CONTRACT FARMING IN SOUTHEAST ASIA

Three Country Studies

Edited by
David Glover & Lim Teck Ghee

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The papers in this book were originally presented at a conference on Contract Farming and Outgrowers' Schemes in Southeast Asia, held in Phuket, Thailand in November of 1989. The papers were subsequently revised for publication and conclusions prepared based on material in the chapters and on discussions at the conference. The conference, and this book, summarize the results of a two-year comparative research project financed by Canada's International Development Research Centre.

The authors would like to thank all those whose efforts made this book possible. They include the farmers, government officials, project managers and businessmen who provided their time and knowledge during the research process; the administrative staff who organized the project workshops in Singapore, Indonesia and Thailand; and the secretaries who typed the manuscripts, in their many versions.

We hope the book will be of interest to researchers and development practitioners with an interest in this widely-practiced but understudied form of agricultural organization.

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INTRODUCTION

David Glover

Over the last ten years, agriculture in developing countries has received renewed attention. Much of this attention has been directed at Subsaharan Africa, where declining per capita production and food deficits have caused serious concern. Southeast Asia’s experience in increasing production has contrasted dramatically with that of Africa for a variety of reasons, both institutional and technological. The Southeast Asian experience merits examination for this reason alone. However, while food security is not as serious a problem as it once was, other aspects of agriculture and rural development still require attention. Some of the problems facing agricultural policy makers include low commodity prices in international markets and heavy dependence on a narrow range of commodity exports; increasingly difficult access to international markets, partly as a result of growing protectionism; and the high cost of public sector schemes designed to promote rural development in a time of reduced government resources.

Many of these problems may be related not so much to deficiencies in agricultural production capacity, but to problems in the organization of the agricultural sector. During the past decade or so, Southeast Asian countries have experimented with a variety of systems for the organization of agricultural production and marketing, including open markets, integrated agricultural development projects and outgrower schemes. Private firms have also experimented with contractual agreements as a way of coordinating the flow of raw materials to processors or exporters.

This experimentation is to be welcomed, for there is increasing evidence that institutional factors are a critical bottleneck and may undermine efforts by governments to promote agricultural development through policy reform or technology development. Unless price signals and new technologies are effectively transmitted to producers, they will not have the desired effects. For example, high output prices may not be attractive if they are also extremely volatile. Low fertilizer prices may not be effective if the inputs arrive too late
for timely application or if farmers must travel long distances to obtain them. New technologies will not be adopted if farmers are not aware of them or if they must fully bear the risks of experimentation. In many cases, governments have attempted to intervene in these areas, but without consistent success. Crop insurance has suffered from unsustainably high administrative costs and the 'moral hazard' problem; agricultural extension from a lack of suitable incentives to extensionists. The design of alternative institutional frameworks could significantly enhance the effectiveness of policy reform and technological innovation in promoting agricultural growth and modernization; to date, however, this third necessary condition for development has received less attention.

**CONTRACT FARMING AS AN INSTITUTIONAL FRAMEWORK**

One of the most promising institutional frameworks for the delivery of price incentives, technology and other agricultural inputs, loosely defined, is contract farming (CF). This system involves a contractual relationship between farmers and a central processing or exporting unit. That unit can be a private firm, a public agency or a joint venture of several types; the term 'firm' is used here for simplicity. In CF, a firm purchases produce from local farmers, purchases which can supplement or substitute for company production. The terms of the purchase are arranged in advance through contracts, the exact nature of which varies considerably from case to case. Contracts are generally signed at planting time and specify how much produce the company will buy and what price it will pay for it. Often the firm provides credit, inputs, farm machinery rentals and technical advice, and it always retains the right to reject substandard produce.

Contracting is most commonly practiced by food processing firms. Since their processing plants have high fixed costs, these firms have an interest in keeping raw material inflows at a steady level close to plant capacity. Relying on open market purchases is unlikely to achieve this. Contracts, on the other hand, can specify planting dates (and thus, indirectly, delivery dates) as well as total quantities to be delivered. The contract reduces much of the uncertainty that would exist if the company simply bought crops on the open market, and gives it some control over the production process (for example, over the variety grown). On the other hand, the company does not have to invest in land, hire labour or manage large-scale farming operations which may tax the managerial capacity and technical expertise of a primarily industrial firm. There is no reason, of course, that the firm cannot use more than one method of obtaining supplies, and some firms have company farms, contract growers and open market purchases as well.

The contract also provides certain advantages for the grower. He or she has an assured market, access to the company's services and easier access to credit.
Even in cases when the firm itself does not provide loans to its growers, banks will generally accept a contract as collateral. In fact, the credit-facilitating aspect of the contract is often the farmer's principal motive for signing up.

The actual practice of CF is more complex than the simple definition given above since there are many variations of different aspects of the contract. There also exists no standard usage of terms for this system of agricultural organization; whatever terms are used are drawn up for specific situations as they are found in various countries or regions. Researchers have also often employed various terms rather loosely so that there is overlap among some terms. To facilitate readers in their understanding of the subject, it is necessary to identify some of the main terms and their connotations as they appear in the literature and in this book.

