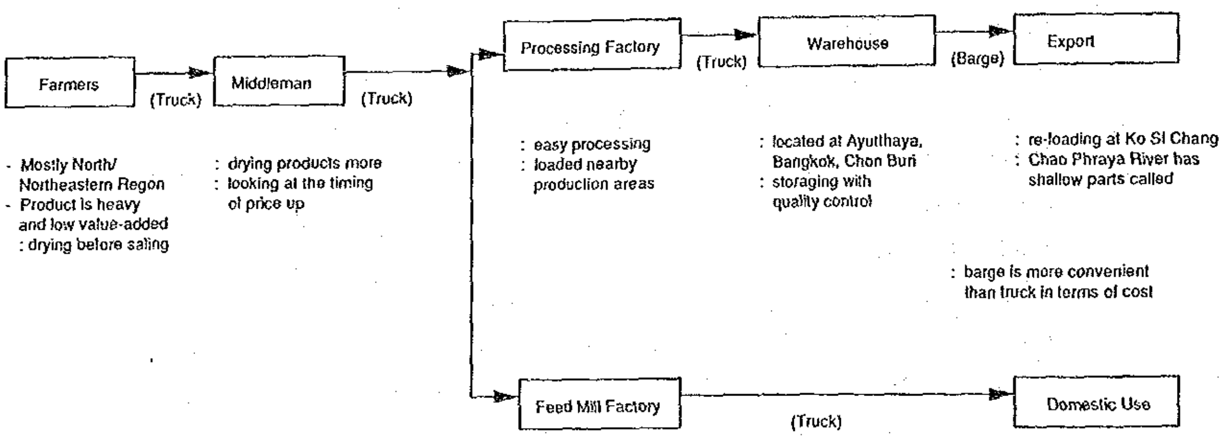


Fig. 4.3 Distribution Pattern Image of Export Oriented Agriculture Products

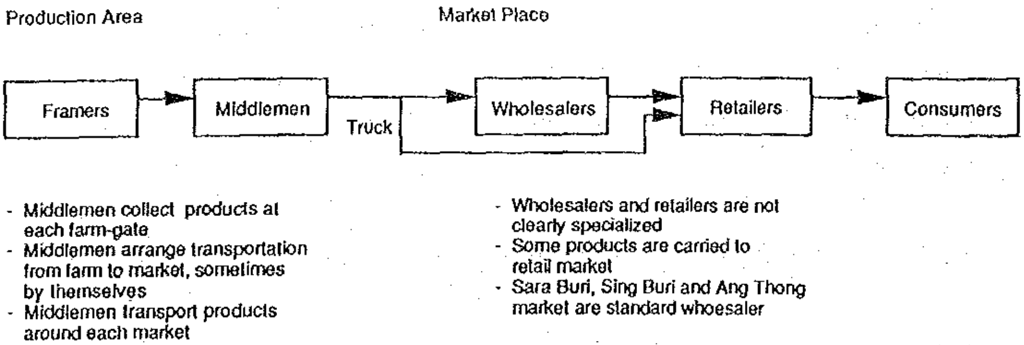


Fig. 4.4 Distribution Channels of Perishable Agricultural Products : An Overview

3) Agricultural products through auction

In Thailand, cross trading is the most prevailing method of transaction, but, a few cases of auction exist, for example, in fish market and cattle market. Therefore, distribution pattern of fish is different from other commodities in term of method of transaction. Because fish is much more perishable than vegetables and fruits, fish market is required to deal transaction rapidly.

Marine fish except those for local consumption are transported to Bangkok market. Bangkok Fish Market under Fish Marketing Organization of Thailand (FMO) is a central wholesale market for fish. This market is well organized and has high transaction skills. It applies auctions between buyers and sellers under the supervision of FMO. Most of the fish to be sold in the northern region, northeastern region and the UCR are transported from this market by truck with ice or by cold truck.

Fresh water fish are used mainly for local consumption, while only some kinds of them like catfish are distributed to Bangkok.

Meanwhile, cattle market has different reason for auction. In the cattle market, each cattle has very much different price at high levels, so that examinations have to be done very carefully in transaction.

4) Agricultural products through contract farming

Contract farming has been very popular in the trade of chicken and sugarcane, and is expanding to the trade of other agricultural products. Contract farming has been able to keep stable supply of raw materials for factories. Section 3.5 has more detailed discussion on it.

4.1.3 Industrial Products and Consumer Goods

Industrial and consumer products are mostly produced in the BMR and imported through Klong Toey Port. Therefore, those products are distributed form the BMR to the local areas. Distribution pattern of those products are divided roughly into 3 groups; bulk products like oil, large scale products and "national brand" products, and small products.

1) Bulk products

Bulk products are kept in the depot of processing factories in the BMR. From the depot, bulk products are distributed by heavy truck to the depots in regional centers under regional wholesaler of regional agent. After that, bulk products are distributed to reach retailers either through provincial wholesaler or directly. Fig.4.5 shows the distribution channel of bulk products.

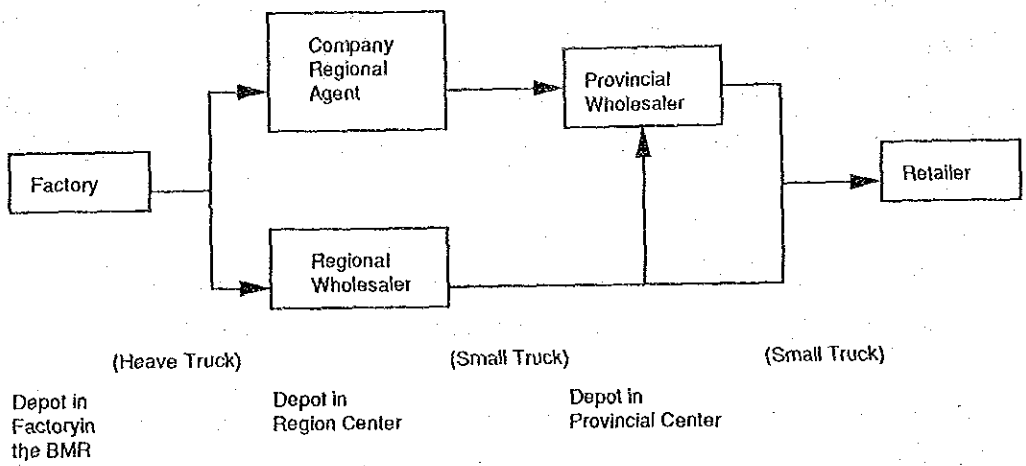


Fig. 4.5 Distribution Pattern of Bulk Products

2) Large scale products and "national brand" products

Large scale products and "national brand" products are also produced in the factories mostly located in the BMR. Those products are kept in factories or storagies in factory. Commercial warehouse is not developed, while a few warehouses are located in suburban area of the Bangkok.

From factory or storage, those products are distributed to provincial wholesaler or agent and are stored in their shops. Provincial wholesalers or agents redistribute those products to retailers. Fig.4.6 shows distribution channel of large scale products and "national brand" products.

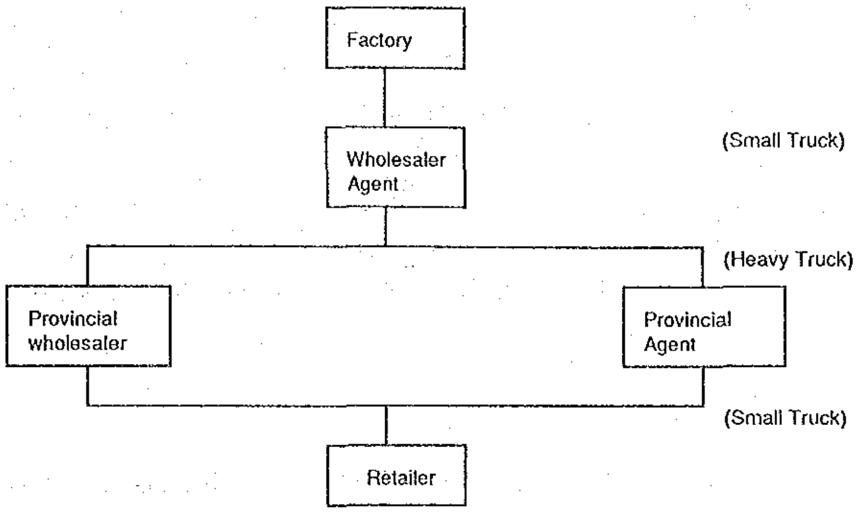


Fig. 4.6 Distribution Pattern of Large Scale Products and "National Brand" Products

3) Small scale products

This group consists of light industry consumer products, machinery and electric appliances. Since these products are too small to make a full truck loaded by themselves, they are collected from factories and importers by central wholesalers in Bangkok. The central wholesalers store those products in their own storage facilities, mostly located at suburban areas of Bangkok such as Bang Na Trad, Lad Prao, Bangkhen and Thon Buri. From these depots, those products are distributed to provincial wholesalers or the provincial branches of the central wholesalers by using heavy truck. From provincial level, products are divided into small lots and distributed to retailers by small trucks. Fig.4.7 shows the distribution channel of small scale products.

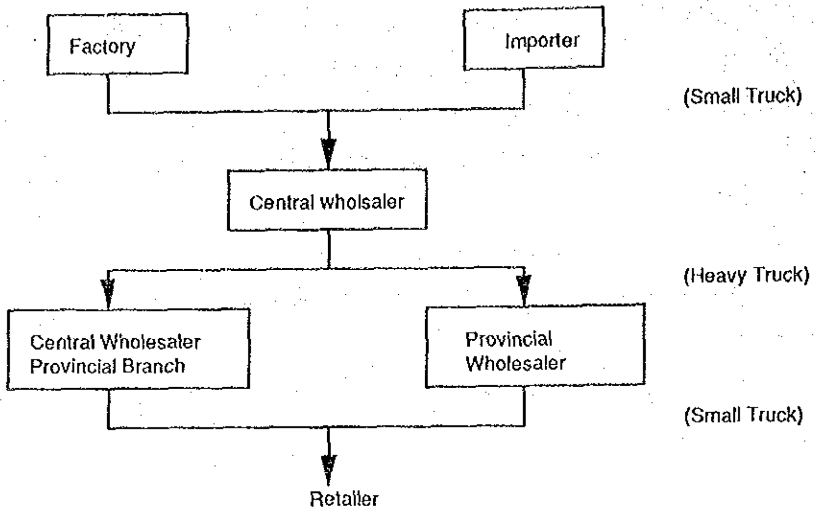


Fig. 4.7 Distribution Channel of Small Scale Products

4.2 Characteristics of Supply and Demand of the Upper Central Region

4.2.1 Supply for the Bangkok Metropolitan Region

The BMR is the center of commodity flow. Most of agricultural products and mineral resources concentrate on the BMR, while industrial products and consumer goods are distributed from the BMR.

The UCR which has been characterized as an agricultural area is also closely connected with Bangkok. A total volume of approximately 6.5 million tons a year goes to Bangkok, which is 18.6% of the total volume of goods going to Bangkok from the whole country. The volume of goods from the UCR to Bangkok is approximately 5.5 times as much as the volume goods from Bangkok to the UCR, while the total volume of goods to Bangkok is 3.5 times as much as that of goods from Bangkok. This shows that the UCR is one of the suppliers of goods to Bangkok.

Among goods to Bangkok, earth, sand and gravel together represent a largest portion being 50.9% of the whole goods to Bangkok. Rice and cement follow them and account for 15.6% and 18.7% respectively. Moreover, 87.9% of the cement going to Bangkok originate from the UCR and 32.4% of the rice going to Bangkok also originate from the UCR as shown in Table 4.1.

The UCR also has another feature to be a center of export-oriented agricultural products such as maize, tapioca and rice. These products are produced mainly in the northern and northeastern regions. Through the UCR, they are stored and/or transported by Routes 1 and 2. According to the Table 4.2, approximately 93% of the rice transported to Bangkok either passes through the UCR or produced in the UCR. 90% of maize and 80% of tapioca go through the same process.

Table 4.1 Magnitude of Products of the UCR to Bangkok

Unit : Thousand Tons

Products	Volume	% in total volume of products to Bangkok from Whole Kingdom	% in total volume of products from UCR
Rice	1017.7	32.4	15.6
Maize	146.6	15.9	2.3
Tapioca	47.7	6.9	0.7
Sugar	16.4	1.5	0.3
Other Agri.	61.6	8.3	0.9
Rubber	0.2	0.1	0.0
Farm Prod.	25.8	3.3	0.4
Forest Prod.	49.7	3.2	0.8
Petroleum Prod.	2.4	3.0	0.0
Earth, Sand and Gravel	3315.3	16.3	50.9
Mineral Prod.	5.2	1.3	0.1
Cement	1217.9	87.9	18.7
Other Construction	251.9	53.9	3.9
Fertilizer	8.1	16.0	0.1
Other Manufactures	205.2	10.3	3.2
All Others	62.2	16.2	1.0
Un Known	75.3	10.4	1.2
Total	6509.2	18.6	100.0

Source : Transport Statistics, 1988

Table 4.2 Concentration of Export-Oriented Agricultural Products

Unit : thousand tons

Products	UCR (%) (A)	Origin of Agricultural North/Northeast (%) (B)	Products (A+B)	Total Volume to Bangkok
Rice	1017.7(32.4)	1901.2(60.5)	(92.9)	3142.7
Maize	146.6(15.9)	677.7(73.7)	(89.6)	919.7
Tapioca	47.7(6.9)	554.6(80.1)	(87.0)	692.4

Source: Transport Statistics, 1988

4.2.2 Local Demand

According to the Table 4.3, goods of 1.2 million tons a year come from Bangkok. They represent 11.7% of the total volume of goods from Bangkok to the whole country. Petroleum products represent the highest portion of the goods from Bangkok to the UCR, amounting to approximately 351 thousand tons a year or 30% of the total volume going to the UCR. Other manufacturing products and other construction materials follow with a volume of 305 thousands tons and 50 thousands tons, respectively. The UCR is dependent on the BMR in petroleum and manufacturing products.

