3) Relation with other farmers groups

In developing the agricultural cooperative, other farmers groups are in a competitive position. Other farmers groups have been playing more or less the same role as the agricultural cooperatives; credit provision. There has been no special advantage for farmers to participate in the agricultural cooperatives. One reason for this situation is caused by the BAAC. The BAAC extends lending not only for the agricultural cooperatives but also other farmers groups. Some of them are very active with almost same tasks as those of the agricultural cooperatives. However, other farmers groups cover rather small area, which is almost Tambon/Muban level. So that there is limited scale merits available. Thus, these groups should be incorporated in the agricultural cooperatives as their sub-groups.

To this end, money lending system of the BAAC, which is primarily a lending agency, should be reviewed from the viewpoint of fostering the farmers' organization.

6.2 Developing Local Market System

6.2.1 Development Concept

Among local market functions, wholesale function is the most important because the function of collecting and dispatching goods is the most basic to the national economic diversification. Purpose of strengthening wholesale market is to efficiently deal with a huge volume of commodities within a minimum cost and time. Strengthened wholesale market can also respond to different requirements of different commodities through accurate distribution system. Wholesale market should also be strengthened as a marketing information center because it is the place of gathering not only commodities but also the people with fresh market information.

1) Strengthening wholesale function

In strengthening wholesale market in the UCR, the wholesale market should be specialized in its essential function; collecting and dispatching goods. To this end, division between wholesale and retail

functions, adequate member of buyers and sellers, market regulation for fair transaction are important.

Division between wholesale and retail functions

Division between wholesale and retail should facilitate the creation of a hierarchical order of markets in accordance with the flow of commodities. Thus, both wholesalers and retailers will be possible to meet with future increase in volume of commodities and to enhance their speed of distribution and trade operations.

Establishment of new wholesale market is not realistic. Even negative influence may occur in cities. Most of the local markets are at present located in the center of cities and play an important role of attracting many peoples. Division between wholesale and retail should be more practical and effective in strengthening wholesale function by using existing local markets.

According to our local market survey, wholesale and retail share the period of market operation. In view of this practice, clear time sharing between the wholesale and the retail should easily be institutionalized instead of space sharing between them. Time sharing is proposed for the wholesales to operate from midnight to early morning and for the retail to operate from morning to evening.

Adequate number of buyers and sellers

Adequate number of buyers and sellers is required to fully realize efficient price setting and fair transaction in the markets. Too large or too small number of buyers and sellers sometimes causes unfair transaction and inefficient operation. Therefore, the number of buyers and sellers has to be limited by registration or permission by relevant public authority.

Market regulation on fair transaction

To realize fair transaction, regulation of transaction method, measurement method and grading method should be standardized. Fair transaction means that no one is always disadvantageous in transaction.

Adequate facilities and utilities

In order to support efficient operation of market, there should be sufficient facilities such as water, electricity, drainage and parking space as well as marketing information.

2) Improving marketing information system

There are several kinds of marketing information necessary for better shipment of agricultural products. Amount of transaction, origin and price of products are important information for agricultural marketing. Information on the amount of transaction indicates fluctuation of demand and prices and that on the origin of products indicates price differentiation of products. Those information are very useful for farmers to consider the crops for diversification and the timing of shipping for profit maximization.

Information system consists of two important factors. One is information collecting system and the other is information disseminating system. Both of them have to be developed simultaneously with their base on the central wholesale market, where marketing information are available and many commodities and people are concentrated.

For information collection, market regulation will be required. Supervisor of market gives registration or permission to the sellers and buyers. In exchange for this, supervisor obliges the sellers and buyers to submit the record of transaction everyday. This system contributes to improving transaction method by disclosing real prices.

For information dissemination, both sending side and receiving side have to be upgraded. Specific channels of information dissemination

are important rather than general channels such as radio or T.V. Wholesale markets will be a base of sending information including prices, volume and place of origin of products, while the agricultural cooperatives have to be developed to be viable receiver of market information.

6.2.2 Project Description

1) Location

As regional wholesale market, Sara Buri Market, Sing Buri Market and Ang Thong Market should be developed. These markets take the highest place in a hierarchical structure of collecting and dispatching commodities to and from the UCR and its some vicinities.

2) Responsible agencies

Ministry of Interior, Ministry of Commerce, municipalities and sanitary districts are at present involved in market management. Ministry of Interior and Ministry of Commerce are in charge of registration of market, while municipalities and sanitary districts are in charge of sanitation of market. There is, however, no agency responsible for monitoring and controlling the distribution and marketing business in the wholesale markets. To achieve fair transaction and collect sufficient market information, wholesale market needs to be placed under the authority to monitor businesses. Municipality and changwat are proposed to be the authority in this regard.

3) Further study

For the purpose of strengthening wholesale market, a possibility of central wholesale market system should seriously be considered for longer-term development.

The central wholesale market is supposed to fully be managed by municipality or changwat and other markets are supposed to be prohibited from being engaged themselves in the wholesale activities. To this end, new act such as central wholesale market act is needed. The

relationship between the new market act and existing free trade policy should be a critical point to discuss.

6.3 Developing Goods Distribution Facilities

6.3.1 Development Concept

More efficient and better distribution facilities will be required in response to the increase in cargo volume. Node function should be strengthened together with transportation. Systematic transportation consists of the system of delivery and collection to cover certain area and the line-haul transportation among areas. Attendants should be divided in correspondence to these components, so that these components are linked efficiently at the node points in cities. For this purpose, goods distribution center with truck terminal is recommended to cover sub-regional area. The goods distribution center is supposed to deal with industrial products and consumers goods.

At present, these commodities are distributed through the wholesalers and agents located in several changwat centers. However, small trucking companies are engaged in delivery, collection and line-haul being mixed alltogether. This system may not cope with increasing volume of cargo in the near future.

However, industrial products and consumer products from the BMR will be more distributed among the local areas.

The proposed distribution center consists of storage, sub-regional truck terminal and other relevant facilities. It is also closely related to the wholesale market and the distribution complex.

Storage aims at keeping stable supply of industrial and consumers products to the UCR. Those commodities coming from the BMR are distributed from the storages under local wholesalers and agents. It is also a place to quickly intertransfer goods between truck and wholesale market and between small and large trucks without causing damage on commodities. Its function can also be played by truck terminal.

However, considering that the UCR is relatively a small area and that it is near Nakhon Sawan and Nakhon Ratchasrima which are proposed places of regional truck terminal, scale of the truck terminal in the UCR should not be more than sufficient to cover the UCR.

6.3.2 Project Description

1) Location

Distribution center must take locational advantage, so that it should have good access to road and railway, Routes 1 and 2 and Asian Highway in particular. Another importance is to keep trading area as a core of goods distribution in the UCR. Relationship with other regions and network of cities are also important. The distribution centers are proposed to be set up at Ang Thong and Sara Buri. Ang Thong has close linkages with Suphan Buri at present and, in future, with Sara Buri through East - West Link Highway. This link will encourage an agro-processing zone to be developed alongside. Meanwhile, Asian Highway provides Ang Thong with close connection to the northern region. Ant Thong has a large potential to be the distribution center covering the area along East - West Link Highway and western part of the UCR.

Sara Buri is a core city of the proposed Greater Sara Buri Industrial Core (GSIC) and is in a strategic location for connection with the northeastern region. Distribution center in Sara Buri will cover the GSIC and the eastern part of the UCR.

Fig 6.5 shows trading areas of the distribution centers and related network.

2) Responsible agency

Transport activities, trucking industry in particular, are undertaken by both private and public. Since investment in this distribution center directly benefits businesses, the private sector should better be responsible for managing the distribution centers. The public sector should, at first, prepare the land for distribution center and sell it to the private if private company proposes effective use of the center.