**Contract farming**: generally connotes a private sector scheme.

**Outgrower scheme**: generally connotes a government scheme, with a public enterprise purchasing crops from farmers, either on its own or as part of a joint venture with a private firm. The term is most frequently used in Africa and Asia.

**Nucleus-outgrower scheme**: a variation of the outgrower scheme, in which the project authority also administers a plantation adjacent to the processing plants. Contract purchases supplement plantation production, the proportion varying from case to case.

**Satellite farming**: a broader term, referring to any of the variations mentioned above.

**Multipartite arrangements**: similar to outgrower/nucleus-outgrower schemes. The term is usually used to emphasize the participation of several actors, most frequently private firms, government agencies (often more than one in a scheme) and foreign aid agencies.

Contract farming and outgrower schemes have become wide-spread in Asia and other parts of the developing world over the last ten to twenty years. Of particular importance are the schemes financed in whole or in part by the Commonwealth Development Corporation (CDC); these frequently involve both government agencies and private firms, the latter often receiving management or technical assistance contracts. A CDC/IBRD financed tea scheme in Kenya has been widely publicized and discussed as a promising model for commodity-focused projects. USAID has financed many schemes in Latin America and the Asian Development Bank (ADB) has been active in this area in Asia. Private firms, foreign and domestic, have also made equity investments not connected with donor agencies. Local governments have participated in many of the schemes; in each of the countries studied in this book, governments have identified them as important elements in their rural development plans.
The reasons for this interest are fairly clear. In certain developing countries where agricultural development has been influenced by earlier patterns of colonial or foreign control, governments are concerned about foreign ownership of land and the 'enclave' nature of plantations, with their weak linkages to the rest of the economy. Contract farming seems to provide greater local involvement. Donor agencies see contract farming as a way of channelling resources to smallholders and as compatible with a greater role for the private sector. More specifically, the system is attractive as a way of providing smallholders with the services they need in order to compete with large commercial growers: credit, technical assistance, inputs, quality control and marketing. Finally, private firms may see the system as a way of shedding risk, avoiding expropriation, attracting aid funds and establishing good relations with government. This convergence of interests has led to a noticeable expansion of interest and activity in this area in recent years.

Evidence on which to base these high expectations has been far from conclusive, however. There have been few rigorous empirical studies that would justify contract farming as the panacea some claim it to be. Furthermore, insufficient attention has been paid to the possible problems CF may pose for smallholders or to its possible limitations. CF generally involves some form of monopsony, in which a single firm deals with a multitude of usually unorganized farmers; this can lead to an imbalance in bargaining power and in the distribution of benefits among the actors involved.

CONTRACT FARMING AND OUTGROWERS SCHEME IN SOUTHEAST ASIA

a) Thailand

Of all the countries in Asia, Thailand probably has the most extensive experience with contract farming, in the widest range of crops. It also has the highest degree of private sector involvement in CF and the highest concentration of foreign direct investment in agriculture and agro-industry. Contract farming is a key element of the Thai government's development plan, reflecting a strategy of 'private-led integrated agricultural development'. This new strategy reflects dissatisfaction with both arms length sales in open markets and costly integrated rural development led by the public sector. The strategy proposed is essentially a form of contract farming, in which private firms purchase farmers' output and provide inputs, credit, technical assistance and marketing of the final product.

However, it is not clear to what extent this strategy is actually being applied. Has the Thai government gone beyond policy statements to implement specific measures in support of CF? If so, how effective have they been? How is CF working on the ground? Contrary to popular wisdom, Manarungsan and
Suwanjinjar find that the major role ascribed to CF in Thailand is in fact overrated. For a number of reasons, including competitive markets, the availability of informal institutional substitutes, and lack of consistent government policy, CF is actually declining in importance.

b) Indonesia

Contract farming in Indonesia has been concentrated in large outgrower schemes, with heavy involvement from the public sector, the World Bank and the Commonwealth Development Corporation. These schemes, sometimes based on transmigration, have concentrated mainly on traditional tree crops for export, particularly rubber.

However, the sharp drop in oil prices in the mid 1980's severely affected the public sector budget, leading to growing concern over the economy's ability to sustain the development momentum built over the last two decades. During that time, the government had successfully rehabilitated its plantations, constructed additional rural infrastructure, and launched a host of projects aimed at raising the incomes of the most resource-poor households.

The government is encouraging the private sector to bridge the budgetary gap by establishing enterprises which capitalize upon extant state rural investment, preferably in nucleus-outgrower schemes. Such schemes, aimed at harnessing the technological and managerial expertise of the plantations in the development of tree-crop smallholders, have already met with considerable success in their initial stages.