Table 4.3 Magnitude of Products of Bangkok to the UCR

Products	Volume	% in total volume of products from Bangkok to Whole kingdom	% in total volume of products from Bangkok
Rice	8.6	5.8	0.7
Maize	0.3	4.5	0.0
Tapioca	0.5	5	0.0
Sugar	0.5	4	0.0
Other Agricultural Product	22.2	14.1	1.9
Rubber	0.0	0	0.0
Farm Products	12.5	15.3	1.1
Forest Products	38.0	18	3.2
Petroleum Products	351.3	16.6	29.6
Earth, Sand and Gravel	6.2	28	0.5
Mineral Products	6.8	46.3	0.6
Cement	1.6	1.7	0.1
Other Construction Materia	50.1	19	4.2
Fertilizer	95.4	8.5	8.0
Other Manufactures	305.6	12.5	25.7
All Others	223.1	7.6	18.8
Unknown	65.6	12.8	5.5
Total	1,188.3	11.7	100.0

Source : Transport Statistics, 1988

In addition, agricultural products such as vegetable, fruit and fish are brought into the UCR from other regions to supplement demands for these food items. Table 4.4 shows the self-sufficiency of the UCR in selected commodities. In vegetables, fruits and fish, approximately 50% is self-sufficient and 50% is imported from the other regions. Meat, chicken and egg are highly self-sufficient with a ratio of 95.3%, 88.9%, 76.5%, respectively.

Table 4.4 Self-sufficiency of the UCR

Products	Products in the UCR
Vegetable	51.1 %
Fruits	49.1 %
Meat	95.3 %
Chicken	88.9 %
Egg	76.5 %
Fish	47.3 %
Processed Food	75.7 %
Clothes	0.0 %
Total	53.6 %

Source: Study Team Survey

4.3 Locational Advantages of the Upper Central Region

4.3.1 Availability of Inland Waterway

The UCR has a locational advantage in minimizing the cost of transportation through an efficient combination of land, inland waterway and sea transport. Availability of cheap land is another locational advantage when considering the need of space for storing and processing..

As for transport network, national highway Routes 1 and 2, and Asian Highway go through the UCR. Pasak and Chao Phraya Rivers and railway are also through the UCR. Therefore, all of the products for inland areas and the BMR have to pass through the UCR.

Because export-oriented major crop products are heavy and low valued, transport cost should be minimized to keep international competitive power. Therefore, inland waterway is a best way to transport them to Ko Si Chang. Table 4.5 shows relative magnitude of inland waterway in the cargo movements between Bangkok and the UCR. The magnitude is much higher than that on national average, which is 0.3%.

Table 4.5 Transport Flows of the UCR

(1986, ton)

	To Bangkok	(%)	From Bangkok	(%)
Road	5,539,803	(74.9)	1,235,825	(95.2)
Rail	668,978	(9.0)	62,048	(4.8)
Waterway	1,207,668	(16.3)	695	(-)
Total	7,416,449		1,298,568	

Note : The above figures include goods to and from Prathum Thani Province.
Source: Transport Statistics, MOCT, 1988.

Tha Rua is a point nearest to northeastern region for using inland waterway. It means that cost of truck from northeastern region to Tha Rua is minimized comparing with Bangkok, Siracha and Bangpakong.

Barge is much cheaper than truck and it carries a huge volume of tapioca pellet at once, being approximately 20 times as large as an unit volume per truck. Export of tapioca pellet generally uses large ship of more than 50 thousand tons. Therefore, to fill the ship, a huge number of trucks is required within a short period. This is one reason why inland waterway has advantage for shipping the agricultural products. Fig.4.8 illustrates the locational advantages of the UCR.

4.3.2 A Concentration of Export Oriented Agricultural Products

Fig.4.9 - 4.12 illustrate the flows of main export agricultural products such as rice, maize and tapioca pellet. Regarding rice, the products for export crop are produced mainly in the central region in rainy season, then, transported through the UCR as shown in Fig.4.10. Regarding maize and tapioca pellet, the UCR, particularly Ayutthaya, plays very significant role in export as a distribution base. However, existing facilities are operated under the management in Bangkok, because trading business and marketing information are available only there.

	Ship	Truck
Amount	200-300 ton/trip	5-10ton/trip
Cost	Low	High
Speed	Slow	Fast

	UCR	Siracha
Land Cost	Low	High
Trip	One Day	Two Day
Hinterland	Northeast	East/ Northwast

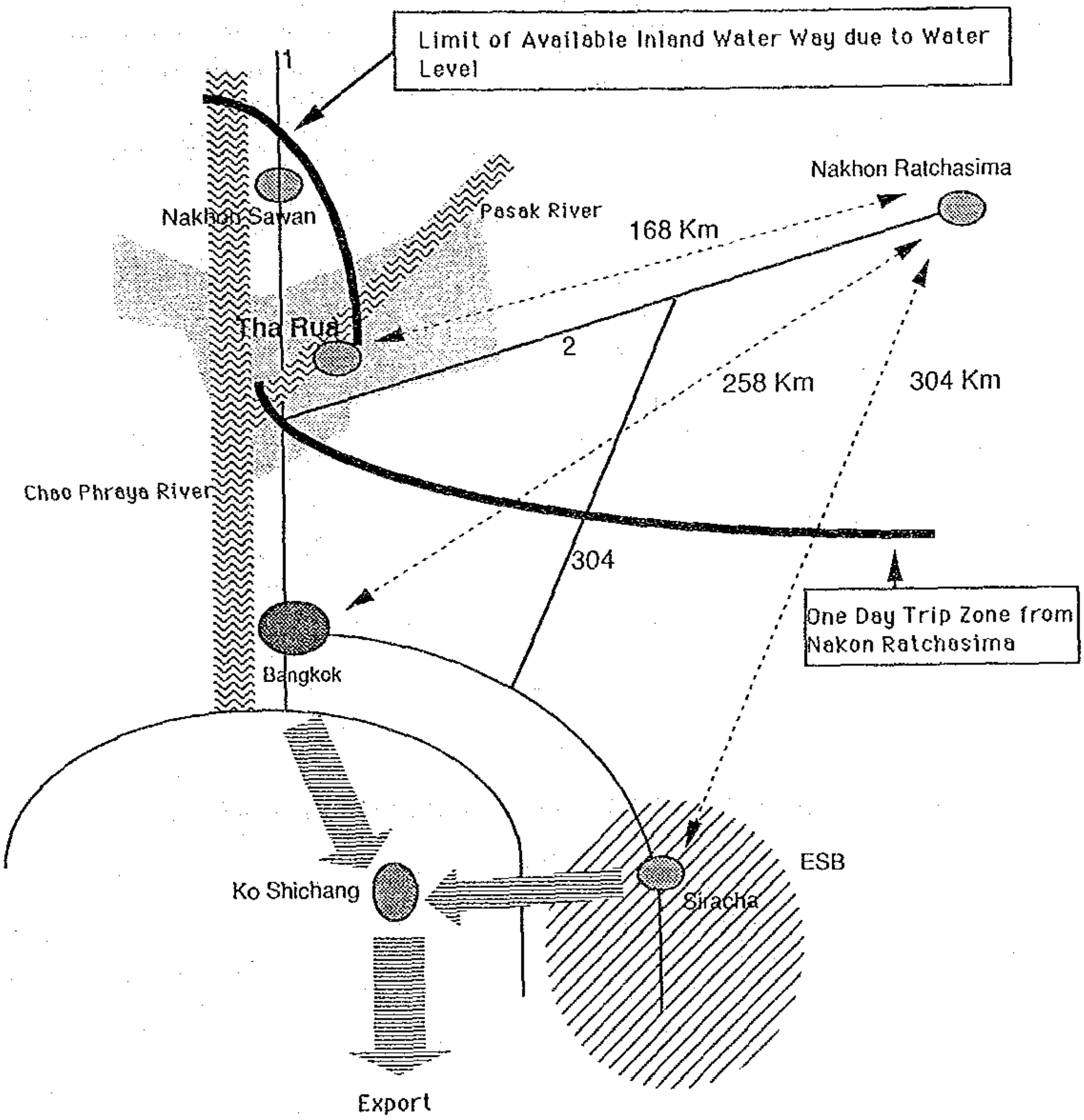


Fig. 4.8 Locational Advantages of the UCR

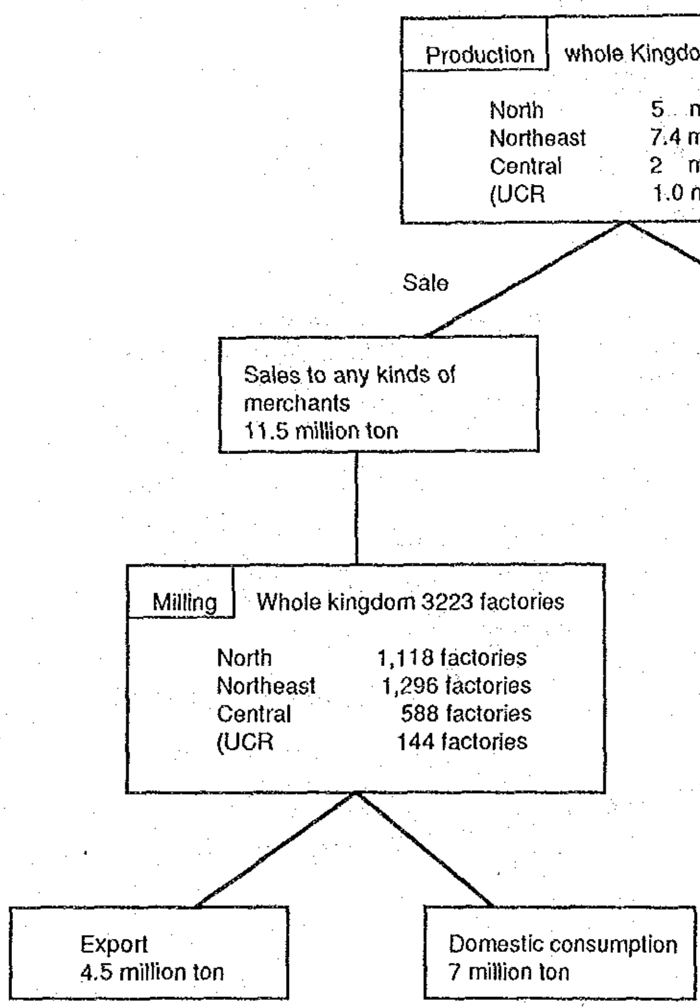
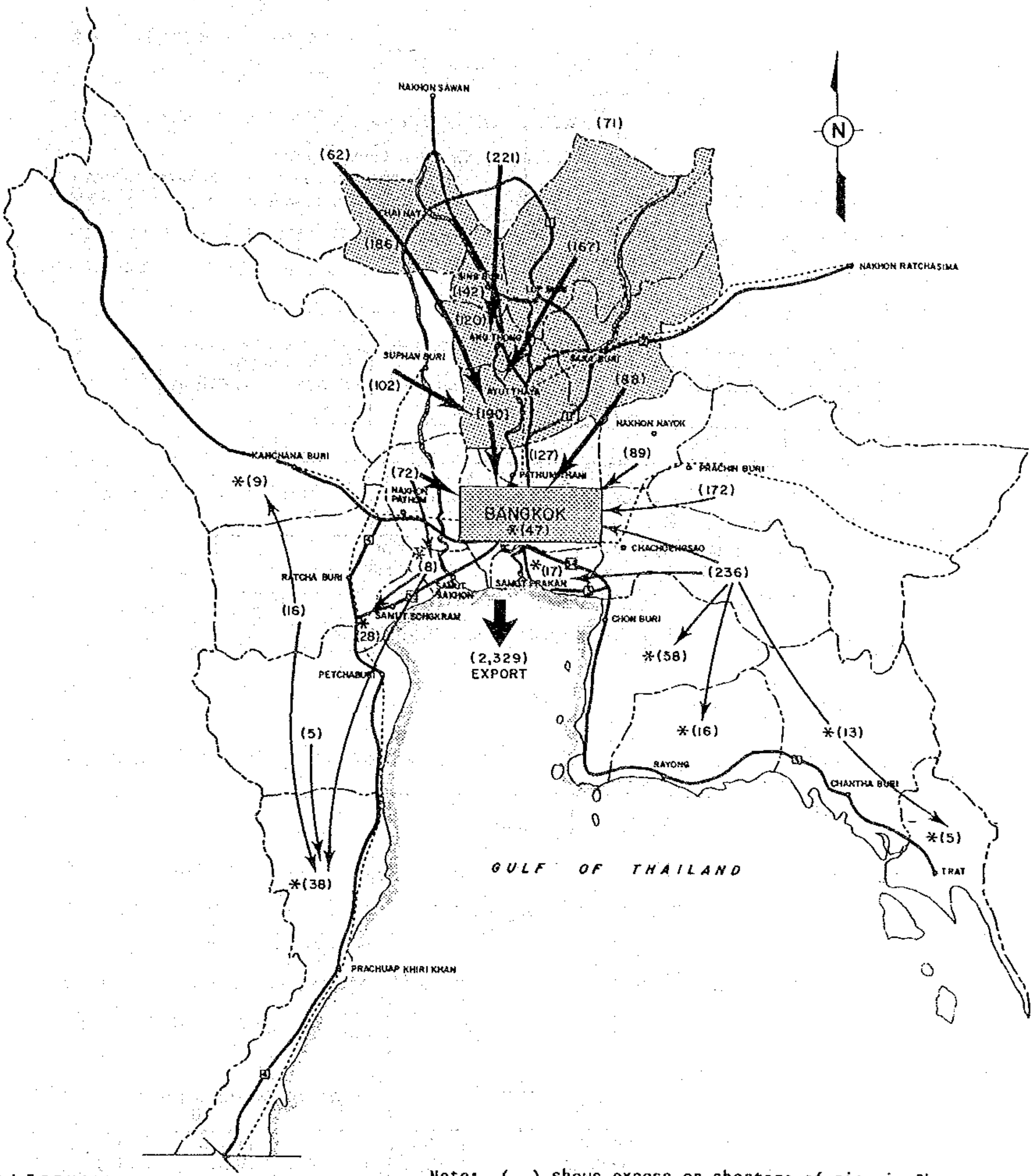