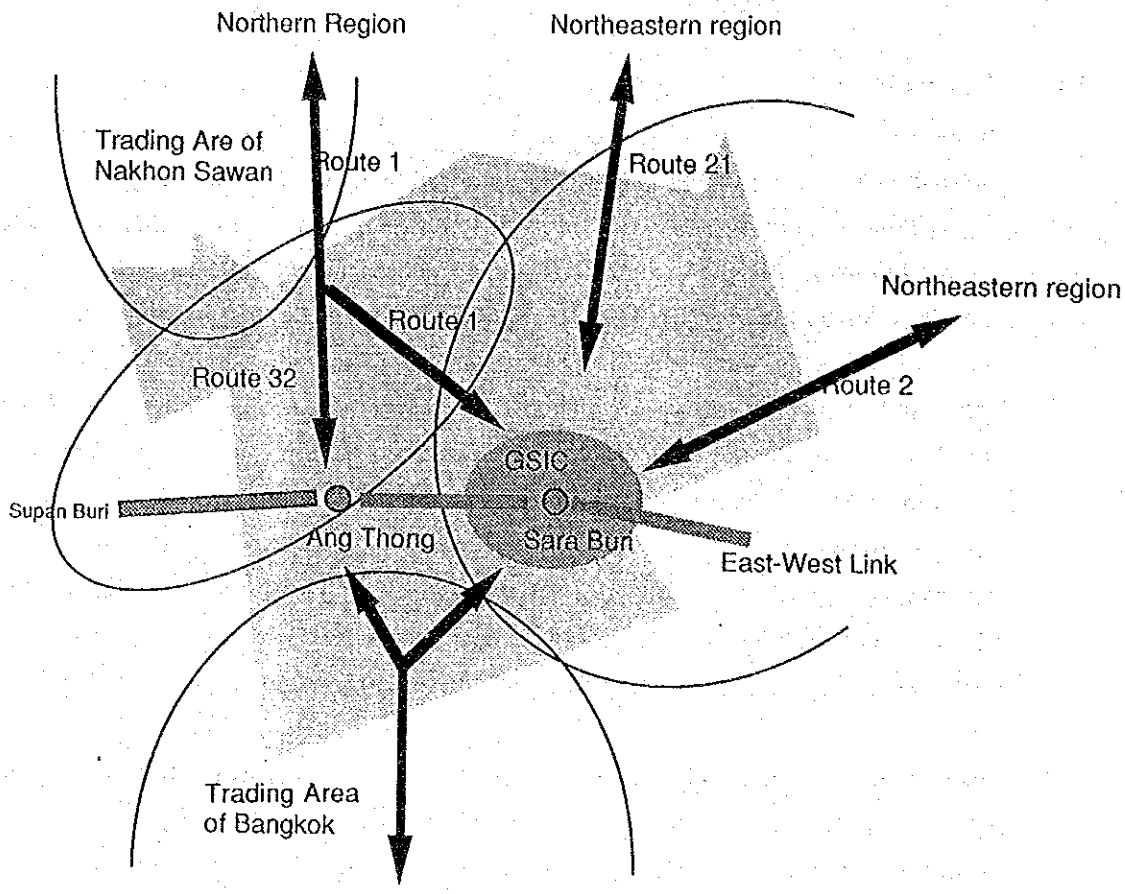

Fig. 6.5 Trading Areas of Distribution Centers and Related Network

3) Time scheduling of projects

Truck terminal in both Bangkok and regional cities are proposed by Land Transport Development of Ministry of Communications. Distribution centers in Sara Buri and Ang Thong must have close linkage with a network of these truck terminals. Development of the distribution centers should start at an appropriate timing to be set in consideration of implementation of the truck terminals, the truck terminal in Bangkok in particular.

6.4. Fostering Distribution Industries

6.4.1 Development Concept

Fostering distribution industries include encouraging the concentration and diversification of existing export-oriented agricultural products.

In encouraging the concentration of agricultural products for both domestic consumption and export, the UCR has locational advantage over other regions. It is recommended to make best use of this advantage through strengthening the storage facilities equiped with the functions of quality control and inspection. Storage is important in controlling the timing of shipment and delivery, and avoiding the decrease of quality. At the same time, it contributes to keeping balance between demand and supply. Particularly, agricultural products need the storing facilities which can preserve the quality. Basic direction of development is to promote concentration of not only bulky products such as rice, maize and tapioca pellet but also vegetables and fruits. At the same time, this storing function will play a role of distribution center for domestic consumption particularly in the BMR.

Distribution processing supports sales and maintains quality of commodities. Distribution processing industries consist of packaging, transport equipment, labeling, printing and other processing activities in the course of distribution. Distribution processing, especially for agricultural products, contributes to increasing their value by realizing better appearance and easy handling. For example, Thai maize is more expensive than US maize, but packed Thai maize has competitive power over US maize, because of the cost advantage in labor intensive process of packaging.

Another important role of distribution processing is quality development and quality control including prevention of commodities from damage through transportation.

In the UCR, several kinds of export-oriented agricultural products are dealt with in specific market agglomeration. Therefore, distribution processing industries find large potential in the UCR to realize higher value added in both export and domestic consumption sales.

For fostering distribution industries, two issues are important. One is encouraging the concentration of the agricultural products and the other is fostering distribution processing industries. Both of them are complementary. Therefore, a distribution complex is recommended for the UCR to utilize its locational advantages. The distribution complex consists of storage, grading and packaging facilities. Basic concept of the distribution complex is to attain more concentration and higher value-added. This concept is shown in the Fig. 6.6.

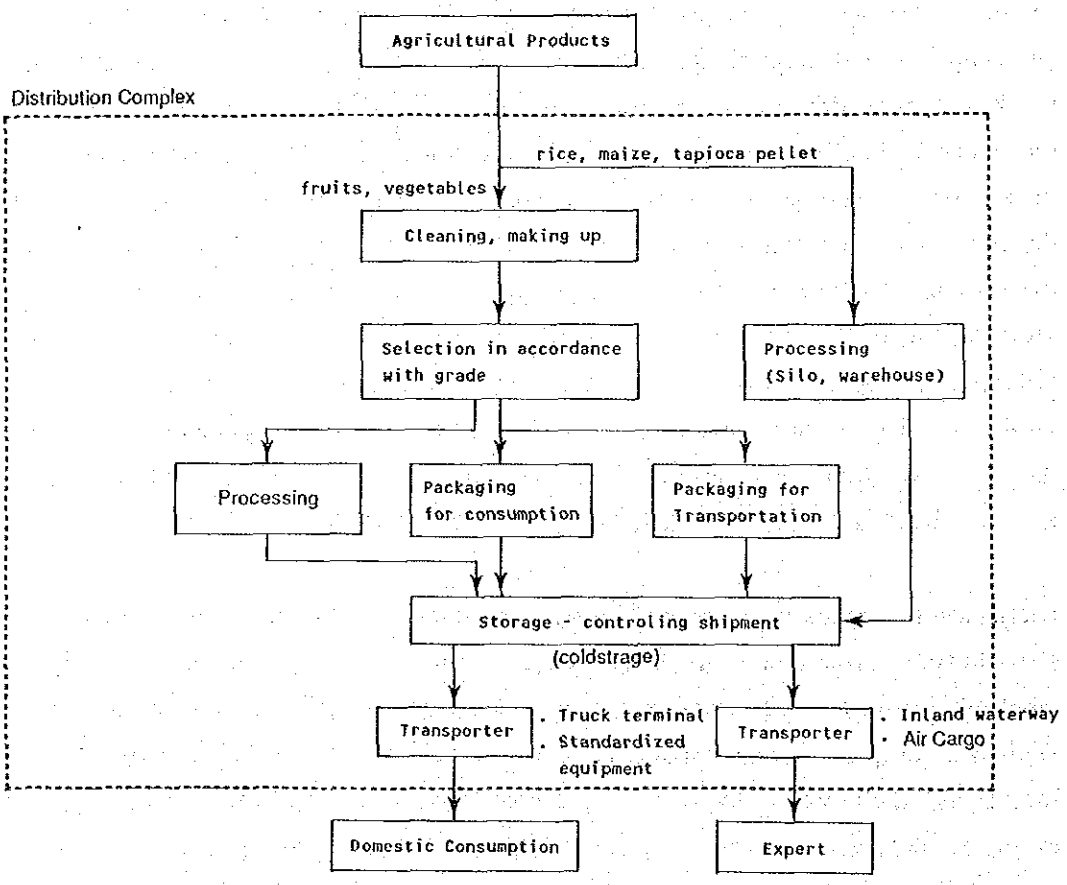

Fig. 6.6 Concept of Distribution Complex

1) Grading, selection and making up of agricultural products

Selecting agricultural products in terms of size, taste and variety will be more demanded from consumers. Also, better appearance of commodity will be more important for marketing. Therefore, it is increasingly important to select, classify and package commodities in accordance with grade and standard.