The Indonesia chapter examines OGS in two industries: rubber, as one of the most important traditional export crops; and dairying, with milk products comprising the most rapidly rising agricultural import commodities.

The natural rubber industry has been one of the major export-revenue earners for decades. It is spread over a wide area, and provides livelihood for more than ten million rural inhabitants. Secular deterioration in its terms of trade has inhibited farmers from replanting their aging stands with high-yielding clones, while the external assistance rendered to date has only reached twenty per cent of their numbers. A host of schemes have been initiated over the last ten years, with mixed results. Some outgrower and nucleus-outgrower schemes have done quite well, but a number of other schemes have not been as successful. The search for alternative strategies continues, as millions of rubber smallholders with aging stands remain trapped within a vicious circle of low productivity — inadequate returns amidst depressed rubber prices — no replanting — and declining productivity as stands age further.

Dillon examines the experience of OGS in rubber, as well as in dairy, one of the most neglected sub-sectors prior to the seventies. A major reversal in government policies has resulted in the large-scale import of highly productive
breeds, and their distribution of credit to hundreds of farmers. Schemes have been set up with private enterprises channeling credit, providing technical assistance and buying produce.

In both commodities, the issues of concern to Indonesian policy makers are not so much the benefits produced by the schemes but their apparently unsustainable costs and the search for ways to reduce those costs or transfer them to the private sector.

c) Malaysia

Malaysia's experience with outgrower schemes is not dissimilar to that of Indonesia. Malaysian Federal Land Development Authority (FELDA) schemes are also characterized by heavy public sector involvement and reliance on traditional tree crop exports, specifically rubber and oil palm. Questions of cost and potential private sector participation are also relevant here, given the current debate over the appropriate role of the private and public sector in agriculture.

The Malaysian case is particularly interesting because of the long experience with outgrower schemes; many schemes are now in their second crop cycle and second generation of farmers. They are also of interest because of the notable success of such schemes in stabilizing and increasing farmer incomes: the FELDA schemes are areas of relative prosperity and there are long waiting lists to enter.

The key issues examined by Lim and Dorall for Malaysia, then, are less an assessment of the benefits resulting from CF, but rather the sustainability of the schemes; their replicability; and the possibilities for greater settler participation in project management. At present, the researchers believe, the criteria for entry into a smallholder scheme are not always appropriate or properly applied; nor are opportunities for farmer participation always taken up. Reform in this area might result in lower administrative as well as operating costs and better motivation. These issues are also relevant to other countries, particularly Indonesia.

RESEARCH DESIGN AND METHODOLOGY

This book contains the results of a two-year comparative research project. Its purpose was to examine the role of contract farming and outgrower schemes in the context of agricultural policy. It attempts to identify the factors that have contributed to the conspicuous success of many schemes and the failure of some; assess their cost and replicability; and prescribe an appropriate role for them in an agricultural development strategy.

Previous research indicated a wide diversity of experiences, from cases in which farmers have benefitted substantially in terms of income and improved farming skills to those in which growers appear to have been severely exploited
INTRODUCTION

by firms. The reasons behind the variations are unclear, however. An underlying assumption of the research program is that three factors are of paramount importance:

a) the nature of the crop and the market it is sold in;
b) the specific form which CF takes (e.g. contract terms, the involvement of growers’ organizations, the participation of private/public/donor agencies); and
c) the policy context in which the scheme is situated (particularly pricing policy).

The sample of cases for this project was selected in order that each of these variables could be held constant and the factors which determine different outcomes identified. It consists of:

<table>
<thead>
<tr>
<th>Rubber</th>
<th>Oil Palm</th>
<th>Dairy</th>
<th>Pineapple</th>
<th>Fr/Veg</th>
<th>Broiler</th>
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<td>Thailand</td>
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<td>Malaysia</td>
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The crop selection reflects several considerations. The first is the coverage of organizational forms. The second is the importance of the crops in terms of employment and revenue. Rubber, for example, shows a wide variety of forms and is a major commodity in most countries in the region. Its price prospects are poor, however, and some researchers have expressed concern that large outgrower schemes reduce the flexibility of growers to diversify into other products.

Examples of alternative systems such as plantations and open market purchases are also given some attention; the aim is to define appropriate ‘niches’ for each system and maximize the efficient allocation of resources among them. In each of the cases to be studied, most or many of the outgrowers are small-holders. Although the emphasis of the study is on grower welfare in the schemes, broader policy questions such as the replicability of successful projects, and their relationship to national extension or Integrated Rural Development programs are also been considered.

For each country study, the researchers investigated a set of common research questions and a set of country-specific issues. For Thailand, for example, the role of the private sector was particularly important; for Malaysia, ‘second generation’ effects and the potential for farmer participation were of special interest.
In each case, the researchers applied a variety of investigative methods. One important tool was a questionnaire applied to various parties associated with the schemes, including:

- Outgrowers in the scheme
- Outgrowers who have left the scheme
- Outgrowers on a waiting list to enter
- Representatives of farmers’ organizations
- Representatives of agricultural trade unions
- Project/company managers
- Project/company technicians
- Policy makers in the capital
- Government officials and technicians in the project areas.