Fig. 4.9 Flow of Rice for Domestic Consumption and Export (Estimate)



LEGEND:

- CHANGWAT LOCATION
- CHANGWAT BOUNDARY
- HIGHWAYS
- RAILWAYS
- RIVERS
- MAINLY FLOW OF RICE FOR EXPORT
- MAINLY FLOW OF RICE FOR SUPPLY SHORTAGE IN CHANGWAT

Note: ( ) shows excess or shortage of rice in Changwat
* shows amount of shortage of rice (ton)

Source: AICAF, 1986

Fig. 4.10 Flow of Rice in Central Region (Estimate)

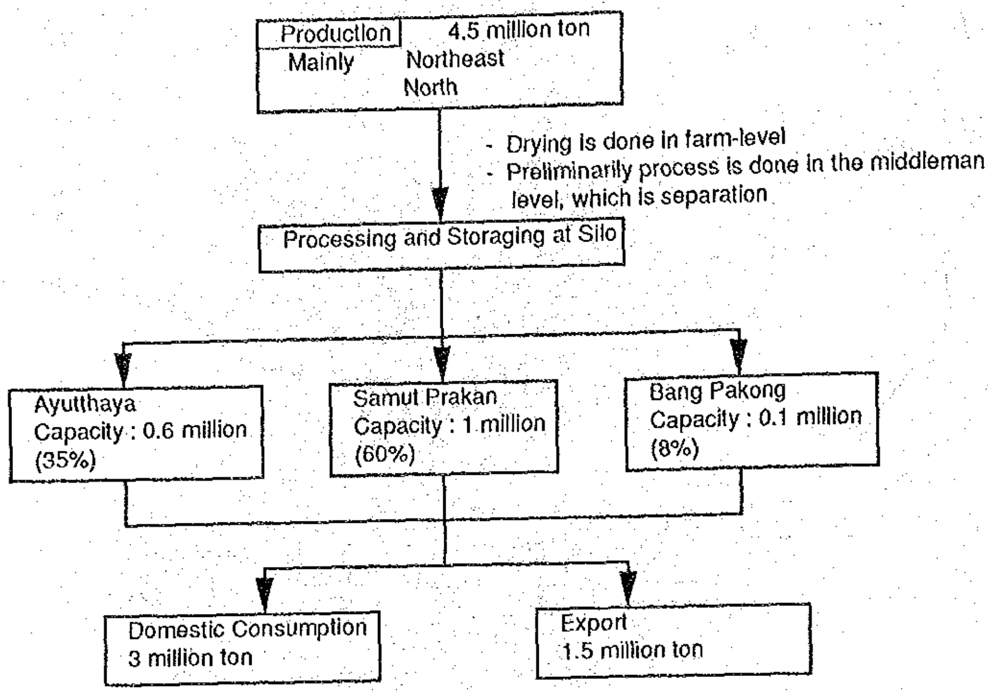


Fig. 4.11 Flow of Maize (Estimate)

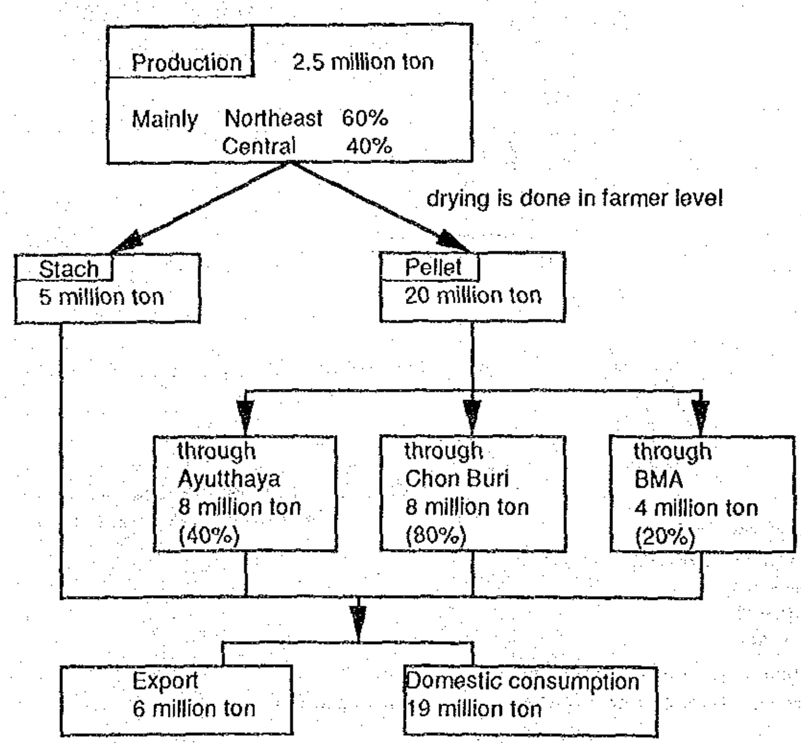


Fig. 4.12 Flow of Tapioca (Estimate)

4.4 Local Market Structure

4.4.1 Attendants and Commodities Sold in Markets

Business type of suppliers is mainly retailer. It is both retailer and wholesaler even in wholesale market as shown in the Table 4.6. 30% of wholesale markets operate for both wholesaler and retailer. This means that wholesale function is not clearly separated from retaile function in most of the markets, though specialization takes place in big markets such as those in the cities of Sara Buri, Ang Thong and Sing Buri.

On the other hand, types of customers can clearly be divided into consumer, retailer and wholesaler in accordance with characteristics of the markets.

In the Sara Buri Market and the Ang Thong Market, more than 90% of the customers are retailer and wholesaler. Meanwhile, the Sing Buri Market and the Lop Buri Market show almost equal proportion among consumer, retailer and wholesaler.

Retail markets are also mixed with some wholesale activities as shown in the Table 4.7.

The commodities sold in the local markets are mainly vegetables and fruits. The proportion of vegetables and fruits is higher in the wholesale market than in the retail markets as shown in the Table 4.8. Non-food commodities such as groceries and clothes represent only a little proportion of about 5% to 10% respectively in the retail markets.

4.4.2 Hinterland and Trading Area

Collection and dispersing are the most primitive functions of wholesale market. It does exist in the wholesale markets in the UCR. In the wholesale markets in the UCR, the vegetables and fruits are the main commodities accounting for 42.1% and 40.1% respectively of the total commodities.

Table.4.6 Business Type of Suppliers

Market		Type of Business												Total	%
		Wholesaler	%	Retailer	%	Both W&R	%	Farmer	%	Fisherman	%	Others	%		
1) Husro	C. Ayutthaya	-	-	55	88.7	7	11.3	-	-	-	-	-	-	62	100.0
2) Chao Phrom	C. Ayutthaya	1	1.7	46	76.7	11	18.3	1	1.7	1	1.7	-	-	60	100.0
3) Tesaban 2	C. Ang Thong	1	2.0	36	72.0	9	18.0	3	6.0	-	-	1	2.0	50	100.0
4) Wholesale	C. Ang Thong	17	35.4	2	4.2	24	50.0	5	10.4	-	-	-	-	48	100.0
5) Tesaban	C. Sing Buri	-	-	34	68.0	16	32.0	-	-	-	-	-	-	50	100.0
6) Sing Buri	C. Sing Buri	36	53.7	1	1.5	29	43.3	1	1.5	-	-	-	-	67	100.0
7) Tesaban	C. Chai Nat	2	8.7	19	82.6	2	8.7	-	-	-	-	-	-	23	100.0
8) Wholesale	C. Chai Nat	4	13.3	2	6.7	21	70.0	3	10.0	-	-	-	-	30	100.0
9) Tesaban	C. Lop Buri	-	-	30	60.0	20	40.0	-	-	-	-	-	-	50	100.0
10) Tha Khun Keng	C. Lop Buri	17	34.0	5	10.0	14	28.0	14	28.0	-	-	-	-	50	100.0
11) Khok Somrong	C. Lop Buri	6	12.2	32	65.3	11	22.4	-	-	-	-	-	-	49	100.0
12) Sri Charoen	C. Lop Buri	3	6.0	27	54.0	20	40.0	-	-	-	-	-	-	50	100.0
13) Tesaban	C. Sara Buri	-	-	61	75.3	11	13.6	9	11.1	-	-	-	-	81	100.0
14) Wholesale	C. Sara Buri	31	63.3	4	8.2	14	28.6	-	-	-	-	-	-	49	100.0
15) Nikhom Phutthabat	C. Sara Buri	-	-	29	58.0	21	42.0	-	-	-	-	-	-	50	100.0
TOTAL		118	15.3	383	49.8	230	29.9	36	4.7	1	0.1	1	0.1	769	100.0

Source : Study Team Survey

Table 4.7 Type of Customers

Market		Customer Type										Total	%
		No Answer	%	Consumer	%	Wholesaler	%	Retailer	%	Others	%		
1) Husro	C.Ayutthaya	-		49	89.1	-		5	9.1	1	1.8	55	5.9
2) Chao Phrom	C.Ayutthaya	-		40	62.5	2	3.1	20	31.3	2	3.1	64	6.8
3) Tesaban 2	C.Ang Thong	-		35	70.0	3	6.0	12	24.0	-		50	5.3
4) Wholesale	C.Ang Thong	-		3	5.5	8	14.5	44	80.0	-		55	5.9
5) Tesaban	C.Sing Buri	-		36	72.0	1	2.0	13	26.0	-		50	5.3
6) Sing Buri	C.Sing Buri	-		37	37.0	17	17.0	46	46.0	-		100	10.6
7) Tesaban	C.Chai Nat	-		47	94.0	-		3	6.0	-		50	5.3
8) Wholesale	C.Chai Nat	-		41	44.6	6	6.5	45	48.9	-		92	9.8
9) Tesaban	C.Lop Buri	-		32	65.3	-		11	22.4	6	12.2	49	5.2
10) Tha Khun Nong	C.Lop Buri	-		8	14.5	8	14.5	39	70.9	-		55	5.9
11) Khok Samrong	C.Lop Buri	-		21	42.0	1	2.0	28	56.0	-		50	5.3
12) Sri Charoen	C.Lop Buri	-		37	77.1	1	2.1	10	20.8	-		48	5.1
13) Tesaban	C.Lop Buri	-		76	84.4	-		14	15.6	-		90	9.6
14) Wholesale	C.Sara Buri	1	1.2	4	4.9	37	45.1	40	48.8	-		82	8.7
15) Nikhom Phutthabat	C.Sara Buri	-		39	78.0	-		9	18.0	2	4.0	50	5.3
Total		1	0.1	505	53.7	84	8.9	339	36.1	11	1.2	940	100