2) Packaging industries development

Packaging commodities aims at decreasing the damage to commodities, minimizing transport cost and keeping good appearance. Packaging can be divided into those for transport and commodity. Both can possibly be located in the UCR because of its locational advantage. Agricultural products coming to the UCR can be diverted to various market destinations, end-users and modes of transport. Regarding the market destination, the BMR and export are the key options to be considered. Regarding the end user, there are various kinds such as restaurant, hotel, supermarket and usual market. Regarding the mode of transport, the UCR can have options of road, inland waterway and the air transport from Don Muang Airport depending on transport cost and nature of demand. Therefore, the agricultural products concentrated in selected places of the UCR can be classified and packed at minimum cost.

3) Storage facilities development

Storage facilities should be developed particularly for vegetables and fruits . The vegetables and fruits which have higher value-added than rice, maize and tapioca pellet need good storage facilities for shipment. At present, vegetables and fruits come from the northern and eastern regions. Therefore, cold storage in the UCR could attract various commodities under the situation in which no cold storage facility is available near Don Muang Airport. This function is supposed to be combined with other facilities and services to be made available here such as packaging, selection, grading and inspection.

6.4.2 Project Description

1) Location

Tha Rua is the most important location for developing distribution industries, because the export-oriented agricultural products have traditionally been concentrated there on the basis of inland waterway transport. Tha Rua is also an important element of GSIC and the East-West Link passes there to connect Tha Rua directly with Sara Buri as well as Ang Thong and Supan Buri.

2) Responsible agency

The distribution industries essentially belong to the private sector. The public sector may concern itself only with providing more efficient infrastructure, so that industrial estate approach may well be applied to the efficient provision of space for the distribution industries. To promote the distribution complex in Tha Rua, provision of certain privilege should be necessary for storage firm, wholesaler, exporter and packaging firm.

PART II

CONTRACT FARMING SYSTEM : PRESENT SITUATION AND POSSIBILITY

1. OBJECTIVES OF STUDY

Development of the UCR calls for close linkage between farming and agricultural processing/marketing with special reference to contract farming. The contract farming is of potential arrangement in encouraging agricultural development in the UCR. While the activities recommended in marketing and distribution sector report is important in long-term, the contract farming is recommended as an important short-medium term action. The farmers, first of all, have to learn the importance of marketing activity as well as advanced processing techniques with higher quality seeds and inputs through the contract farming.

The farmers's experiences in the contract farming will be a sound basis of future agricultural development.

The Royal Thai Government (RTG) has been willing to let the private sector do the things which it can do best. RTG has not hesitated to withdraw from provision of services when the private sector demonstrates it can perform the service better at less cost to the government. RTG has not only allowed the private sector to provide services such as provision of agricultural inputs and agricultural exports, it has but also encouraged the private sector to provide more traditional public services such as seed development and multiplication, agricultural research and extension. The private provision of public services brings the forces of competition into areas of monopoly. In the case of Thailand, it has been demonstrated that these forces lead to better services at a lower price.

2. HISTORY OF CONTRACT FARMING

2.1 Introduction

Generally, both high value cash crops such as baby corn, supersweet corn and vegetables, and upland crops such as maize, sorghum and soybean gave a very low yield. This, combined with limited secure water supplies and local market opportunities, did not offer strong encouragement for expanding production of the high value, irrigated non-rice crops.

Main causes for poor yields of these crops are the low quality seeds which farmers used, and the low production technology which they practiced. Limited local market opportunities may be due to poor quality and fluctuating supplies.

Given this setting, the government staff tried to facilitate marketing opportunities through the service of the agricultural cooperatives and/or the farmers' groups. But this was not successful because it did not solve the problems of poor quality products and insufficient agricultural inputs. To solve the product quality problem by investing more on high quality inputs and practicing better post-harvest technology, it needs incentives through higher price. Likewise, group production planning by farmers may solve the supply fluctuation problem.

2.2 Private Initiative

In the late 1970s, processors of poultry products, oil seed crops and vegetables in the central, northeastern and northern regions tried to overcome the above-mentioned problems of low quality product and fluctuating supplies by offering contracts to growers. They are of two kinds, namely, production contract and procurement contract.

A production contract involves processing plant in the production process. The processing plant purchases growing crop/livestock and pays farmer a

"compensation" which includes a payment for his land and labor. The farmer's payment often takes the form of a piece-wage, e-g. 100 baht for two working days. Currently, production contracts predominate in the northeastern and central regions for baby corn, tomatoes, asparagus and poultry.

A procurement contract is an agreement between farmer and the buyer who is processor and exporter covering details of the product, price, time and nature of delivery, and other aspects of exchange, for example, those needed when payment does not take place at the time of delivery. Procurement contracts are very common for vegetables and upland crops.

Both types of contract are widely practiced and it was found that most farmers prefer to sell their produce to contract market in order to assure reasonable prices. In general, farmers alone have no choice to select the kinds of crops to sell by contract; the processing plant has to offer an agreement to them. Procurement or marketing contract is more popular than the production one.

Based on the experience in these two kinds of contract, processors have redesigned the contract for use in paddy crop. It is a combination of production and procurement contracts. But parties involved include a processor, a farmer, a banker and a government agency, and the details of the contract include the provision of production inputs, technical advice and cheap credit to the farmer. After successful experience with paddy crops, it was expanded to be used for other crops such as maize, sorghum, and soybean. Because of its integrated role in production, marketing, financing and planning, this type of "contract farming" is now called an Integrated Agribusiness System (IAS).

An IAS contract is widely used in the following areas.

Crop	Province
1. RD 23 strain rice	Suphan Buri, Kanchana Buri, Sing Buri, Chai Nat, Ratcha Buri, Ang Thong, Pichit, Pitsanulok, Nakhon Sawan, Lop Buri, and Sara Buri

2.	Suphan Buri 60 strain rice	Suphan Buri, Kanchana Buri, Sing Buri, Chai Nat, Ang Thong
3.	Khao Mali 105 strain rice	Surin, Sisaket, Roi-Et, Ubon, Buriram, Yasothon, Sakol Nakhon, Khon Kaen, Kalasin, Udon, Nakhon Ratchasima, Nakhon Panom, Kamphaeng Petch, Petchabun, Chacherngsao
4.	Maize	Chiang Rai, Petchabun, Prae, Pitsanulok, Uttaradit, Uthai Thani, Nakhon Sawan, Kamphaeng Petch, Sisaket, Udon, Loei, Buriram, Chaiyaphum, Ubon, Nakhon Ratchasima, Khon Kaen, Lop Buri, Sara Buri, Chai Nat, Chantaburi, Prachin Buri, Suphan Buri
5.	Soybean	Sukhothai, Uthai Thani, Petchabun, Udon, Nakhon Ratchasima, Lop Buri, Sara Buri, Prachin Buri, Sisaket, Chiang Rai

2.3 Evolution of Contract Arrangements

The general practice in the production and procurement contracts is that farmers come to see processors to get contracts. The written contracts signed between farmers and processing plants usually lack specific terms concerning the rights and responsibilities of both parties. Terms of the contracts often place farmers at a disadvantage. Most contracts do not contain: (a) penalties for crop damage caused by either party, (b) conditions of payment, (c) payment schedule, and/or (d) schedule of crop delivery.