In order to supplement secondary information and quantitative data, the researchers also applied a variety of qualitative research techniques, including:

- quantitative questionnaires, applied by enumerators (as above)
- triangulation (consistency checks from alternative data sources)
- researcher’s open ended questions regarding
  a) attitudes
  b) factual evidence
  c) general and first person observations
- direct observation
- documents
  a) company’s
  b) existing studies
  c) government reports and statistics

The data set for enumerators’ questionnaires included:

- the farm ‘picture’, including cropping patterns and capital equipment
- basic household data
- income and changes
- changes in cropping patterns and labour use
- use of hired labour.

Qualitative and quantitative assessment of the welfare effects of contract farming schemes relied on indicators such as the following:

- farming skills
- risk/flexibility
- food production/consumption
- physical evidence (consumption goods)
- physical evidence (investment goods)
- hired labour
- debt
- withdrawal of children from the labour market.
The three principal chapters highlight wide variations in the nature and performance of the schemes, the economic and policy context in which they are situated, and the policy issues which face policy makers and CF practitioners in the future. The concluding chapter summarizes the principal findings, identifying some of the reasons for these variations and suggesting some lessons for the future application of contract farming and outgrower schemes.

Notes


BACKGROUND AND CURRENT PROBLEMS OF THAILAND'S AGRICULTURAL SECTOR

Despite ongoing industrialization efforts, agriculture remains the most important sector of the Thai economy. Agricultural products account for approximately 25% of Gross Domestic Product (GDP). Over fifteen million people (about 70% of the total labour force) are engaged in farming activities. Agriculture brings in approximately 60% of annual foreign exchange earnings. Prior to the Fourth National Economic and Social Development Plan (1977-81), farm production increased steadily at a considerable rate. On average, agricultural production in Thailand grew at about 5% annually, while world agricultural production increased by only 2.5-2.8% per annum.

However, since the beginning of the Fourth Plan, annual growth rates of the agricultural sector have followed a downward trend, averaging only 3.4% per year during the Fourth Plan and 2.8% per year during the Fifth Plan (1982-86). It is estimated that the growth rate of the agricultural sector during the current Sixth Plan will be around 2.6-2.9% per year.

Current Problems

In the past, Thai agriculture was based only on a few products. Over the period 1982-84, the total annual value of Thai agricultural production averaged 61.81 billion baht, or about US$2.29 billion (at 1972 prices). The combined value of the six most important crops (rice, sugar, tapioca, rubber, maize and tobacco) averaged 43.243 billion baht (about US$1.6 billion) or nearly 70% of the value of the total. Exports of these six items accounted for 74% of the total export value of Thai agricultural products.

The dependence of Thai agricultural exports on only a few products has made it quite difficult to increase export earnings from the agricultural sector,
particularly when world market conditions are unfavourable. Additional problems, such as unemployment and the low level of farmer income, have also plagued the agricultural sector. Diversification of production from traditional crops or commodities to new ones is clearly needed. One non-traditional institutional arrangement which can encourage production of new commodities with high market potential is contract farming (CF).

THEORY AND PRACTICE OF CONTRACT FARMING (CF)

Definition of Contract Farming

Contract Farming is a way of co-ordinating the flows of goods through a vertical chain of production and marketing. In CF, the firm exercises considerable control over raw material production without ownership of the production units.

In CF arrangements, a central processing or exporting unit purchases the harvests of independent farmers. These purchases can supplement or substitute for production by the central unit itself. The terms of purchase are arranged in advance through contracts which are generally signed at planting time and which specify the quantity the company will buy and the price it will pay. The firm often provides credit, production inputs, farm machinery rental, and technical assistance, and it retains the right to reject substandard produce.

CF is most commonly practiced by food processing firms which have high fixed costs. These firms have an interest in maintaining raw material inflows at a steady level close to plant capacity.

Contract farmers have an assured market for their crop, access to the firm's services, and easier access to credit. In cases where the firm itself does not provide loans to the farmers, banks will generally accept the contract as collateral.

Methodology

Socio-economic analysis is applied to all the data, which were gathered for the study. Primary data were gathered largely from in-depth interviews with a wide spectrum of people concerned with contract farming and Thai agriculture. They ranged from farmers, buyers of agricultural products, and employees of processing plants, exporters, MNC’s, and financial institutions, to officials of the relevant government agencies, particularly the Ministry of Agriculture and Cooperatives, the Ministry of Industry, the Ministry of Commerce, the National Economic and Social Development Board, and farmer organizations.