Source : Study Team Survey

Table 4.8 Commodities Sold in Local Markets

Market		Commodity Type																				Total	%
		Vegetable	%	Fruit	%	Meat	%	Chicken	%	Egg	%	Fish	%	Processed Food	%	Cloths	%	Grocery	%	Others	%		
1) Huare	C.Ayutthaya	8	12.5	13	20.3	3	4.7	3	4.7	4	6.3	6	9.4	9	14.1	-		4	6.3	14	21.9	64	100.0
2) Chao Phrom	C.Ayutthaya	6	17.7	9	14.3	6	9.5	2	3.2	5	7.9	11	17.5	8	12.7	1	1.6	3	4.8	10	15.9	63	100.0
3) Tesaban 2	C.Ang Thong	5	9.1	8	14.5	5	9.1	5	9.1	2	3.6	4	7.3	13	23.6	1	1.8	4	7.3	8	14.5	55	100.0
4) Wholesale	C.Ang Thong	29	60.4	17	35.4	-		-		-		-		-		-		-		2	4.2	48	100.0
5) Tesaban	C.Sing Buri	10	17.9	5	8.9	6	10.7	3	5.4	1	1.8	7	12.5	8	14.3	3	5.4	4	7.1	9	16.1	56	100.0
6) Sing Buri	C.Sing Buri	21	30.9	40	58.8	-		2	2.9	-		1	1.5	2	2.9	-		-		2	2.9	68	100.0
7) Tesaban	C.Chai Nat	4	16.7	5	20.8	3	12.5	1	4.2	1	4.2	1	4.2	2	8.3	-		3	12.5	4	16.7	24	100.0
8) Wholesale	C.Chai Nat	21	65.6	8	25.0	-		-		-		1	3.1	1	3.1	-		-		1	3.1	32	100.0
9) Tesaban	C.Lop Buri	8	15.4	9	17.3	6	11.5	4	7.7	4	7.7	8	15.4	3	5.8	1	1.9	3	5.8	6	11.5	52	100.0
10) Tha Khun Nang	C.Lop Buri	40	67.8	17	28.8	-		-		-		-		-		-		-		2	3.4	59	100.0
11) Khok Samrong	C.Lop Buri	14	25.0	16	28.6	-		-		3	5.4	7	12.5	8	14.3	1	1.8	-		7	12.5	56	100.0
12) Sri Charoen	C.Lop Buri	14	24.1	12	20.7	5	8.6	-		1	1.7	2	3.4	9	15.5	3	5.2	3	5.2	9	15.5	58	100.0
13) Tesaban	C.Lop Buri	27	30.3	25	28.1	3	3.4	4	4.5	3	3.4	7	7.9	11	12.4	-		2	2.2	7	7.9	89	100.0
14) Wholesale	C.Sara Buri	37	74.0	10	20.0	-		-		-		-		-		-		-		3	6.0	50	100.0
15) Nikhom Phutthabat	C.Sara Buri	12	22.2	14	25.9	6	11.1	2	3.7	2	3.7	2	3.7	7	13.0	-		2	3.7	7	13.0	54	100.0
Total		258	31.2	208	25.1	43	5.2	26	3.1	26	3.1	57	6.9	81	9.8	10	1.2	28	3.4	91	11.0	828	100.0

Source : Study Team Survey

The customers comprise consumers representing 53%, retailers 36% and wholesalers 9%. Most of the wholesalers are from within the same Amphoe as market exists. 69% of the customer come from the same Amphoe as market exists and 17% of them are from other Amphoe but within the same changwat as market exists. Markets in the UCR serve mainly for local consumption. However, Sara Buri, Ang Thong and Sing Buri have relatively large wholesale markets to serve not only for their respective changwat but also for other changwat both within and outside the UCR.

The local markets are structured into a hierarchical pattern, comprising the markets at 3 levels; large-scale wholesale market, small-scale wholesale market and retail market.

The large-scale wholesale market such as Sara Buri Market, Sing Buri Market and Ang Thong Market have wide hinterlands covering not only the UCR but also the northern, the northeastern and the central regions. Because the local markets deal mainly with vegetables and fruits, origins of the commodities being sold there are spread out nation-wide.

Small-scale wholesale markets have narrower hinterlands. The commodities being sold there come mainly from within the same changwat as market exists and from the large-scale wholesale markets. Retail market gathers commodities from both large-scale and small-scale wholesale markets and thus has a narrow trading area because customers are the people living nearby.

The trading areas of local markets are relatively small in the UCR because they serve mostly for neighboring area. However, markets of Ang Thong, Sing Buri and Sara Buri have relatively large trading area. Ang Thong Market covers mainly Changwat Ang Thong and certain part of Changwat Ayutthaya. Sing Buri Market covers mainly Changwat Sing Buri, Chai Nat, and certain part of Changwat Lop Buri. Customers from Nakhon Sawan, Uthai Thani and Suphan Buri are observed in this market. Sara Buri market covers Changwat Sara Buri and certain part of Ayutthaya and Lop Buri, and customers from Nakhon Ratchasima, Khon Kaen, Nakhon Nayok are observed in this market. Fig.4.13 shows trading area of the local markets in the UCR.

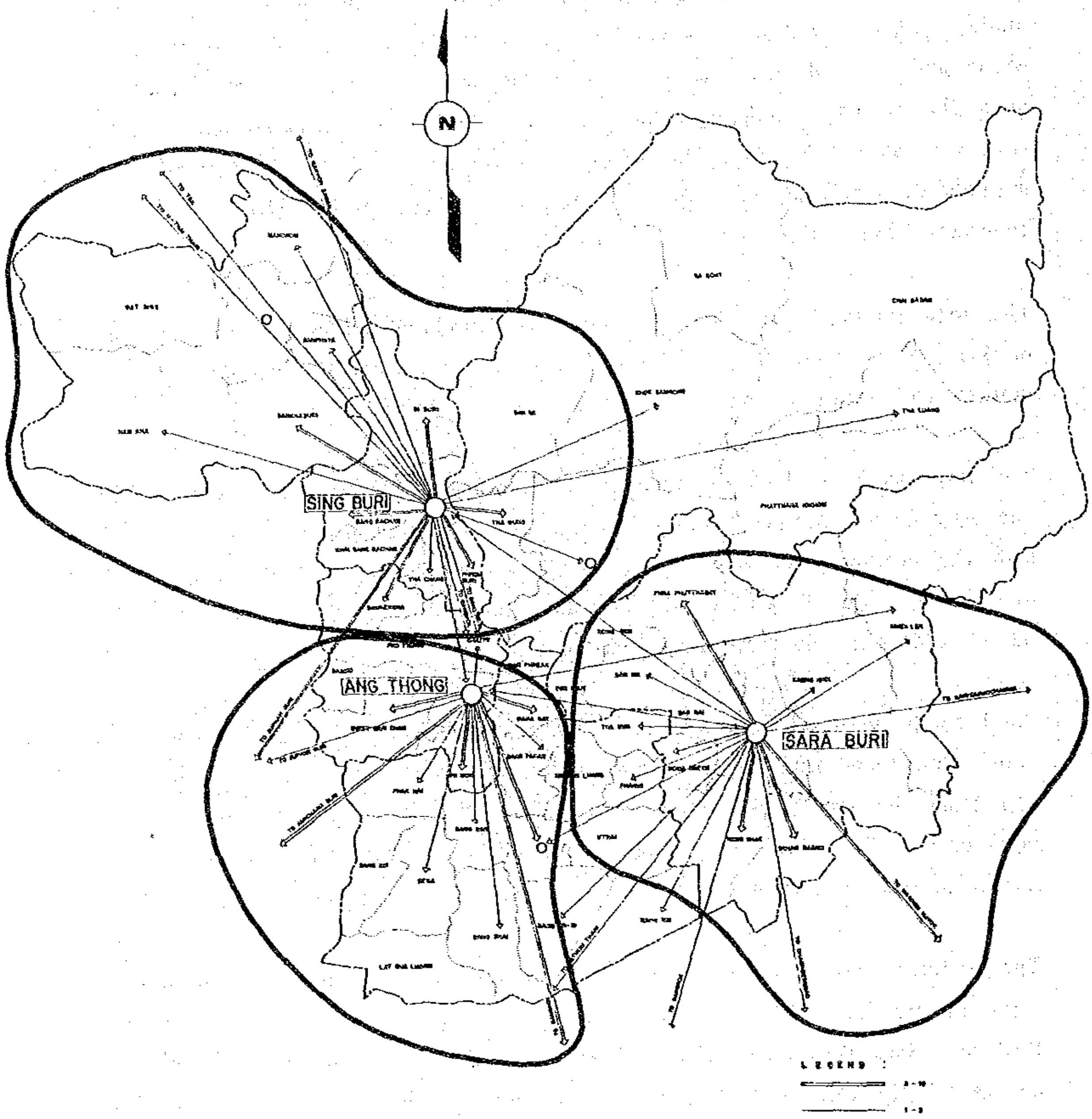


Fig. 4.13 Trading Areas of Three major Centers

To examine the origin of commodities, the commodities are classified into 5 groups of vegetables and fruits, meat, chicken and egg, fish, processed food and non-food goods.

50% of the vegetables and fruits being sold in the UCR markets are from outside the UCR, and the other 50% are produced within the UCR. Vegetables and fruits from outside the UCR are mainly from the northern, the northeastern and the central regions, especially Bangkok. The vegetables and fruits from Bangkok are gathered once in Bangkok markets from other regions, especially the eastern, the western and the southern regions and re-distribute, to UCR markets.

The meat, chicken and egg being sold in the UCR markets are mainly produced in the UCR and distributed within the UCR. It means that the UCR has achieved self-sufficiency in supply of meat, chicken and egg.

As for fish, approximately 44% of fish are produced within the UCR, and the other 56% come from other areas. The fish produced in the UCR are fresh water fish. Some fresh water come fish from other regions, especially the northern region. The fish from outside the UCR are mainly from Bangkok Fish Market and Samut Prakan Fish Market and are supposed to be marine fish. Fresh water fish are almost self- sufficient in the UCR and marine fish are dependent mainly on the supply from Bangkok and Samut Prakan.

The processed food are largely produced in the UCR, and local products account for approximately 75% of the food sold locally, with the rest from Bangkok.

Non-food goods such as clothes, grocery and others come mostly from Bangkok

Fig.4.14 to 4.18 show the origin of the commodities on map.