As far as the IAS contract is concerned, it involves four parties namely, Department of Agricultural Extension (DOAE), Bank of Agriculture and Agricultural Cooperatives (BAAC), a private agribusiness firm, for example, Charoen Pokphand Produce Co.Ltd. (CPP), and farmers. Formal arrangement starts when the private firm submits its proposal, for example, those regarding the proposed area, crops, provision of inputs and services, marketing terms, etc. to DOAE for consideration of the central committee. After the proposal is approved, the firm signs the contract with BAAC and then works out in details

with BAAC and the farmers. The contracted farmers sign the contract with BAAC before they receive inputs and credit from it. The contract is regarded as a legal document but, in practice, both parties do not pay much attention to conditions in the contract. Both BAAC and the private firm do not intend to bring matter to the court, when farmers can not fulfill the contract.

2.4 Government Reaction

In the production and procurement contracts, the government pays little attention to the contract and its outcome or problems. This is because farmers enter into contractual arrangements with processors as individuals, without government's advice or supervision; and problems hardly happen. However, the government officials at the local level do encourage small-scale farmers to sell their produce through these markets.

DOAE plays a very active role in encouraging private agribusiness firms to take part in joining the integrated agribusiness program by providing detailed information about the government's policies on crops, target areas and activities. Annual seminar is also organized to serve this purpose. DOAE also works hard on the improvement of terms and conditions of the contract. BAAC, a government enterprise, invites prospective agribusiness firms to joint the program.

3. ON-GOING CONTRACT FARMING PROJECTS IN THE UPPER CENTRAL REGION

There are two kinds of contract farming in the UCR: (a) Production and Marketing Contract (PMC), and (b) Integrated Agribusiness Systems (IAS) Contract. PMC is predominant in Lop Buri and generally involves the production and marketing of vegetables, broilers, ducks, rabbits and cow milk. Most farmer's payment under this type of contract take the form of a piece-wage, except in the case of milk which is bought on the pre-determined contract price. IAS contract, as earlier mentioned, involves the integrated production and marketing activities of major crops such as maize, sorghum, soybean and rice.

3.1 Characteristics of Contract Farming

PMC is the simplest form of contract farming in that it involves participation of only two parties, namely, farmer processor and contracted activities are the straightforward production techniques already familiar with the farmer. Although its popularity is still prevailed in the UCR in the future, but there is no tendency for any major changes in its characteristics.

IAS contract is expanding its scope in the UCR and in the other regions as well. It is more complicated than PMC and is characterized as shown in the Table 3.1.

The contract farmers under IAS contract are those who have experienced in farming in the project area for at least one year and been accepted by the group's members for their joint responsibility and obligations with the group's members. Tenant and share-cropper farmers can also join the IAS group if they have permanently settled in the project area. The group's size ranges from 5 up to 20. The crop areas under the contract vary from crop to crop and depend upon the farmers' capability. Ordinary loan size per farmer is 30,000 baht. Additional loan can be obtained from BAAC.

Table 3.1 Responsibilities of Integrated Agribusiness System (IAS) Contract Components

Responsibilities of Parties in IAS			
Private firm	Farmer	Financial institution	DOAE
1. provision of technology and personnal	1. prepare input utilization as scheduled	1. farmer selection	1. give advice in project formulation
2. provision of good quality inputs - seed - fertilizer - pesticides - farm machines	2. participate in all processes	2. provision of loan	2. provision of technical knowledge and data
3. provision of marketing services	3. record relevant data on - soil and climate - plant growth - problems	3. supervision of activities and credit use	3. supervision of project activities
4. crop insurance arrangements			

In joining the IAS contract group, participating farmers will receive the following benefits; (a) a low (12.5% per annum) interest loan from BAAC for production purpose, (b) a chance to use high quality production inputs at reasonable prices, (c) an advice on appropriate modern technology application in crop production, (d) ability to produce good quality products suitable to the market demand, and (e) a chance to sell their produce at reasonable prices.

3.2 Crops

The promising crops involved in the IAS contract in the UCR include maize, soybean, and high value rice such as Khao Mali 1.5. Maize is the number one crop so far as it showed a reasonable increase in yield under the IAS program (Table 3.2). The average maize yield under the program has bean more than double that of the non-member group. Maize growing area under the program in the whole country has increased from 3,152 rai in 1985 to 203,744 rai in 1988. Since the production cost of maize under the program is decreased to 1.21 baht per kg (Table 3.3). Soybean, the import substitution crop of Thailand, is another major crop to be promoted by the government under the contract

farming program. Table 3.4 shows the target area, yield, and production for maize, soybean, and sorghum under the IAS program. In addition to these main crops, the high value rice (for example, Khao Mali 105, Suphan 60, and RD 23) is being promoted under the IAS program in Ang Thong, Sing Buri, and Lop Buri.

Table 3.2 Progress of Integrated Agribusiness System (IAS) Operation on Maize, 1985 - 1988

Year	Area (rai)	No. of farmers involved	Average yield (kg/rai)	
			Member	Nonmember
1985	3,152	206	910	375
1986	7,902	449	859	298
1987	20,130	1,140	560	201
1988	a. 203,744	16,605	646	385
	b. 16,393	901	814	

a. includes members using "seed only" and "seed and fertilizer"
b. includes members using 3 inputs namely seed, fertilizer and pesticides.
Source: CPP

Table 3.3 Costs and Returns of Maize Production under Integrated Agribusiness System (IAS) and Non-IAS, 1988

unit: Baht per rai

	IAS's farmer	Non IAS's farmer
Costs		
1. seed	99	45
2. fertilizer	120	20
3. herbicide	60	-
4. first ploughing	120	-
5. second ploughing	80	80
6. planting and fertilizing	90	60
7. herbicide spraying	50	180
8. crop insurance	30	-
9. harvesting	160	90
10. shelling	96	55
11. transport	80	45
	985	575
Revenue		
1. average production	814.35	385
2. average revenue @ 2.50 baht/kg	2,035.80	962.50
Net Return per rai	1,050.80	387.50
Production cost per kg	1.21	1.49

Table 3.4 Integrated Agribusiness System (IAS) Program Targets for Maize and Soybean, 1990

Crop	Number of Province to be promoted	Target area (rai)	Target yield (kg/rai)	Target production (ton)	Value (Million Baht)
Maize	21	300,000	800	240,000	480.0
Soybean	37	250,000	250	62,500	437.5
Sorghum	6	20,000	450	9,000	16.6

Source: Charoen Phokphand Co., Ltd.
Note: guranteed prices for maize, soybean, and sorghum are 2.00, 7.00, and 1.85 baht/kg respectively.

3.3 Market

The market place to facilitate the buying of produce under the contract farming in the UCR is vary convenient and efficient. Tha Rua market in Ayutthaya is one of the big terminal markets for upland crops. There are also big and efficient upland crop markets in Lop Buri and Sara Buri. Therefore, the market opportunities for maize and sorghum are very good. And the markets for soybean and rice are even better because the agribusiness firm involved in the program (CPP) is prepared to buy all the produce of these two crops. Furthermore, there is a strong market demand for produce under the program because of its superior quality.

3.4 Changes in Farmers Income

As yields of the crops under IAS contracts are substantial (Table 3.2) and production cost is less for maize (Table 3.3), on the average, the maize farmers under the program get 663 baht per rai more than the non-member farmers. Comparable data are not available on the farmers' income from soybean, but 250 kg/rai yield, which is about 30 kg higher than the national average, and net returns of 737 baht per rai for soybean farmers (Table 3.5) is a significant increase.