The products selected for the study were broiler chickens, pineapple, oil palm and asparagus. All of these except asparagus have been produced under contract farming or in the contract market for a considerable period of time.
Provinces selected for the study include the Central and Southern Regions of Thailand, both of which contain large-scale production of the four products. The study areas for each product are specified below:

(1) Broilers: Chon Buri, Chachoengsao, Prachin Buri, and Rayong.
(2) Oil Palm: Surat Thani and Krabi.
(3) Pineapple: Chon Buri, Phetchaburi, Prachuap Khiri Khan and Rayong.
(4) Asparagus: Prachuap Khiri Khan and Nakhon Pathom.

POLICY CONTEXT AND LEGAL FRAMEWORK

National Policy Towards Agricultural Development

The national policy regarding development of the agricultural sector is included in the Guidelines for Development of Agro-industries under the Sixth National Economic and Social Development Plan (1987-91), which has the following as its objectives:

(1) To develop and support agro-industries that have potential for export promotion and import substitution, with emphasis on quality improvement and management systems development.
(2) To expand into new forms of agro-industrial production that have potential for further development, such as food processing industries using vegetables and fruits as raw materials.
(3) To create linkages and improve production techniques, marketing, research, and technology transfer, as well as management and investment of the public and private sectors.
(4) To support farmers in production planning with emphasis on ensuring a consistent supply of high quality raw materials to meet the requirements of agro-industrial processing plants.
(5) To assist agro-industrial plants in transferring appropriate technology to farmers.

It is noted in the guidelines that the agricultural development programmes contained in the Sixth Plan are in many respects similar to contract farming. It is also clearly stated that contract farming will be one of the production systems to be promoted by the government. This emphasis in the Sixth Plan makes a study of contract farming in Thailand, which was in the past rare and un-systematic, useful for the purpose of planning and development.

In addition to the broad national policy guidelines cited above, the Royal Thai Government (RTG) has a specific plan for developing contract farming. This is referred to as the Four-Sector Co-operation Plan to Develop Agriculture and Agro-Industry. Under this plan, private firms (engaging in agro-industries), farmers, financial institutions (particularly the Bank for Agriculture and
Agricultural Co-operatives — BAAC), and various ministries will work together, with the Ministry of Agriculture and Co-operatives acting as the core agency, to achieve the goals.

**Government's Policies Toward the Agricultural Commodities Studied**

**Broilers**

Important policies affecting inputs to the production of broilers are as follows:

1. Price guarantees for soybeans and fish meal. The Government has imposed tariffs and import quotas on soybeans and fish meal in order to protect domestic producers, making domestic prices of the two main ingredients of animal feed much higher than world market prices.

2. Price and quality control of animal feeds by the Department of Livestock Promotion.

3. Policies aimed at promotion of broiler exports, as reflected by such measures as:
   - Lifting the export premium (0.50 baht per kilogram) effective from 18 August 1982.
   - Establishing quality standards and control for exported frozen chickens.
   - Granting promotional incentives to export-oriented chicken processing businesses.
   - Negotiating with certain trading partners, such as Japan, with a view to eliminating import tariffs imposed on Thai broilers.\(^5\)

**Pineapple, Oil Palm and Asparagus**

**Pineapple:** In the Sixth National Economic and Social Development Plan (1987-1991), the Government stated its intention to encourage pineapple production through contract farming. Heavy competition among firms exporting pineapple products and the frequent price wars has led the Government to set up export floor prices to stabilize the economy. It also adopts minimum price guarantee measures when prices of fresh pineapples drop.\(^6\)

**Oil palm** has now been included as a crop to be produced under contract farming. According to the Fifth and Sixth Plans, oil palm is regarded as one of the most promising crops in the South. During the Fifth Plan, the target was to produce sufficient supply to fulfill domestic demand. The plan was quite successful, as production growth rates actually exceeded the target. The goal during the Sixth Plan is to encourage exports, while the combined planting area will be limited to 700,000 rai.
Some additional objectives concerning oil palm stipulated in the Sixth Plan are as follows:

— To allow the private sector to grow oil palm in some deteriorating national forests.
— To accelerate research and development work in order to identify superior oil palm varieties, as well as to improve production and maintenance techniques.
— To register oil palm seed dealers and have the Department of Agriculture enact measures to regulate their activities.

Since May 1987, the Government (through the Department of Internal Trade) has fixed the minimum and maximum prices of oil palm nuts and crude palm oil. The Government has also launched suppression operations to counter palm oil smuggling along the southern and eastern borders of Thailand.

Asparagus: The Government, through the Ministry of Agriculture and Co-operatives, has specified asparagus as one of the crops under the Four-Sector Co-operation Plan to Develop Agriculture and Agro-industry.

NATURE OF PRODUCTION AND PROCESSING

Broilers

Broilers raised in Thailand are generally of foreign origin, and are imported mainly by animal feed producers. Most of the imported breeds are hybrids from the United States. The largest supplier of poultry breeds is the Arbor Acres (Thailand) Company, which is currently providing about 60% of the total national supply.

Location: Poultry farms can be found in every province. The greatest broiler production is in Chachoengsao, followed by Chon Buri, Nakhon Ratchasima, Chiangmai and Ubon Ratchathani.