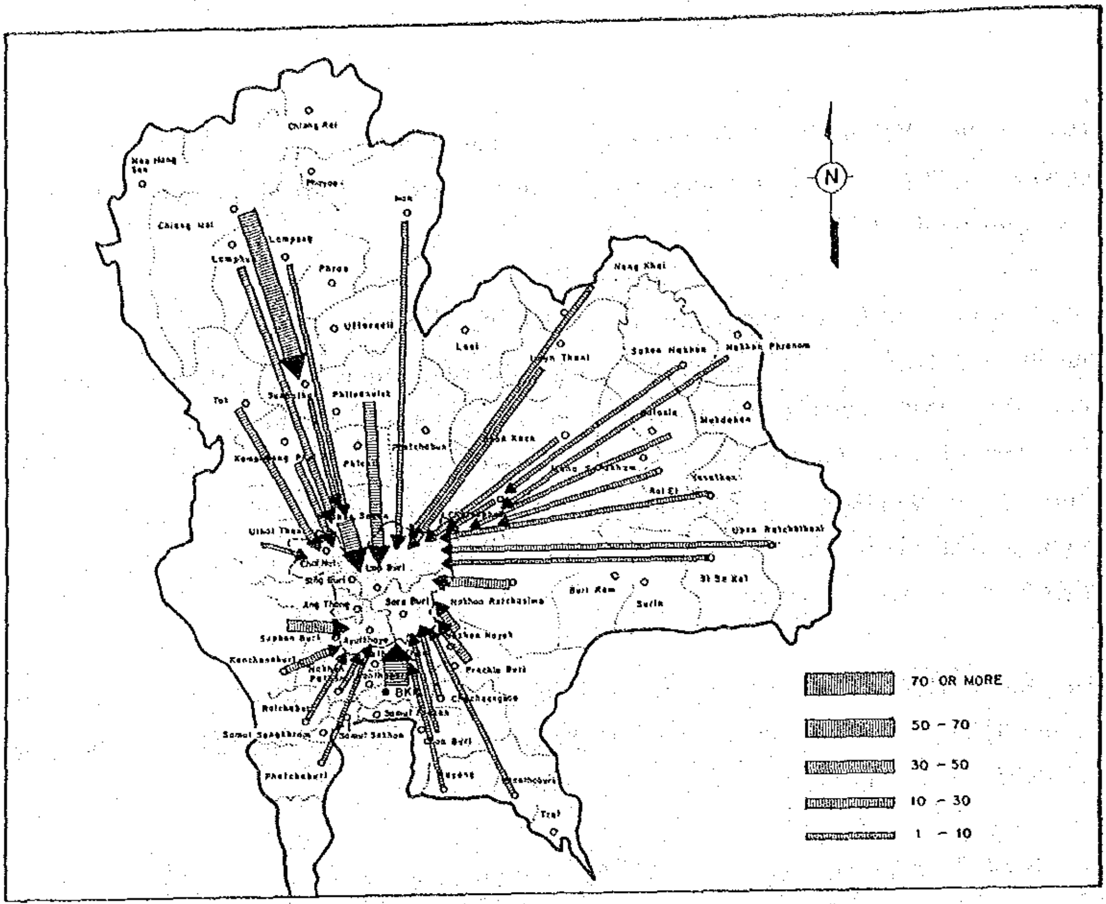


Fig. 4.14 Distribution of the Origin of the Commodities, Vegetables and Foods

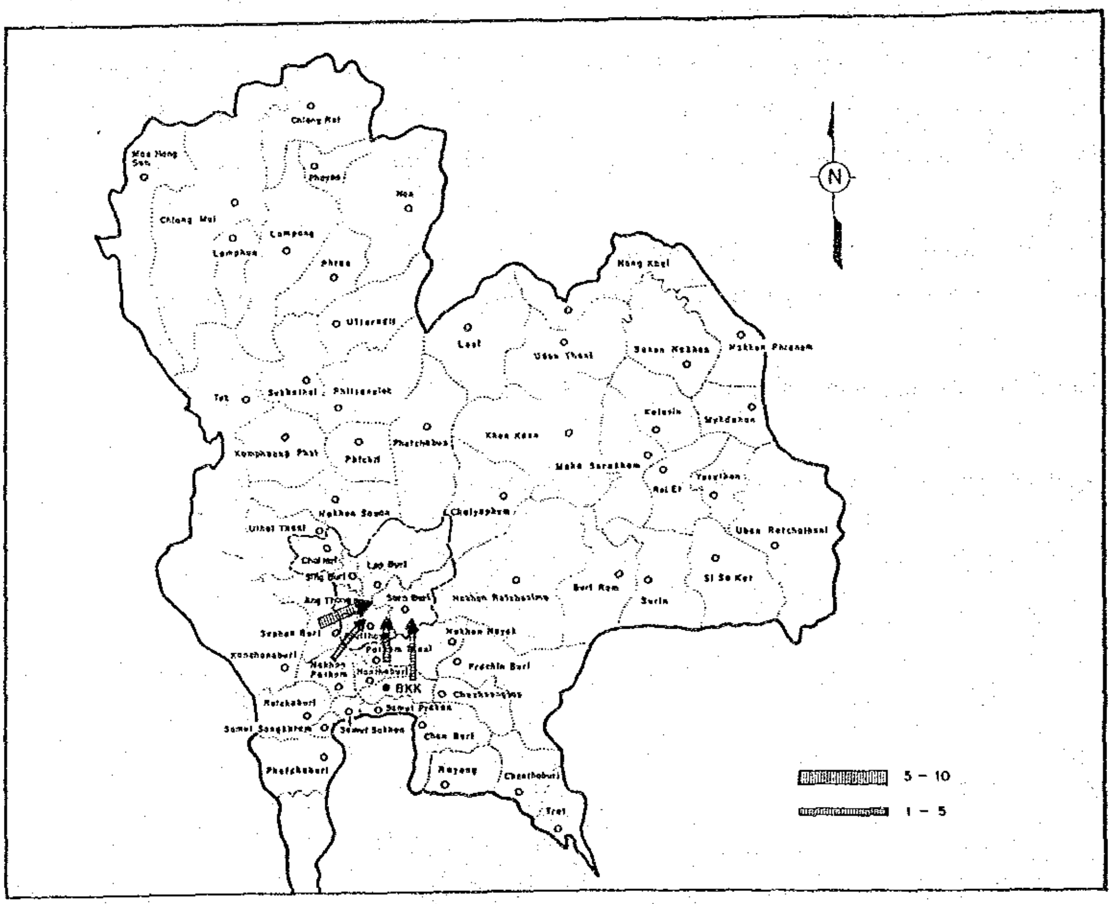


Fig. 4.15 Distribution of the Origin of the Commodities, Meats, Chicken and egg

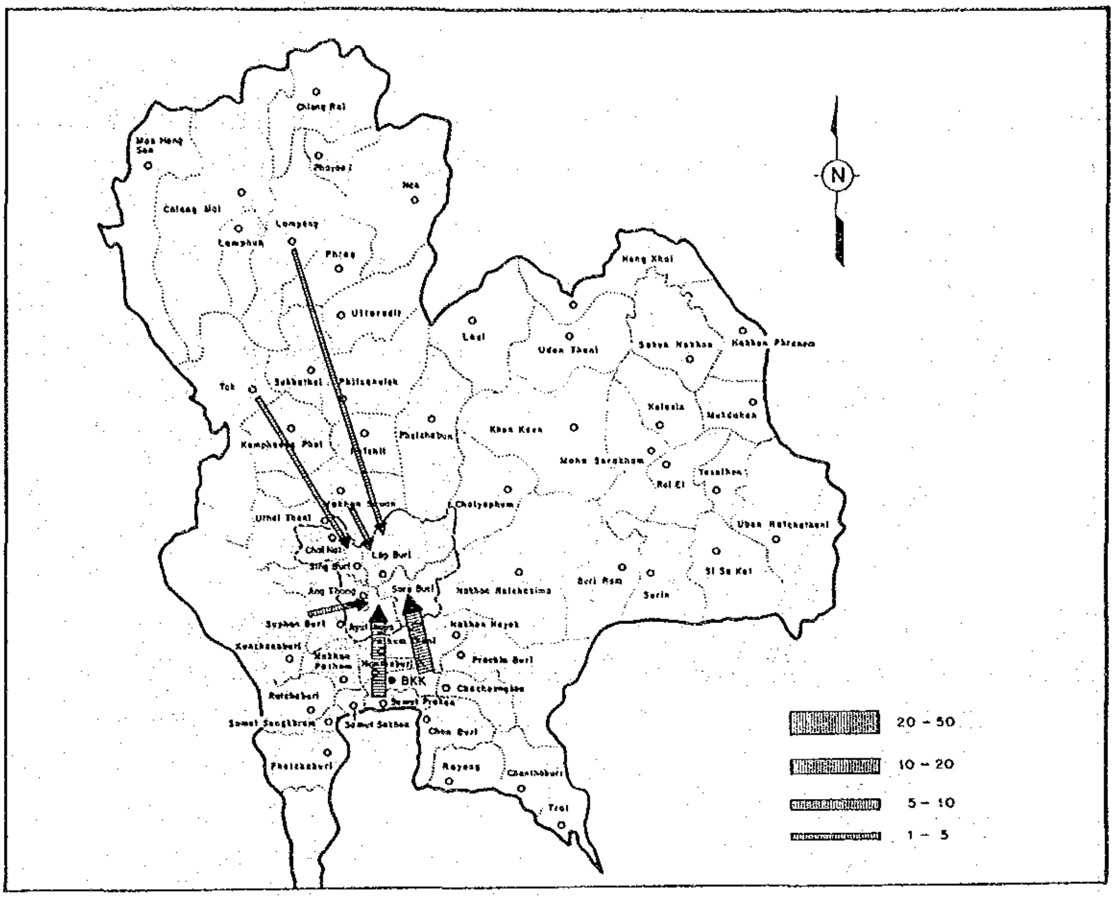


Fig. 4.16 Distribution of the Origin of the Commodities, Fish

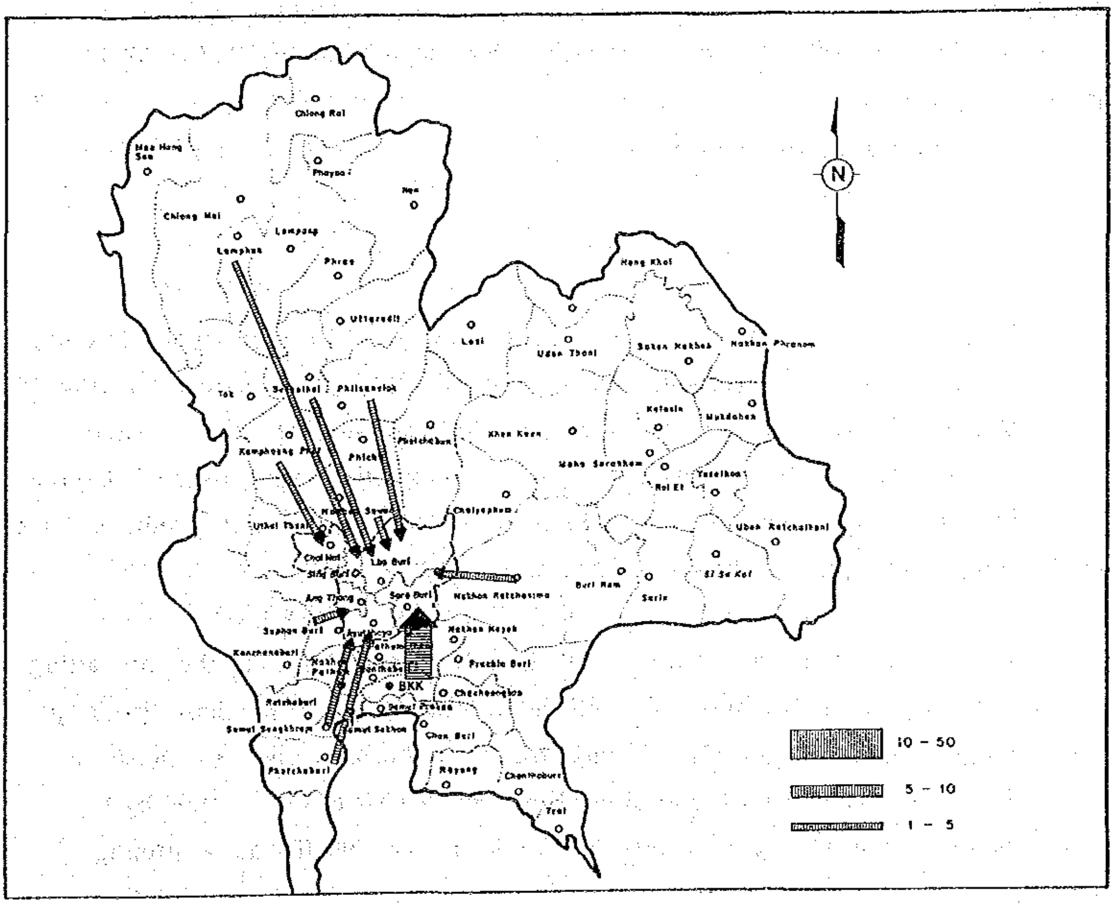


Fig. 4.17 Distribution of the Origin of the Commodities, Processed Food

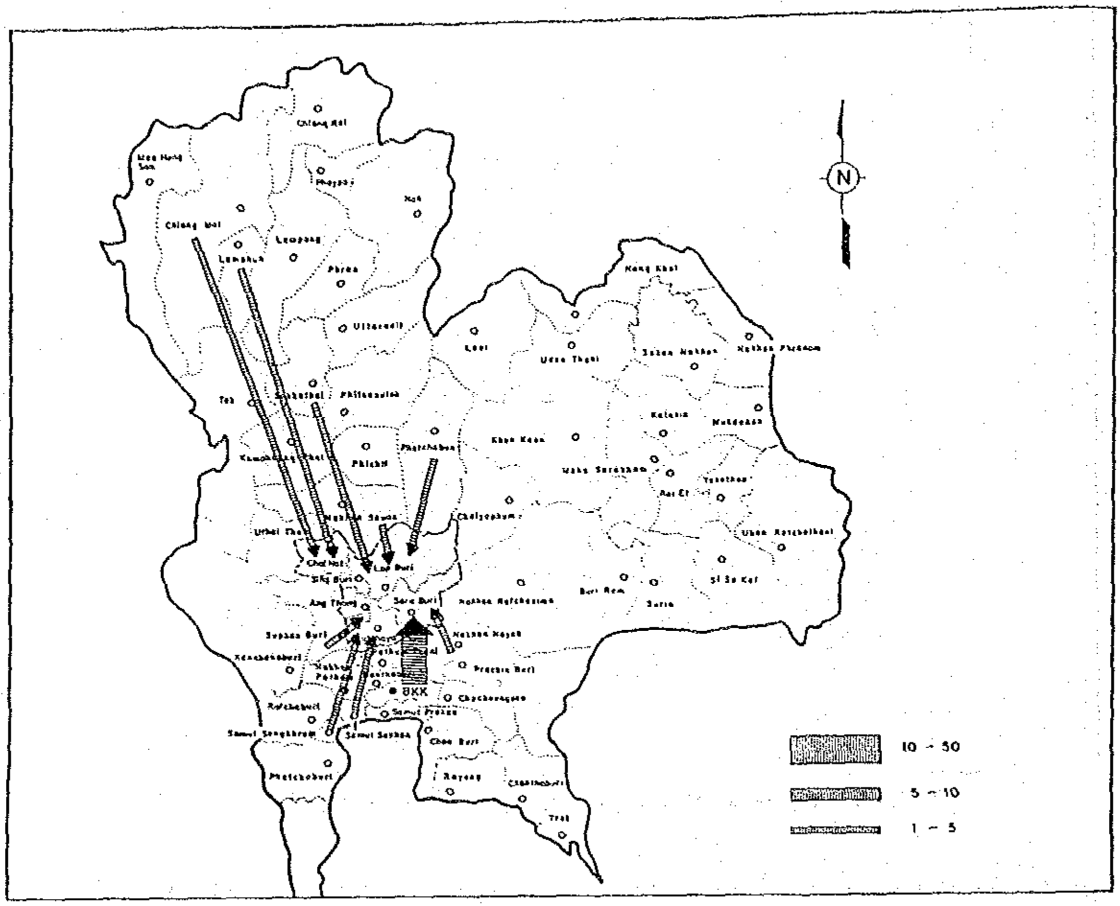


Fig. 4.18 Distribution of the Origin of the Commodities, Non-Food Good

4.4.3 Transaction and Pricing Characteristics

1) Pricing

Cross trading is basically applied to transaction. In this cross trading, several stages of transaction exist between farm-gate to retail market. Under this system, pricing power of wholesale market is not strong because merchants in several stages of transaction take risk of buying the commodities.This is one reason why Thai agricultural products have competitive price in the world market.

Merchants are supposed to set their price depending on the prevailing market price information as well as on the original purchase price plus some margin, but in the existing wholesale markets such as those in Sara Buri, Ang Thong and Sing Buri, merchants can set price by themselves. This means that wholesale market itself has a pricing power rather than other traders, even if it it not so strong as in the case with consignment sale system of wholesale market.

2) Settlement of payment

Payment is made by cash. Three is no other method available in the market. Because of this, business size of wholesaler seems to be relatively small.

3) Information system

Price information is collected daily at Sara Buri, Sing Buri and Lop Buri Markets by surveyors from Ministry of Commerce, then, disseminated through radio, T.V., newspaper and provincial commercial offices. Middlemen is another channel to disseminated price information. They are more popular, easier and faster than the government channel. The middlemen negotiate prices of agricultural products based upon their own price information sources which come mainly from Bangkok.