Table 3.5 Costs and Returns of Soybean Production under the Integrated Agribusiness System (IAS), 1989

			Baht per rai
Costs			
1.	Inputs		505
	1.1 seed	195	
	1.2 fertilizer	140	
	1.3 herbicides	60	
	1.4 rhyzobium	10	
	1.5 pesticide	100	
2.	Activities		620
	2.1 first ploughing	100	
	2.2 second ploughing	80	
	2.3 planting, fertilizing	90	
	2.4 herbicide spraying	50	
	2.5 pesticide spraying	100	
	2.6 harvesting, shelling	200	
3.	Crop insurance		38
	Total cost		1,900
Revenue			
	Production x guaranteed price 250 x 7.60		1,900
Returns			
	1,900 - 1,163	=	737

4. CASE STUDIES ON THE ON-GOING CONTRACT FARMING IN THE UPPER CENTRAL REGION

IAS contract farming project in the UCR started in 1985 with maize farmers in Lop Buri and Sara Buri. In 1988, the project expanded to include soybean as the second major crop for Changwat Lop Buri. The ongoing contract farming activities in 1989 in Sara Buri and Lop Buri are summarized in Tables 4.1 and 4.2. Amphoe Kaeng Khoi is the leading and major area of maize IAS contract farms in Sara Buri. The average size of maize area under contract in Sara Buri is 31 rai (ranging from 20 to 47). Of 248 contract farmers, 67 per cent used seed and fertilizer, and 30 percent used only the seed input in 1989. In Changwat Lop Buri, projects concentrated on Amphoes Khok Samrong, Phatthana Nikhom and Chai Badan for both maize and soybean crops. The average area under the program is 25 rai for maize and 23 rai for soybean, being much smaller than that in Changwat Sara Buri. Expansion of contract farming of rice crops started in 1990 in Changwat Ang Thong.

Table 4.1 Integrated Agribusiness System (IAS) Contract Farming of Maize, Sara Buri, 19879

Amphoe	Maize area under the program		Number of farmer members who use:			
	Total	Average	Total	Seed only	Seed & fertilizer	Seed, fertilizer & pesticide
Muang Sara Buri	906	39	23		23	
Kaeng Khoi	2,880	26	110	22	81	7
Phra Phutthabat	2,964	47	63	28	35	
Muak Lek	1,057	20	52	24	28	
Total	7,807	31	248	74	167	7
			100	30	67	3

Source: CPP

Table 4.2 Integrated Agribusiness System (IAS) Contract Farming of Maize and Soybean, Lop Buri, 1989

Amphoe	Maize			Soybean		
	Total area (rai)	Average (rai)	Farmer Member	Total area (rai)	Average (rai)	Farmer Member
Khok Samrong	3507	22	163	1593	22	71
Phatthana Nikom	2034	28	74	951	45	21
Chai Badan	550	29	19	1267	18	71
Muang Lop Buri	684	40	17			
Total	6775	25	273	3811	23	163

Source: CPP

The operational procedure of IAS contract starts when farmers receive loan fund and production inputs such as seeds, fertilizers and pesticides from BAAC. The field staff of the private agribusiness firm involved in the project then works closely with the farmers in giving technical advice on all production activities. An emphasis is given on the issue of how to apply modern technology properly. Some demonstration plots were carried out in the farmers' field. A firm's field staff team comprising a chief with B.S. degree and an assistant with diploma has an office in the field and travels with a pick up truck to serve the farmer members in the whole province. These field staff were carefully selected and well-trained. Their operation seems to be much more efficient in doing extension business than that of the DOAE's field staff.

4.1 The Case Studies

4.1.1 Phra Phutthabat Integrated Agribusiness Systems (IAS) Group

The Phra Phutthabat Maize IAS group started its business in 1985 with seven group members, all growing maize. It is in the area of maize growing for more than 20 years, being on of the oldest maize growing areas in Thailand. It stays close to a government maize experimentation station and has good access to big maize merchants in Phra Phutthabat market itself and the terminal market of Tha Rua as well.

Table 4.3 shows some characteristics of the group members as well as their non-member neighbors. The maize growing area under the project is rather large at 46 rai. About half of the members rent their lands from absentee owners. The area is famous for its wide variation in rainfall, and 1989 is a bad year affecting the yields to decrease down to nearly 80 percent of their bevel in normal year. This climate factor explains the reason why 85 percent of the members and no one of the non-member did not apply fertilizer to their maize. The net return per rai is 960 baht compared with the average net return from the whole IAS projects of 1,050 baht (Table 3.3). However, the group's average production cost for maize in that year is 1.54 baht. It yielded a good income since they sold it at 3.04 baht per kg. The maize price was only 0.04 baht per kg different from what the non-members received. This small difference can be attributed to the poor crop quality due to drought. This shows a fact that selling product to firms will bring about a higher cross income only when product quality is high. This explains the reason why only 29 percent of the members sold their produce to CPP in 1989. Farmers did not think at all that the technical advice and guaranteed price benefit them (Table 4.3). This explains that farmers are good at the technical part of the crop production and the price is favorable to them in 1989.

Table 4.3 Characteristics of Member and Non-Member of Integrated Agribusiness System (IAS) Amphoe Phra Phutthabat, Sara Buri, 1989

Characteristic	Member	Non-member
Average household size	4.9	4.7
Average family labor	2.3	2.3
Maize planted area (rai)	46	50
Project's input used		
Seed (%)	100	NA
Fertilizer (%)	85	NA
Average output (kg/rai)	640	601
Sold product to		
CPP (%)	29	NA
Local merchant (%)	71	NA
Average price received (B/kg)	3.04	3.00
Benefits from project:		
Credit (%)	14	NA
Seed (%)	29	NA
Technical advice (%)	-	NA
High yield (%)	57	NA
Guaranteed price (%)	-	NA

NA Means not applicable
Source: Study Team Survey

Most members expressed that they wanted to stay with the IAS group all the way because they think that they wanted to receive benefits from the newly released maize seeds in the future.

4.1.2 Muak Lek IAS Group

Muak Lek is the main maize growing area of Changwat Sara Buri and it has maintained the present trend of production because the land and its topography are more suitable to maize growing than to other upland crops. The climatic condition of the area is unpredictable. The cropping area under the project is rather large at 58 rai with the average size of family labor of 3 persons (Table4.4). Hundred percent of Muak Lek farmers used both seed and fertilizer inputs because the land is rather poor. A rather high cost (using those 2 inputs) and bad crops caused Muak Lek farmers to receive a low return of 395 baht per rai (income of 1,380 baht minus 985 baht production cost). Their production cost is 2.21 baht per kg. Crop insurance program should be introduced into this area. Although 86 percent of the group members sold their produce to local merchants, they were able to get a high price of 3.11 baht per kg because the selling time was late while supply was small. The farmers felt that credit and guaranteed price are the two main benefits for them. As far as the non-member farmers are concerned, they received a rather low yield due to poor quality seed and low level of fertilizer. This resulted in a low price of 3.01 baht per kg. It is interesting to note that all non-member farmers here were aware of the IAS contract farming project. This is partly due to the fact that they live in isolation so that chances of meeting other farmers and learn about the project are small. The other reason is that they have not become BAAC's customers; they are not on the first target group for BAAC in promoting the IAS.

4.1.3 Muang Lop Buri IAS Group

This part of Muang Lop Buri is a typical maize growing area with unpredictable climatic conditions. The maize area under the project is about 46 rai per farm which is rather large for the project farmers. Eighty-two percent of the members apply fertilizer to their maize but unfortunately the crops suffered from the drought causing a 396 kg per rai yield (Table 4.5). They sold all their produce to local merchants because of its low quality. The group members received about 0.11 baht per kg higher price than their non-

member counterpart. This is because the modern technology used by the group members helped them in getting a better quality product even in the same poor climatic condition. High yield and seeds are the two important benefits that the group member realized. Credit, guaranteed price and technical advice are important for them in the respective order. All three non-members interviewed were aware of the IAS project but did not fully understand it and felt that they did not want to join them because they thought that the group set up too many conditions on the members.

4.1.4 Khok Samrong IAS Group

The Khok Samrong contract farming group consists of 11 members, all of whom are BAAC's customers and grow soybean as the second crop after rice. The group started their activities in 1989 and met with success both in terms of high yields and favorable product prices. Table 4.6 shows that the group has an average planting area of 15 rai (ranges from 10 to 25 rai) and average yield of 259 kg per rai (ranges from 166 to 320 kg). A soybean grain price of 8.20 baht/kg paid to the farmer members was about 0.30 baht per kg higher than the local market price. This difference in price resulted mainly from the premium quality of the product. The group members are very receptive to the modern technology advised by the company's field staff. Only one out of eleven members did not apply fertilizer to his soybean crop, resulting in a low yield of 214 kg per rai. On the average, the group member received a gross income of 2,123 baht per rai. Deducting this income by the average production cost of 1,163 baht per rai (Table 3.5), the Khok Samrong soybean farmers received a 960 baht per per rai as their net returns. Most farmer members much appreciate the good quality seed provided by the company. They all agreed that seed and technical advice helped them in boosting yield the product quality to the extent which they never reached before.