Nature of Production: Newly hatched chicks must be delivered to ranchers immediately, before they are fed. During the first two to three weeks, chicks require special care and intensive labour inputs. They must be warmed constantly by electric lamps, vaccinated, and their mouths cut; they must also be fed six times a day. During this period, very intensive labour is therefore required. Thereafter, labour needs declined until the 5th or 6th week, when the feed conversion ratio grows larger and the chickens are able to eat more food in the cooler weather. Feeding in this period has to begin early in the day (4-5 a.m.).

Female and male chicks have different growth patterns. Females normally reach maturity in forty-six days, while males take fifty-six days. Moreover, the growth rates at different stages vary, necessitating the use of different feed
formulas. Because broilers are very vulnerable to diseases, ranchers must take special measures to protect them.

It normally takes fifty to fifty-two days to raise a flock of broilers with an average weight of 1.8-2.0 kgs.

*Production Costs:* Feed is the largest cost in broiler raising, constituting 70-80% of the total. The cost of new chicks is 20-25% of the total, and the balance includes the cost of medicine and other inputs.

*Processing:* Over one hundred million baht is required to establish a large scale chicken processing plant which can meet the standards of foreign markets — the major outlet for Thai chickens. The meat must be tested to ensure that it does not contain excessive chemical residues and the processing must meet hygienic requirements.

The past few years have seen a boom in broiler exports. The volume of exports rose from 40,000 tons in 1986 to 90,000 tons in 1988. Japan, which absorbs about 90% of Thai broiler exports, has become much stricter regarding the quality of imported chicken meat. As a result, greater care must now be taken, particularly in the prevention of excessive residues. This has meant higher costs.

**Pineapple**

*Location:* The Southern Region (particularly Prachuap Khiri Khan and Phetchaburi provinces) is the most important pineapple planting area, accounting for 60% of the national production. The second largest producing area is the Eastern Region (Rayong and Chon Buri Provinces), with about 20% of the total.

*Production:* In 1987, the total area planted with pineapple was about 440,000 *rai*, yielding 1,770,900 tons of pineapple.

*Method of Planting:* Pineapples can be grown in either single or double rows, the former requiring 3,000-5,000 crowns per *rai* and the latter 6,000-10,000 per *rai*.

About 70% of pineapples in the South are grown in single rows, but in the Eastern Region, 70-80% of pineapples are grown in double rows.

Pineapples grown in double rows are more suitable for canning. Canneries prefer pineapples weighing about two pounds and not too juicy. Double-row planting requires more chemical fertilizer and a good drainage system, and is more suitable to large plantations with heavy capital investment. Most small farmers continue single-row planting because of their limited financial resources. This lack of resources often results in poor maintenance and fruits too small to be accepted by canneries. However, growing pineapples in double rows would limit small farmers' ability to sell the crop in fresh markets, as most consumers of fresh pineapple prefer large, juicy fruit.

*Season:* The peak season for pineapple is normally between May and June, as the cool season (December-January) is the best time for flowering, and the
fruit grows to its full size over the ensuing 4-6 months. Overproduction most often occurs during the peak season. Many farmers are now using chemicals to control the flowering. The preferred method is to apply gas to pineapple tops. One worker can cover 900-1,200 tops per hour and each top needs treatment three times every ten days. While the night-time is suitable for this work, most farmers do this treatment after rain falls. Most of the work is done from August to November, resulting in a flood of pineapples in the market from February to May. If farmers wish their pineapples to be harvested during the low season (August-October), they have to shift the planting and gas-applying periods, which is difficult to do, and often ineffective. If the planting is shifted to the rainy season, the crown often decays. The cost per pineapple crown is 0.50-0.70 baht and the total cost of producing each pineapple is about 1.10-1.30 baht/kg. In general, planting in the early rainy season (May-June) is effective only to a certain extent and possible only on large plantations with heavy investment in water systems and other production inputs. For small farmers who depend on rain-fed production, spreading the planting to avoid peak season is rarely possible.

Yield: Single-row planting normally yields three to five tons per rai, while double-row planting yields 6-8 tons per rai. However, the latter requires heavy use of production inputs, especially fertilizers. The standard rate of application is 100-150 kgs per rai per year.10

Processing: About 80% of pineapples harvested are supplied to pineapple canneries, each of which requires hundreds of millions of baht in investment. The best size for Grade A canning is about two pounds per fruit, as the loss from peeling and cutting is minimal. Most canneries also produce other canned pineapple products, such as pineapple chunks, fruit salad, and pineapple juice, so that virtually all the pineapple is used.

Oil Palm

Location: For oil palm cultivation, the soil should consist of loam or clay, with reasonable water absorption and circulation. Year-round rainfall, high humidity and plentiful sunshine are also needed.

Krabi Province has the largest oil palm cultivation area. In 1985, it had 242,752 rai, which constituted about 55% of its arable land. Other major oil palm producing provinces include Surat Thani, Chum Phon, and Satun.