Kinds of information such as market demand especially in other production areas are not sufficiently provided by the public agencies. Only the middlemen can collect and give those information by means of providing seeds, fertilizers, technics and specification of products.

Thus, existing market is not fully utilized as a major source of market information.

4.4.4 Operational Characteristics

1) Working hour

Although wholesale and retaile functions are mixed in the UCR markets, their functions are clearly divided in the operating hours.

Wholesale market starts business in the evening sometime between 18:00 and 24:00. Meanwhile, retail market starts sometime between 4:00 and 6:00 in the early morning.

As for Sing Buri Market, there are two peaks of opening hours, which are early morning and night. This means that market works as a retail market in the morning and as a wholesale market in the night.

Sara Buri Market, however, has different characteristics which operates mainly from afternoon to mid-night. Because market has few retailers, it is assumed that Sara Buri Market serves as a place of transferring commodities to other wholesale markets before those markets start.

The closing time of business depends very much on starting time. Wholesale markets close sometime between 5:00 and 8:00, while retail markets close sometime between 16:00 and 18:00. In Sara Buri Markets, there are two peaks of closing time which are 6:00 and 18:00. In Sing Buri Market, however, approximately 21% of the suppliers close business at 24:00.

Fig.4.19 shows operating hours of wholesale and retail markets in the UCR. The commodities traded in a wholesale market at midnight are transferred to retail markets to be sold in the early morning. Operating hours show this arrangement clearly.

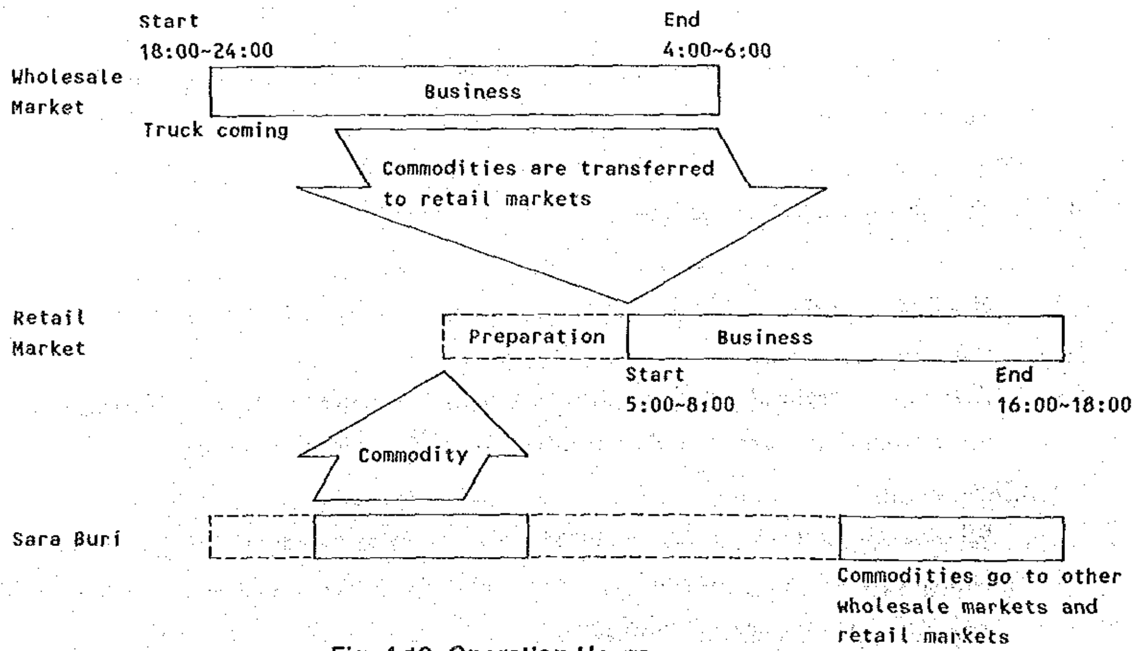


Fig. 4.19 Operation Hours

2) Rent fee

The management of local market is divided into public and private. Both of them collect rent fee from the suppliers and spend it partly for providing services.

Amount of the rent fee is not different between public and private, and between wholesale and retail market. Approximately 70% of the suppliers pay 1-5 baht per square meter per day. Ang Thong Market and retail market in Ayutthaya, Chai Nat and Phra Phuttabat charge a higher rent fee. Table 4.9 shows the rent fee of the local markets in the UCR.

Payment of the rent fee is made almost on daily basis. Daily payment accounts for approximately 80% of the all methods of payment. Monthly payment accounts for approximately 11%. Table 4.10 shows the frequency of paying rent fee of local markets in the UCR.

3) Services provided in local markets

In the local markets of the UCR, owner or manager provides some services to the suppliers. According to the Table 4.11, electricity and cleaning are available in the most of the markets in the UCR, though some markets charge cleaning extra-fee on the suppliers.

Even though water is not free in some markets, some suppliers obtain water from nearby areas because it is definitely necessary for them to use water for cleaning commodities.

Table 4.9 Rent Fee of Local Markets in UCR

Market		Rent Fee												Total	%
		None	%	1-5 Baht	%	6-10 Baht	%	11-15 Baht	%	16-20 Baht	%	> 20 Baht	%		
1) Huaro	C.Ayutthaya	2	3.2	31	50.0	21	33.9	5	8.1	-	-	3	4.8	62	100.0
2) Chao Phrom	C.Ayutthaya	-	-	32	53.3	5	8.3	3	5.0	1	1.7	19	31.7	60	100.0
3) Tesaban 2	C.Ang Thong	-	-	50	100.0	-	-	-	-	-	-	-	-	50	100.0
4) Wholesale	C.Ang Thong	-	-	2	4.2	35	72.9	10	20.8	-	-	1	2.1	48	100.0
5) Tesaban	C.Sing Buri	6	12.0	30	60.0	6	12.0	-	-	1	2.0	7	14.0	50	100.0
6) Sing Buri	C.Sing Buri	12	17.9	47	70.1	6	9.0	1	1.5	1	1.5	-	56.5	67	100.0
7) Tesaban	C.Chai Nat	-	-	9	39.1	-	-	-	-	1	4.3	13	-	23	100.0
8) Wholesale	C.Chai Nat	2	6.7	27	90.0	-	-	-	-	1	3.3	-	16.0	30	100.0
9) Tesaban	C.Lop Buri	5	10.0	35	70.0	1	2.0	-	-	1	2.0	8		50	100.0
10) The Khun Nang	C.Lop Buri	1	2.0	49	98.0	-	-	-	-	-	-	-		50	100.0
11) Khok Samrong	C.Lop Buri	-	-	47	95.9	2	4.1	-	-	-	-	-		49	100.0
12) Sri Charoen	C.Lop Buri	5	10.0	43	86.0	2	4.0	-	-	-	-	-		50	100.0
13) Tesaban	C.Lop Buri	1	1.2	75	92.6	1	1.2	2	2.5	1	1.2	1	1.2	81	100.0
14) Wholesale	C.Sara Buri	-	-	43	87.8	1	2.0	1	2.0	1	2.0	3	6.1	49	100.0
15) Nikhom Phutthabat	C.Sara Buri	9	18.0	13	26.0	8	16.0	-	-	2	4.0	18	36.0	50	100.0
Total		43	5.6	533	69.3	88	11.4	22	2.9	10	1.3	73	9.5	769	100.0

Table 4.10 The Frequency of Paying Rent Fee

Market		Often to Pay Rent Fee																Total	%
		None	%	Begining	%	Yearly	%	Monthly	%	Daily	%	Monthly & Daily	%	Yearlt & Daily	%	Begining & Daily	%		
1) Huaro	C.Ayutthaya	2	3.2	-		-		4	6.5	56	90.3	-		-		-		62	100.0
2) Chao Phrom	C.Ayutthaya	-		-		1	1.7	23	38.3	34	56.7	-		2	3.3	-		60	100.0
3) Tesaban 2	C.Ang Thong	-		-		1	2.0	-		49	98.0	-		-		-		50	100.0
4) Wholesale	C.Ang Thong	-		-		-		-		47	97.9	-		1	2.1	-		48	100.0
5) Tesaban	C.Sing Buri	6	12.0	1	2.0	-		9	18.0	34	68.0	-		-		-		50	100.0
6) Sing Buri	C.Sing Buri	12	17.9	1	1.5	-		1	1.5	53	79.1	-		-		-		67	100.0
7) Tesaban	C.Chai Nat	-		-		1	4.3	13	56.5	9	39.1	-		-		-		23	100.0
8) Wholesale	C.Chai Nat	1	3.3	-		-		2	6.7	21	70.0	6	20.0	-		-		30	100.0
9) Tesaban	C.Lop Buri	5	10.0	-		3	6.0	5	10.0	37	74.0	-		-		-		50	100.0
10) The Khun Nang	C.Lop Buri	1	2.0	1	2.0	-		-		47	94.0	1	2.0	-		-		50	100.0
11) Khok Samrong	C.Lop Buri	-		-		-		-		48	98.0	-		1	2.0	-		49	100.0
12) Sri Charoen	C.Lop Buri	5	10.0	-		-		-		45	90.0	-		-		-		50	100.0
13) Tesaban	C.Lop Buri	1	1.2	-		-		3	3.7	70	86.4	-		4	4.9	3	3.7	81	100.0
14) Wholesale	C.Sara Buri	-		-		-		3	6.1	44	89.8	2	4.1	-		-		49	100.0
15) Nikhom Phutthabat	C.Sara Buri	9	18.0	1	2.0	-		20	40.0	20	40.0	-		-		-		50	100.0
Total		42	5.5	4	0.5	6	0.8	83	10.8	614	79.8	9	1.2	8	1.0	3	0.4	769	100.0

Table 4.11 Services Provided in Local Markets

Market	Water	Drainage	Electricity	Parking	Cleaning
1) Huaro	x	x	x	x	o
2) Chao Phrom	o	o	o	x	o
3) Tesaban 2	o	x	o	x	o
4) Wholesale	x	x	o	x	o
5) Tesaban	x	x	x	x	x
6) Sing Buri	x	x	x	x	o
7) Tesaban	o	o	o	x	o
8) Wholesale	x	x	o	o	o
9) Tesaban	x	x	x	x	o
10) Tha Khun Nang	o	o	o	x	o
11) Khok Samrong	o	o	o	x	o
12) Sri Charoen	x	x	o	x	x
13) Tesaban	o	o	o	x	o
14) Wholesale	x	x	o	o	x
15) Nikhom Phuttabat	x	x	o	o	o

o - available
x - not available
Note: All data shown in 4.4 are the results of Study Team Survey done in April, 1989.

5. PLANNING ISSUES AND STRATEGIES

5.1 Problems and Issues

Problems and issues are discussed in this section in accordance with the role of distribution and marketing at farmers and regional levels.

5.1.1 Issues for Improving Distribution and Marketing System in Order to Improve and Stabilize Farmers' Income

With increasing cost of agricultural inputs and penetration of urban life style, farmers suffer from increased debt as well as from unstable and low income. Unstability and low level of income are caused mainly by price fluctuation and low value added of products. To tackle with this situation, countermeasures against price fluctuation and low value added need to be pointed out as an issue. From the distribution and marketing point of view, improvement of post harvest technology is emphasized in addition to agricultural development and agro-processing. To this end, organizing farmers is important because individual farmers have limited capability. Farmers organization can accumulate individual capabilities and a substantial volume of products, hence, scale merit can be created.

A large volume of products bring about an opportunity to enable the distribution processing, which are one of the viable sources of value added. Scale merit brings about capability to employ many people for marketing and other related activities, and to own distribution facilities and trucks.

It is another aspect of scale merit that response to the market demand can easily be sharpen through distribution processing and market information. Effort of responding to the market demand will create entrepreneurship in the farmers' mind. In fact, agricultural development from now on depends very much on farmers' entreprenewship.

To this end, provision of secure marketing channel is a key issue because the farmers can not produce without selling.

5.1.2 Issues for Improving Distribution and Marketing System in Order to Contribute to Regional Economies

If organizing farmers is understood to be an issue in the rural areas, providing secure market system should a issue in the urban areas. Strengthening wholesale market is particularly important.

Wholesale market has a key function distinct from retail market. It collects a huge volume of commodities, divides them into small lots for retailing and sets price of the commodities.

At present, the UCR characterized as a production place of agricultural products and industrial materials for the BMR has virtually no self-sustaining economic center in the UCR. In the meantime, urbanized life style has remarkably been spread over its rural areas. Stable supply of commodities, industrial materials, parts and agricultural products are strongly required in the future.

To this end, distribution and marketing center function not only for agricultural products but also for industrial products and consumer's products have to be fostered through developing goods distribution facilities.

For agricultural development, efficient distribution and marketing systems help establish a product or place of reputation for special quality product with famous "brand name,". This benefit encourages not only the farmers engaged in such product or place but also the whole region.

5.1.3 Targets for Development

To tackle with these issues, the following four targets for improving distribution and marketing are set.

- Fostering farmers organizations for improving marketing skills
- Developing local market system
- Developing goods distribution facilities

- Fostering distribution industries to encourage export of agricultural products

5.2 Strategies

5.2.1 Background

Thailand maintains a policy of free trade. This policy has been a basis of commercial activities as well as governmental roles in the national economy. Planning for distribution and marketing should also be considered under this national policy.