Table 4.4 Characteristics of Member and Non-Member of Integrated Agribusiness System (IAS) Amphoe Muak Lek, Sara Buri, 1989

Characteristic	Member	Non-member
Average household size	6.4	7.3
Average family labor	3.1	3.0
Maize planted area (rai)	58.6	33.3
Project's input used		
Seed (%)	100	NA
Fertilizer (%)	100	NA
Average output (kg/rai)	444	308
Sold product to		
CPP (%)	14	NA
Local merchant (%)	86	NA
Average price received (B/kg)	3.11	3.00
Benefits from project:		
Credit (%)	29	NA
Seed (%:	14	NA
Technical advice (%)	14	NA
High yield (%)	14	NA
Guranteed price (%)	29	NA

NA means not applicable

a: It is a bad year for maize crop in 1989 which constitutes about 80% of normal year's output

Source: Study Team Survey

Table 4.5 Characteristics of Member and Non-Member of Integrated Agribusiness System (IAS) Amphoe Muang Lop Buri, 1989

Characteristic	Member	Non-member
Average household size	4.9	6.0
Average family labor	2.7	5.3
Maize planted area (rai)	45.9	48.3
Project's input used		
Seed (%)	100	NA
Fertilizer (%)	82	NA
Average output (kg/rai)	396	347
Sold product to		
CPP (%)	0	NA
Local merchant (%)	100	NA
Average price received (B/kg)	3.08	2.97
Benefits from project:		
Credit (%)	19	NA
Seed (%)	27	NA
Technical advice (%)	9	NA
High yield (%)	27	NA
Guaranteed price (%)	18	NA

NA means not applicable

a: It is a bad year for mziae crop in 1989 which constitutes about 80% of normal year's output

Source: Study Team Survey

Table 4.6 Characteristics of Member Farmers of Integrated Agribusiness System (IAS), Amphoe Khok Samrong, Lob Buri, 1989

Characteristic	Member
Average household size	4.3
Average family labor	2.3
Soybean planted area (rai)	15.1
Project's input used	
Seed (%)	100
Fertilizer (%)	91
Average output (kg/rai)	259
Sold product to	
CPP (%)	100
Local merchant (5)	0
Average price received (B/kg)	8.20
Benefits from project:	
Credit (%)	0
Seed (%)	27
Technical advice (%)	27
High yield (%)	37
Guaranteed price (%)	9

NA means not applicable
a: no non-member farmers
Source: Study Team Survey

4.1.5 Huay Thonglang Contract Farming Group

The Huay Thonglang group consists of 83 rice farmers who grow vegetables right after rice is harvested in December. The group members live and farm in Amphoe Nong Khae of Changwat Sara Buri, about 80 km north of Bangkok. The group started the business in 1983 with 40 members, growing black yard long bean for export. It was organized by a village headmen who serves as the group leader and a school teacher as the manager. They produce vegetables for exporters in Bangkok. In each year, the group business starts in October when group members get together and make the group's business plan on when and how much vegetables each member will produce. They will then receive the production inputs such as imported hybrid seeds (not available locally), and fertilizer from the exporters. The planting time starts in early December. The group produces 4-5 batches of vegetables which give a daily supply of 3,000 kg to the exporters for about 4 months a year. The group handles a daily collection, grading, and packing of vegetables while the

exporters are responsible for picking up at the group's center. The payment for the crop will be made to the group manager 15 days after picking up at a pre-determined price (for example 6 baht per kg in 1990). On the average, each member grows vegetable in the area of about 2 rais per batch and it yields a net income of 19,100 baht per 4 month time. This type of contract farming is expanding to farmers in several areas of the UCR such as Amphoe Muang, Amphoe Nong Sang and Amphoe Khaeng Khoi of Changwat Sara Buri. Farmers like it because they are provided with good quality inputs and the output prices and its market are assured. The returns are also attractive. The only limitation is that it is a labor intensive activity, so that only business-mided farmers can do it.

4.2 Assessment from the Case Studies

4.2.1 Problems

Although the IAS contract projects can solve the farmers' problems of credit, production inputs, fluctuating product prices and product quality, some problems still prevail. They are 1) crop damages caused by unfavorable climatic conditions and pests in certain areas; 2) lack of sufficient credit for the farmers who either cultivate a larger piece of land or obtain a small amount of credit due to their being indebted to BAAC, thus often making farmers underutilize recommended production inputs; 3) inadequate processors' product buying centers - which makes some farmer members sell their produce to local merchants and do not get the benefits for product quality; 4) some farmers are unable to join the group when the group has already been full or some group members do not want some farmers to join them because of some minor reasons; 5) field staff of DOAE as well as BAAC and CPP does not have full understanding about IAS concepts; 6) area and farmers are selected in view of their capability, thus, less capable farmers are not covered with the IAS; 7) Participating farmers do not clearly understand the IAS projects; and 8) duplication between DOAE's regular programs and IAS projects.

4.2.2 Prospects of Various Relevant Agencies/Organizations

At present, the IAS contracts are widely used in the UCR for major crops such as maize, soybean and rice. A contract farming group consists of 5 to 20

farmers who are normally BAAC's customers and willing to form a special group for the purpose of contract farming activities when offered jointly by BAAC and agribusiness firm. The group may cover one or more crops at the same time. The full services of an IAS group include the provision of 4 items to its member farmers, namely, 1) high quality seeds, 2) fertilizer, 3) pesticides and 4) land preparation service. BAAC is involved in providing a group-guaranteed loan of up to 30,000 baht to the members for production purpose at an annual interest of 12.5%. The agribusiness provides the above 4 services through the operation of BAAC with technical advice on crop production and agrees to buy the members' produce at guaranteed prices. DOAE is involved in the coordination with the agribusiness and BAAC in planning, implementing and evaluating processes.

1) Agribusiness firms

Only in the first year of the project, CPP which is a leading agribusiness firm tried to request the farmer members to receive all four production input services (seed, fertilizes, pesticides and land preparation) but after found out that most farmers liked to apply only the first two inputs due to their relative high prices and their little understanding about the real economic benefits of the project. CPP relaxed such requirements for the time being with the hope that the farmers could later be convinced when they better understand about the project's benefit. The company believes that there is a good potential for IAS contract in main upland crops such as maize and soybean in the UCR. The company hopes that their field staff will finally succeed in helping farmers to fully apply modern technology to their farm at recommended levels. The company also believes that other problems such as credit and marketing would gradually be solved as time goeson.

2) Lending/Financing institutions

BAAC is the leading institution among the two banks participating in the finance of IAS contract farming. The Bangkok Bank Ltd (BKB) recently joined the system with a view to expanding its business volume in the future.

(1) Bank for Agriculture and Agricultural Cooperatives (BAAC)

The 1989 business volumes that BAAC cooperated with CPP were as follows. 14,331 maize farmers, 15,338 rice farmers, and 3,309 soybean growers were financed in the amount of 118.4, 56.1, and 21.4 million baht, respectively. BAAC also cooperated with 11 other agribusiness firms in the maize contract farming project. In addition to lending business, BAAC also handles the distribution of the production inputs provided by companies to contract farm members and deducts the cost of such inputs from the farmers' proceeds from crop sale for BAAC to pay to the company. BAAC believes that the present IAS contract farming in the UCR has a good potential as the average repayment rate is over 90 percent. The BAAC's indirect benefit from the contract farming system is that it takes much less effort of the bank staff in supervising loan utilization as this was partly done by the field staff of the agribusiness. A BAAC's manager is confident that it can cope with the expansion of the contract farming projects to the volume (both in terms of area expansion and crop type addition) suggested by DOAE and supported by the private agribusiness firms concerned. BAAC regards the problem of delayed loan repayment by unfortunate farmers in the case of crop failures as a minor problem and BAAC's policy on this matter has been very flexible.