Production Volumes: In 1987, total oil palm production from the national planting area of 614,955 rai (of which 432,238 rai gave yields) was 728,315 tons of fruit or 124,786 tons of crude palm oil.

Structure of Oil Palm Production: There are three types of oil palm planters, described as follows:

(1) Planters who are registered as companies, each having a planting area of
over 1,000 rai. In 1987, planters in this category constituted 59% of all planters.

(2) Planters who are individual businessmen, not registered as legal entities. This category accounted for 23% of all planters registered in 1987.

(3) Planters who are members of settlement co-operatives and self-help settlements. This category represented 18% of the total.

*Oil Palm Yields:* In 1986 and 1987, average oil palm yields were 1.85 and 1.70 tons of fruit per rai respectively.

*Costs of Oil Palm Nut Production:* According to a 1988 field survey, the average cost of oil palm cultivation per rai was 1,553 baht per year. When this was translated into oil palm nut production cost, the average per kilogram cost was 0.92 baht.

*Palm Oil Production:* Crude palm oil crushing mills can be placed in two categories according to their production capacity, as follows:

- Large mills which buy palm nuts for extracting oil from their husks and threshing out the kernel. They use steam for sterilization and removal of moisture from palm nuts. These mills are mostly promoted by the Board of Investment (BOI) and have production capacity of over five or more tons (FFB)/hour.

- Small mills with production capacity of less than five tons (FFB)/hour. Mostly, they buy palm nuts and palm bunches which are taken for moisture removal through steam heat and put into screw press receptacles which press on both the seed and kernel of palm nuts to obtain palm oil and palm kernel oil at the same time.

*Asparagus*

*Location:* At present, asparagus farming is scattered over 12 provinces. Prachuap Khiri Khan, with 945 rai of asparagus planting area in 1987, is by far the largest producer. Other important asparagus-producing provinces are Phetchabun and Nakhon Ratchasima.

*Planting Area and Output:* Asparagus planting area in Thailand in 1987 totalled 5,055 rai. Less than 40% of the total area (only 1,940 rai), produced the total output of 1,940 tons of asparagus. The area originally targeted for asparagus production in 1987 was 8,000 rai and the target output was 4,000 tons. According to the plan, total area under asparagus would be expanded to 25,000 rai in 1991 to yield an annual production of 26,000 tons. Production in 1987 fell far short of expectation, however.

*Yields:* Asparagus can be harvested about 250 days a year. At peak periods, up to 10-15 kgs./rai/day can be collected, while only 2-3 kgs/rai/day is available during low periods. The average yield is about 1,000 kgs./rai/year.
Types of Asparagus: About 90% of asparagus grown in Thailand is for direct consumption, and is referred to as the “green” type. The remaining 10% is of the “white” type used for canning. There are only a small number of canneries at present. Most of them are situated in Rayong, Chon Buri, and Suphan Buri. More will likely be set up in the near future.

MAJOR ISSUES ON CONTRACT FARMING IN THAILAND

The Role of Private Firms in CF

It has long been the policy of the Thai government to promote investment in the private sector, especially in industries with complex production and marketing structures. It is believed that the private sector’s greater managerial ability will mean greater efficiency in production. An example of this is the broiler industry, which is the only clear example of contract farming in Thailand. The production procedures require advanced technology, and management is relatively complex and demands high efficiency.

Another important reason for the major role played by private firms in contract farming is the credit extension policy of commercial banks, which are required by the Central Bank to extend rural credits amounting to at least 20% of their total deposits. Commercial banks frequently have difficulty meeting this requirement because of the high risks involved. One way to resolve the problem is to extend credits to CF projects run by private firms, which are considered more efficient and less risky.

The Relative Absence of Plantation Farming

Farming in Thailand has traditionally been small-scale for two principal reasons:

(1) The land-holding pattern in Thailand is basically oriented toward smallholdings. This has largely been due to the policy adopted by the government since the country was first opened to foreign trade in 1855. The successive Thai governments felt threatened by colonial powers and consequently prohibited individuals from holding large plots of land for plantation-style cultivation. As most of the lands are now owned by smallholders, it is quite difficult for private individuals to gather enough land for plantation cultivation.

In the past decade, however, the government began to encourage plantation farming by permitting private individuals and firms to use large plots of former forest land for farming. A clear example of this is the oil palm plantations in the South, which presently account for about 60% of oil palm cultivated area.
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(2) Plantation cultivation is less efficient than small-scale farming, due to the following:

(i) Plantation wage labourers are paid fixed wages, and are therefore not adequately motivated to work hard.

(ii) There are many problems related to employee dishonesty, especially the theft of production inputs such as fertilizer, pesticides, tools and even the produce itself.

(iii) It is difficult to secure high quality management. For plantation cultivation to be efficient, management staff with highly developed skills are required; this means higher costs.