Enforcement regulations is not appropriate for the development of distribution, because real distribution activities are assumed by the private sector under the free trade policy. To achieve an efficient and economical system, government policies should concentrate their stress on the creation of a better environment of distribution activities through the development and improvement of public facilities and institutions.

Node function in which a variety of distribution activities interact intensively should particularly be strengthened. In this context, a greater emphasis needs to be given on the regional approach to the development of distribution in addition to the national sectoral approach.

5.2.2 Measures for Development

There are several important measures for developing distribution sector, including the followings;

- facilities development,
- system/institutional/organizational arrangement,
- government auction,
- facilitating linkage with other sectors,
- research and development,
- information provision, and
- marketing promotion.

5.2.3 Relationship between Targets and Measures for Development

Planning issues for developing distribution sector are considered by the measures as shown in Table 5.1.

1) Fostering farmers' organization

Fostering farmers' organization aims at enabling farmers to get higher returns from marketing activities as well as reducing farm expenditure. For these, strengthening marketing activities of agricultural cooperative is essential. Agricultural cooperative collects products from farmers and conducts quality control, grading, packaging shipping, all of which are enabled by scale merits.

2) Local market system development

Local market system development aims at establishing central wholesale markets in the local areas in order to respond to the increase in volume of distribution and the need for prompt and timely transactions. It also contributes to farmers' marketing by ensuring a stable sales channel. For these, facilities development, system/institutional/ organizational arrangements and information provision are necessary.

3) Developing goods distribution facilities

Goods distribution facilities help transportation to be efficient and strengthen storage function. Facilities development will be a key planning issue. At the same time, improvement in the system of consignor and consignee of goods has to be considered.

4) Fostering distribution industries

Fostering distribution industries aims at establishing linkages between agriculture, agro-processing industries and distribution industries by making use of existing concentration of export-oriented agricultural products in the UCR. Distribution industries are relatively new activities such as packaging, processing, arranging lot-size, making up

Table 5.1 Relationship between Targets and Measures

	Facilities development	System/institutional/ organizational arrangement	Government action	Linkage with other sector
1. Fostering farmers organization	Agro-products distribution center	Grouping		Contract farming
2. Local maekot system development	Local market	Central wholesale market system	Regulations on transaction and trading business	
3. Developing goods distribution facilities	Distribution center		Provision of truck terminal system	
4. Fostering distribution industries	Distribution complex		Provision of land, infrastructure and utilities	Agro-processing, Packaging companies

	R & D	Information provision	Marketing promotion
1. Fostering farmers organization		Market information system	Brand development Production center
2. Local maekot system development		Market information center	
3. Developing goods distribution facilities	Transprtation equipment		
4. Fostering distribution industries	Packaging and preservation method quality control		

the commodities, and classification in accordance with quality and standard.

Encouraging export of agricultural products aims at concentrating export-oriented agricultural products other than maize, tapioca pellet and rice. It aims at collecting agricultural products in the UCR, northern and northeastern regions. It is also envisaged to promote agricultural diversification of the UCR. This target also provides sale channel of diversified products.

6. PROJECTS AND PROGRAMS

6.1 Fostering Farmers' Organization

6.1.1 Development Concept

Strengthening agricultural cooperative is the most important. An agricultural cooperative covers a whole Amphoe, so that services to each member have not been efficient. Sub-groups of the agricultural cooperative, which are to be organized on various backgrounds such as crop producing group, water user group, land consolidation group and village group, should be set up as a minimum unit of activities of the agricultural cooperative.

Activities of the agricultural cooperative can be divided into four; credit provision, procurement, marketing and farm guidance. These activities are traditionally provided by middlemen as a set-menu and, therefore, they have to be provided together.

1) Credit provision

Credit provision has been the main objective of organizing cooperative since the agricultural cooperative was introduced in Thailand. Most of the cooperative members have participated in the agricultural cooperative for getting loan. With cost increase of agricultural inputs, credits were required. However, source of capital is dependent fully on BAAC's credit, and thus, the agricultural cooperative has not been able to offer distinct advantage over other farmers groups. To facilitate more flexible and easier credit provision, savings from cooperative members have to be increased. This could offer advantageous loan conditions with a consequence of higher motivation of farmers to participate in agricultural cooperative.

2) Procurement

Procurement activities cover buying of a variety of agricultural inputs and consumer goods and distributing them among cooperative members at a prices lower than those on individual buying. It is effective to reducing farming as well as household expenditure. This system has increasingly been adopted by many agricultural cooperatives, though reduction of prices is not successful because the amount of the agricultural inputs and consumer goods being sold is not adequate. It is, therefore, recommended that changwat federation of cooperatives buy them and distribute to each agricultural cooperatives in order to create greater scale merit.

3) Marketing

Strengthening marketing activities is a key element of developing the agricultural cooperative because secure market channel is a basic necessity for production. Agricultural cooperative collects products from its members and gives value added through distribution processing such as cleaning, grading and packaging. To this end, both hardware and software of marketing activities have to be improved.

As for the hardware, agricultural products distribution centers should be developed, consisting of storage facilities, grading facilities and packaging facilities. With a bulk of products, bargaining power can be created and keeping fair transaction is made possible. Through the agricultural products distribution centers, products with higher value added are ship to the merchants at the regional level, wholesale markets, agro business and even contract farming.

The agricultural products distribution centers operate at the changwat level in order to create such scale merits. Changwat federation of cooperatives manages the agricultural products distribution center in the changwat with financial and personnel support from each member agricultural cooperative.

Another advantage of this system is reduced transport cost and the transport means made available for farmers. Each agricultural cooperative owns trucks for collecting the products and transporting them to agricultural products distribution center.

As for the software, market information should easily be collected and efficiently used. Agricultural copperative should have its own marketing section, which continuously collects market information and makes decision of shipping based on such information. It can thus create larger benefits from marketing by choosing buyers and by timely responding to market demand.

Fig. 6.1 shows proposed marketing activities of the agricultural cooperative and the agricultural products distribution center.

4) Farm Guidance

Farm guidance is, at present, provided by agricultural extension officer. However, inadequate number of extension officers has made farm guidance of limited use. For agricultural diversification and higher productivity, farm guidance is important. The agricultural cooperatives should, therefore, provide farm guidance with support of extension offices. To this end, subgroup can be a target unit of farm guidance because of common interest and situation under the subgroup.

Table 6.1 shows the recommended activities of the agricultural cooperative, necessary facilities and related activities/groups.

6.1.2 Project Description

1) Marketing activity based on location

In the UCR, agriculture area is categorized roughly into 2 types; rice producing area and upland crops producing area. The rice producing area covers Chai Nat, Sing Buri, Ang Thong and Ayutthaya, where productivity of paddy is main prospect based on the well developed irrigation system and the soil suitable for paddy. The upland crops producing area covers Sara Buri and Lop Buri, where crop diversification and introduction of livestock and fishery are main prospects. The agricultural cooperatives in the area of each type should

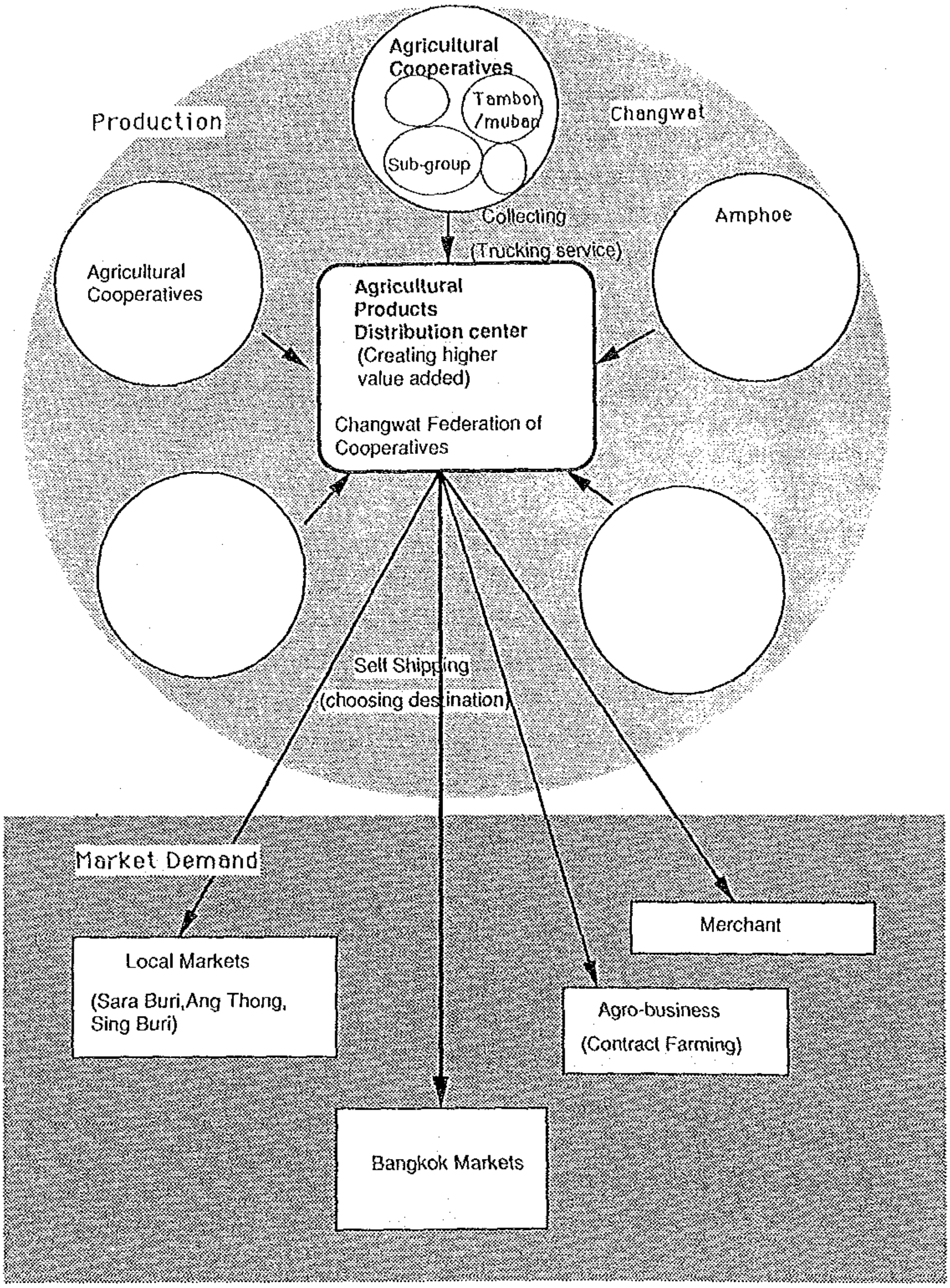


Fig. 6.1 Concept of Marketing Activity of Agricultural Cooperative

Table 6.1 Activities and Facilities of Agricultural Cooperative

Level	Body	Activities	Facilities/Equipment	Existing other organization
Muban/Tambon	Sub-group	Farm guidance Distributing agricultural inputs and consumers goods bought by agricultural cooperative		Registered farmers group BAAC's farmers group Water User Group/Association Lad consolidation group
Amphoe	Agricultural cooperative	Keeping agricultural products Loan and saving Buying agricultural input and consumers goods Transport Coordination of farm guidance with other relevent agencies	Storage Truck	Agricultural Extension Office Cooperative Promotion Office
Changwat	Changwat federation of cooperatives	Marketing Distribution processing (cleaning, selection, grading, inspection, packaging and keeping agricultural products) Transport	Agricultural Products Distribution Center Processing machine Packaging machine Storage (cold storage) Truck Telephone/Facsimile	

therefore have different emphasis in their marketing activity in accordance with type of main products.

(1) Agricultural cooperative in the rice producing area

The agricultural cooperatives in the rice producing areas should concentrate themselves on marketing because farmers in this area will be dependent mainly on rice production in the future, too. Rice marketing should be improved in technical aspects, hence, strengthening storage function, improving post harvesting technologies are important.

Strengthening storage function

Although each agricultural cooperative has storage facilities, it does not have sufficient capacity due to the lack of sufficient investment capital. To strengthen storage function, two recommendations are made; increasing the amount of saving from members to expand investment capacity of the agricultural cooperative, and encouraging changwat federation of cooperatives to own federation's storages. The changwat federation of cooperatives can supplement the shortage of storage capacity of agricultural cooperatives.

Improving post harvesting technologies

To keep the rice in good condition and to increase productivity, post harvesting technologies have to be improved. Priority tasks are quality control and milling ratio.

Fig.6.2 shows marketing system of the agricultural cooperative and changwat federation of cooperatives. To improve rice distribution and marketing, rice distribution center is proposed, where storage together with post harvesting technologies are available at changwat level.