(2) Bangkok Bank (BKB)

The BKB first cooperated with CPP in financing the IAS contract project in 1987 for rice, maize and sorghum. The loan carrying 15% annual interest is provided to farmer members for financing their crop production at a specified amount per land unit, for example, not more than 1,500 baht per rai for maize, sorghum and soybean production, and not more than 1,000 baht per rai for Khao Mali 105 production. Size of the loan is larger than that of BAAC and it is sufficient to finance the farmer's area. BKB requires all farmer members to take crop insurance from the insurance company at a low premium rate of 30 baht per rai. In the BKB's case, production inputs are paid by the loan fund but

are distributed by the participating firms. Conditions on the guaranteed prices and the purchase of products are the same as in the case of BAAC. BKB has thus experienced a success of the contract farming business. Based on the success, the bank sets a target for 1990 to participate in the IAS contract projects in 19 (including 3 in the UCR; Sara Buri, Lop Buri, and Ang Thong), spending 160 million baht in order to finance 85,000 rai of maize, 20,000 rai of sorghum, 37,500 rai of soybean and 25,000 rai of rice. The bank seems to face little problems from the projects mainly because they deal with a well-to do or medium-scale farmers. BKB loan's annual interest rate is 2.5% higher than that of BAAC, but this does not seem to bother the farmer members because it is offset by less time to get the loan and larger loan size.

3) Crop insurance company

At present, Bangkok Insurance Company is the only company that insures against crop failures under the IAS contact. The company charges a premium at the rate of 30, 34, and 38 baht per rai for insuring maize, soybean and sorghum, respectively. The compensations are the combined costs of the inputs and the activities involved in crop production, amounting to 350 baht, 400 baht, and 182 baht per 1 rai of the maize, soybean and sorghum destroyed, respectively. The compensations are paid on the occasions that the insured crops are destroyed by either fire, floods, or drought. In 1989, out of 9,678 rai of the maize crop area insured, 863.25 rai or 8.92% was destroyed. Based on the short time experience, the insurance company said that it is a money making business. When crop insurance gains popularity, it will stay in the business. The insurance company urges all parties concerned in the contract farming to pay more and serious attention to the insurance matter, especially the advantage of insuring against the great risks and uncertainty on climatic conditions of the rainfed upland crop production.

4) Farmers associations

The awareness about the IAS contract was very little among farmers/farmer associations during the first two years of its existence.

For those who were aware,little were known about the details of the projects. Most of them thought that it was another type of BAAC's business. As the project entered its sixth year in the UCR, with the spread effect of the ongoing project, more farmers began to know it. The farmers who were aware of the IAS contract and became interested in joining them found out that it was rather difficult to do that because the groups normally did not want to increase their members as this would automatically bind them with more personal responsibilities and more group liabilities. In the case of farmers associations/cooperatives, there is no advantage about it. If the association's members are interested in joining the IAS group they can do it individually, not as the association's member. However, the farmers associations think that the IAS contract farming business is going to grow well among the small holders with good credit.

5) Agricultural input dealers

Local agricultural input dealers do not bother much the existence of IAS contract farming in their market area because it affects very little on their input selling business as the number of farmers under the IAS is very small, less than 1 percent of their customers. However, it was found that local input dealers in some Amphoe worry about the fact that the project's inputs are cheaper (for example, maize seeds of the same quality are sold at 33 baht per kg under the IAS project against 42 baht at their shops). Generally speaking, the input dealers believe that the IAS contract farming will be growing among small farmers. And in the long run, after several years of participation, some farmers would be better off. They would then leave the group of contract farming and by that time they will buy farm inputs from local input dealers.

6) Farm output dealers

Most of the local farm output dealers interviewed think that the IAS group has a good potential to grow in the rural area because it is the only effective means for poor/small farmers to be better off through getting higher income by adopting modern technology at a low cost. The other reason supporting his believe on the progress of the IAS group is that the dealers themselves are helping the growth indirectly

through buying contracted products (such as maize) in the case that farmers are not required to sell it to agribusiness. Some dealers are very pleased that the project replaces them in financing the small farmers. This reduces dealers' losses due to bad debts caused by poor farmers in the past.

7) Department of Agricultural Extension

DOAE feels that IAS contract farming will be growing on certain crops such as maize, soybean and rice which enjoy a favorable demand for a long time to come. The department knows that both the private sector (many seed companies, processors and product dealers) and the financing institutions (BAAC and BKB) are working hard to push forward the projects. And there are much rooms for the contract farming business among BAAC's customers. Therefore, DOAE foresees good progress of the contract farming development. However, DOAE seriously cares about pushing agribusiness firms under the project to improve contract with their farmer counterpart in the hope that improvement of the contract document will help prevent farmers from being exploited by the agribusiness firms.

8) Office of Agricultural Economics

The Office of Agricultural Economics (OAE), which is responsible for joint planning of the IAS national activities as well as annual evaluation of project performance, feels that the project in general faces no serious obstacles. It can successfully be implemented if all parties concerned work together in an attempt to redesign the project. It is premature for OAE to suggest problems and solutions.

5. RECOMMENDATION FOR CONTRACT FARMING SYSTEM IN THE UPPER CENTRAL REGION

A typical scenario for upland crop production and its related problems in the UCR are summarized on the left hand side of Fig.5.1 below.