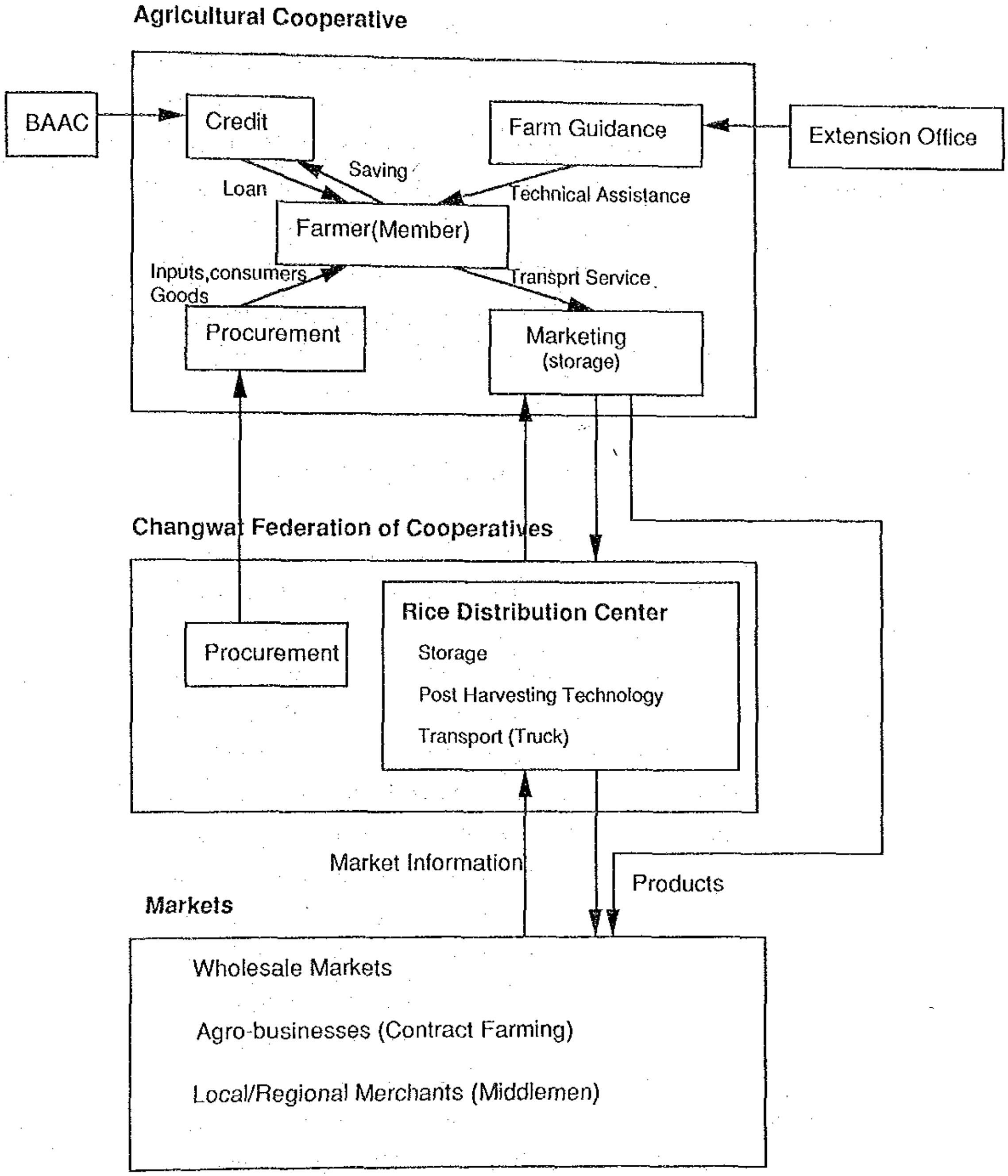


Fig. 6.2 The Concept of Rice Distribution Center

(2) Agricultural cooperatives in the upland crops producing area

Agricultural cooperatives in the upland crops producing area should concentrate themselves on the marketing of upland crops, vegetables, fruits and livestock. Among these crops, maize and sugarcane are easier than vegetable, fruits and livestock in developing distribution and marketing system. A major portion of farm income will still be derived from export-oriented crops such as maize, sorghum and sugarcane. It is, therefore, still important to improve distribution of maize, sorghum and sugarcane and to develop new marketing system for diversified products.

Improving distribution of maize, sorghum and sugarcane

These crops are special in the sense that large agro-businesses manage distribution, processing and exportation. Efficient distribution channel has been developed due to its development recently achieved in a short period of years. At present, most of products collected in the UCR concentrate on Tha Rua, where many silos and warehouses of agro businesses are located. Because regional market of these products is not flexible, the agricultural cooperatives have to send the products to these facilities at the Rua. It is, however, easy to improve distribution of these products because target outlet is clear. The agricultural cooperatives can concentrate on improving efficiency of their transport and distribution processing aiming at a limited target outlet.

To this end, distribution processing center is proposed. The distribution processing centers are to be developed under the changwat federation of cooperatives. The centers have facilities for drying and cutting products in bulk, and transportation. Space, processing equipment and trucks are required. Fig.6.3 shows an outline of the distribution processing center.

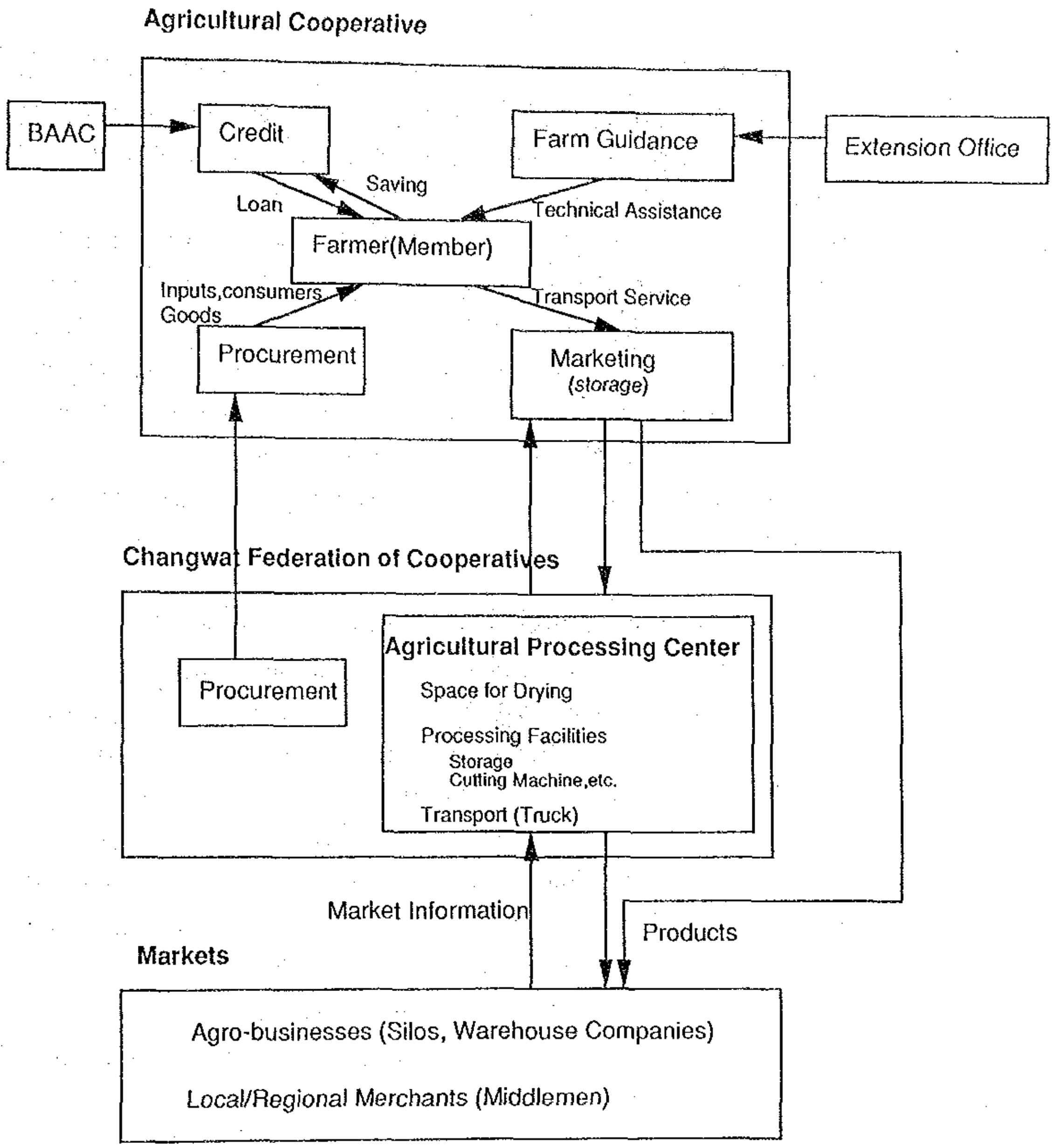


Fig. 6.3 The Concept of the Agricultural Processing Center

Developing new distribution and marketing system for diversified products (non major crops)

Diversified crops (non major crops) such as vegetables, fruits, livestock and dairy products need higher marketing techniques because these products have to be fast distributed. Thus, an efficient distribution network needs to be achieved by fast transportation and secure buyers. This is more important than improving storage function. It is difficult for the agricultural cooperative which has limited experience in marketing activity and limited power in market to establish new marketing channel. Thus strong assistance or support from market is needed. As a first step to learning marketing techniques, joint venture between agricultural cooperative and local merchant/middlemen is realistic.

In this joint venture, agricultural cooperative should concentrate its effort on the farm guidance to produce high quality products, rapidly collect the products, grade and package them, while partner merchant should concentrate its effort in marketing. In terms of facility, the agricultural products distribution center is proposed at the changwat level. Most important factor for this arrangement is to control the timing of the farmers' shipping of various agricultural products under the production plan of whole members. Under the plan, stable supply and quality should foster brand name of the products in the markets. Fig.6.4 shows an outline of the agricultural products distribution center.

2) Responsible agencies

To implement these recommendations, agencies to be responsible should include Department of Cooperative Promotion, Department of Agricultural Extension of Ministry of Agriculture and Cooperatives, BAAC, Department of Internal Trade and Department of Business Economics of Ministry of Commerce.

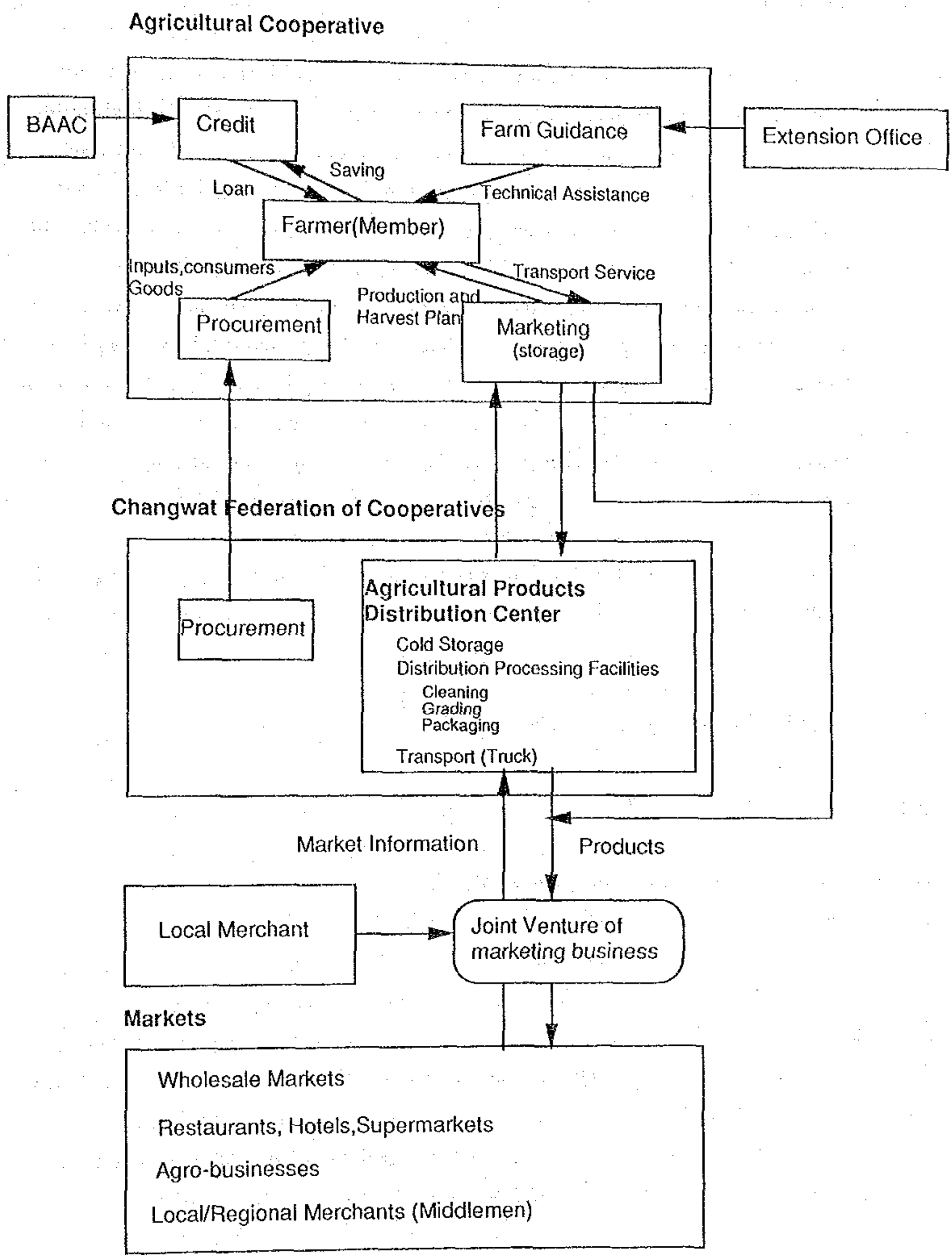


Fig. 6.4 The Concept of the Agricultural Products Distribution Center