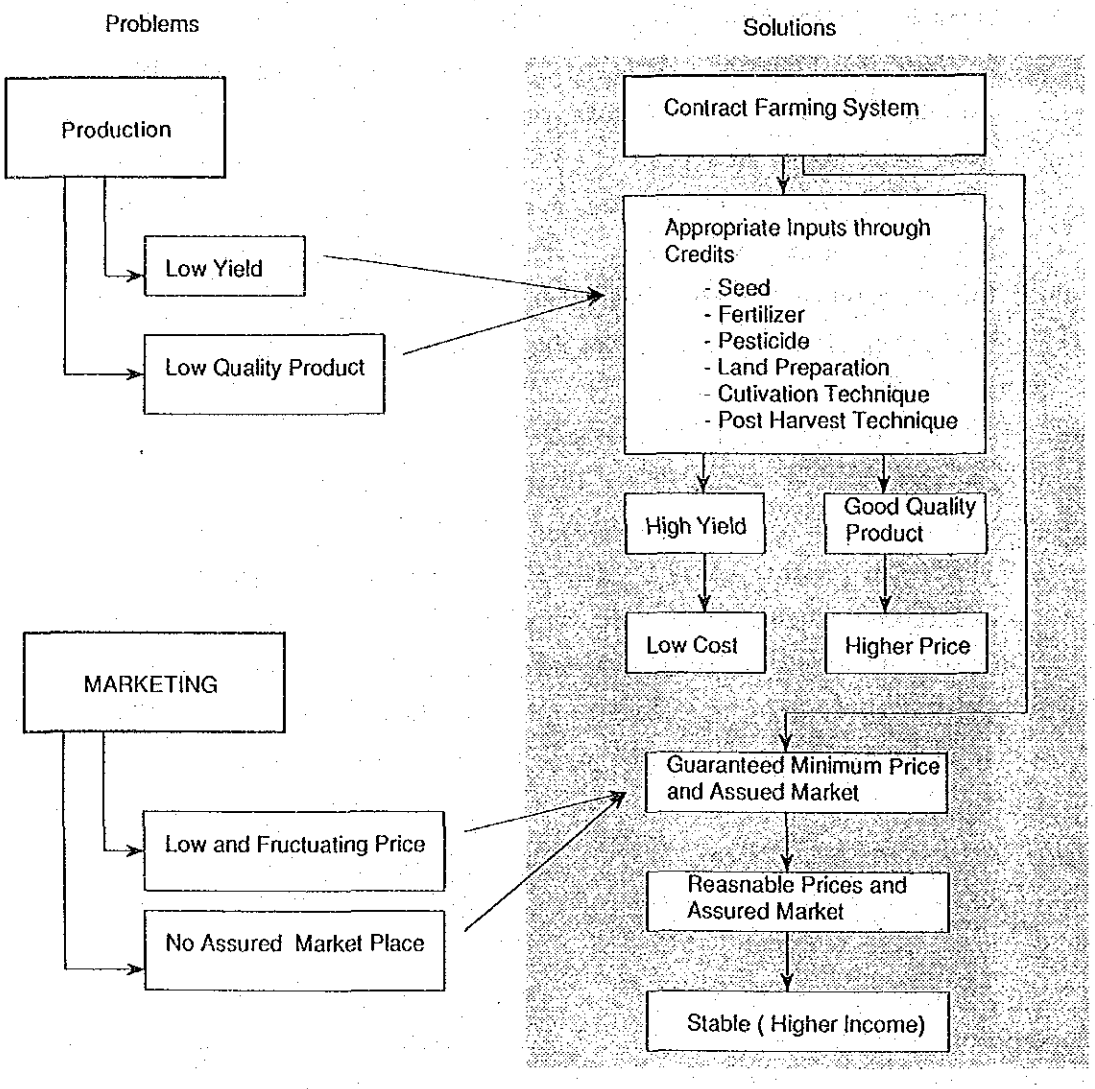

Fig. 5.1 Problems and Solutions of Contract Farming

The activities of IAS contract farming summarized on the right hand side of Fig.5.1 are suggested solutions to the current problems of farmers under the IAS group. These are incorporated in the current design of ongoing Contract farming.

The details on Fig.5.2 below demonstrate the short-run/medium redesign of the IAS group activities.

National policy for the long run should include the planning of priority area, crops, and activities to be implemented by all parties concerned.

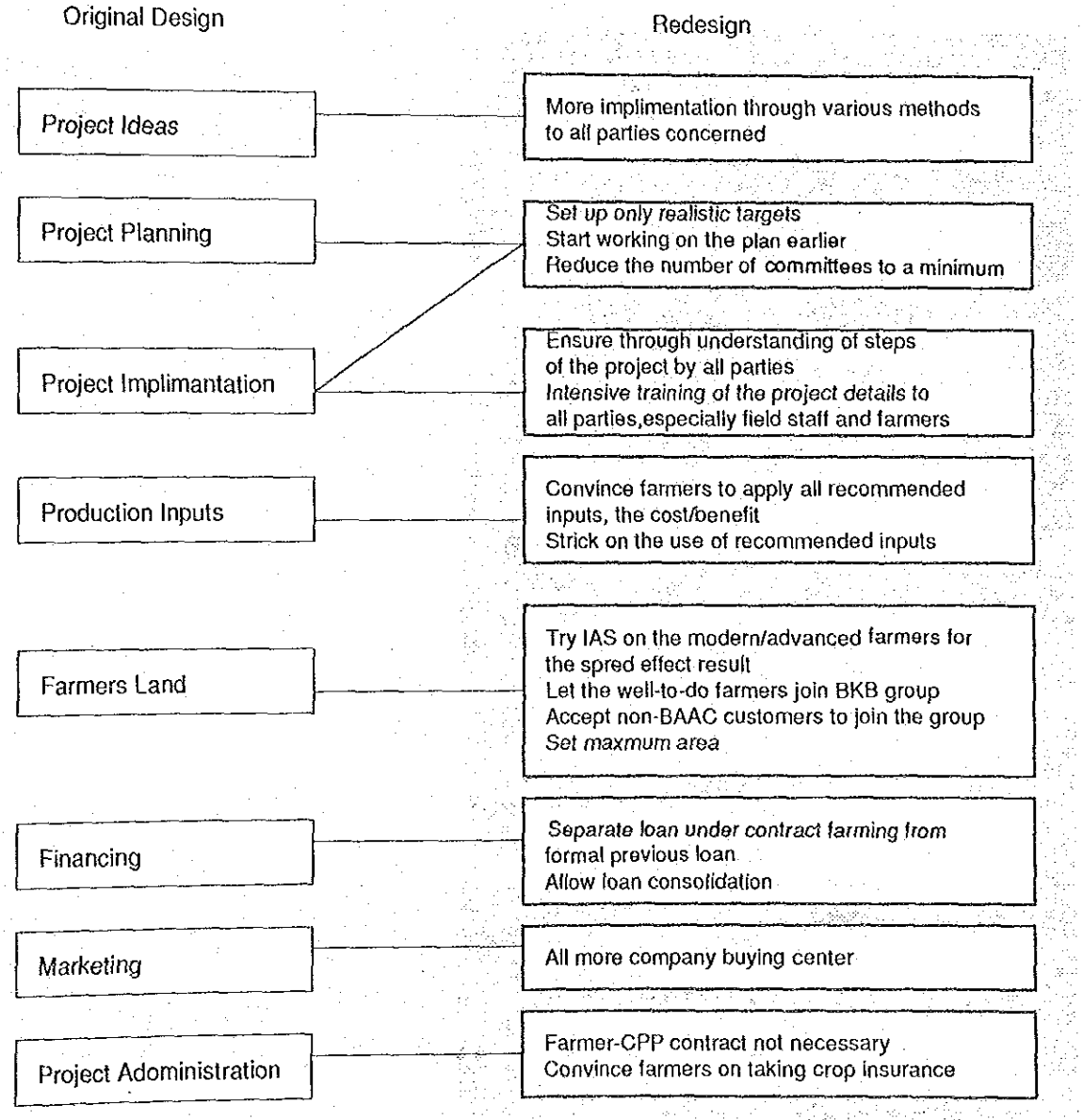

Fig. 5.2 Contract Farming Redesigned

APPENDIX 1. LIST OF STUDY REPORTS AND PAPERS

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1. REPORTS

Design for the Study

Inception Report

Inception Report: Amendment

Progress Report

Interim Report
- Executive Summary
- Master Plan Report
- Technical Reports
  - Vol. 1 Spatial Framework for Development
  - Vol. 2 Environmental Management
  - Vol. 3 Land Use and Agricultural Development
  - Vol. 4 Industrial Development
  - Vol. 5 Distribution
  - Vol. 6 Water Resources Management
  - Vol. 7 Transportation
  - Vol. 8 Economic Environment
  - Vol. 9 Local Government Finance
  - Vol. 10 Energy
  - Vol. 11 Landsat Analysis

Draft Final Report
- Executive Summary
- Master Plan Report
- Sector Reports
  - Vol. 1 Spatial Framework and Network for Development
  - Vol. 2 Urban Management
  - Vol. 3 Environmental Management
  - Vol. 4 Water Resource Management, Agricultural Development and Land Use Management
  - Vol. 5 Industrial Development
  - Vol. 6 Distribution and Marketing
  - Vol. 7 Energy
  - Vol. 8 Social Development in Rural Economies
  - Vol. 9 International and National Economic Environment
  - Vol. 10 Human Resource Development
  - Vol. 11 Landsat Analysis

Final Report
- Executive Summary
- Master Plan Report
- Sector Reports
  - Vol. 1 Spatial Framework and Network for Development
  - Vol. 2 Urban Management
  - Vol. 3 Environmental Management

Vol. 4	Water Resource Management, Agricultural Development and Land Use Management
Vol. 5	Industrial Development
Vol. 6	Distribution and Marketing
Vol. 7	Energy
Vol. 8	Social Development in Rural Economies
Vol. 9	International and National Economic Environment
Vol. 10	Human Resource Development
Vol. 11	Landsat Analysis

2. PAPERS

Papers for Seminar, Sara Buri, November 2-3, 1989

1. Development Framework, Strategies, and Production
2. Urban, Land Use and Infrastructure Development
3. Critical Issues for Development Management

Papers for Seminar, Pattaya, July 28-29, 1990

1. Agriculture and Water Resources: Policies and Programs
2. Industry and Energy: Policies and Programs
3. Urbanization and Infrastructure Facilities: Policies and Programs
4. Development Administration and Environmental Management: Policies and Programs

APPENDIX 2. STAFF INPUT

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CUSRI: Chulalong Korn University Social Research Institute
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IDCJ: International Development Center of Japan
PCI: Pacific Consultants International
SOMC: Shinko Overseas Management Consultant

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