(iv) Business firms which incorporate plantations are often not specialists in agricultural production. They are not structured or equipped to produce their own raw materials. Consequently, most factories and business firms prefer to purchase raw materials in the open markets or enter into contractual arrangements.

The Role of CF in Promoting Non-traditional Exports

CF has been quite effective in this respect. Many export items produced under CF, such as chickens, sugar and asparagus, are new commodities which have become important exports only in the last two decades. At present, nearly 70% of exported chicken meat and 100% of exported sugar are produced under CF.

There are indications, however, that CF will play a lesser role in export promotion in the future. In the chicken industry especially, exporters are now turning more and more to direct farming, mainly to improve the quality of exported chickens. A major reason for this change is that Japan, which absorbs about 90% of exported Thai chickens, is now very sensitive to the hygienic quality of chicken meat.

For pineapple and oil palm, most exported produce comes from the open market. Only a small portion is from contract markets.

The Performance of MNC’s and Local Firms

Broilers

Chicks: All chicks in the Thai broiler industry are controlled by MNC’s, with Arbor Acres of the United States commanding a market share of about 60%. All parent stocks are still imported, because the scale of the broiler industry in Thailand is not large enough to justify parent stock breeding.

Feed: Virtually all feeds are produced by local firms. However, some MNC’s, such as Cargill, are now making preparations to produce feed in
Thailand. Cargill’s role in the Thai broiler industry had in the past been limited to supplying raw materials for producing feeds and veterinary medicines.

*Processing plants:* Almost all of the modern processing plants are owned in joint ventures with Japan-based MNCs (e.g., Mitsubishi, Mitsui, and Itoman). These MNCs usually hold 20-40% of the shares in each plant. Japanese-based MNCs have invested heavily in Thai broiler processing in anticipation of increased chicken imports from Thailand.

*Veterinary medicines:* Most of this business is controlled by MNCs such as Bayer, Shell and Hertz.

**Pineapple**

Dole (Thailand) Ltd. is directly involved in both pineapple planting and canning: In the past, Dole plantations supplied 60-70% of the pineapples required by its cannery. This proportion has now dropped to about 40% because of the expansion of cannery capacity. Because the size of its plantations has not increased, Dole now has to rely more on pineapple purchased in the open market. The company applies highly capital-intensive techniques in its plantations. Marketing of the product is entirely handled by the parent company in the United States. In processing pineapple, the company does not operate through farmer organizations, probably for fear of giving these organizations more strength and bargaining power.

The majority of the local firms no longer operate their own plantations. They normally handle marketing by themselves, or sell their products through trading companies (mostly Japanese and Taiwanese). In order to ensure a supply of raw materials, local firms have set up several procurement systems, including purchasing quotas and contract markets based on minimum price guarantees. They do not, however, provide technical services or credits to farmers. Canneries which have contract market dealings normally limit their CF obligation to about 40% of their total demand for raw materials.

*Labour Employment Systems of MNCs and Local Companies*

Since the Dole cannery belongs to a multinational corporation, the workers hired initially were all permanent employees and came from many regions. 12 These workers received wages only when the cannery was in operation. The cannery lent each worker 1,200 baht when there was no work and offered other benefits to workers such as transportation and entertainment.

Five years ago, Dole workers went on strike, demanding compensation from the company for periods when there was no work. The company laid off all the workers and gave them six-month compensation pay. Those who reapplied for jobs received an additional three-month pay, but hiring was on temporary basis,
except for those in the administration and mechanical departments. The present employment contract is renewed every three or four months. The daily wage is 61 baht but workers now have to pay for their own transportation (about 4-8 baht/day) and the cannery no longer provides other benefits.

In this way, Dole changed its employment system from the western-style of hiring permanent employees to the style employed by Thai canneries, which gives more power to the cannery itself. Over the past two years, although the Dole cannery has been in operation almost year-round, there has been no sign that it will turn back to the permanent employment system and give workers greater security.

Another characteristic of MNCs which makes them different from local firms is their method of ensuring a supply of raw materials. Dole (Thailand) relied on its own plantation when it first constructed its cannery. Later, the expansion of production capacity led to more purchases from the open market or from regular suppliers under a quota system. Dole did not engage in either contract markets (in the form of minimum price guarantees) or contract farming. Farmers living near Dole's plantation and cannery have therefore not benefited from the plantation, either in the form of input credit or technical knowhow.

In contrast, local firms which operate plantations in the Eastern Region can themselves supply not more than 40% of the total produce requirements. The rest is supplied through contract markets arranged with farmers. In the beginning, these firms provided technical and credit extension services as well as some input credits to contract farmers. These services had not imposed a heavy burden on the firms nor increased their costs of production as normally these firms had their own plantations with a wide range of facilities, making it easy enough for them to provide services to farmers. However, firms in the Eastern Region provided backward-linkage services only in the early stage of their establishment when they were faced with shortages of raw materials. Once the problem of supply shortage had become less intense, these firms reduced their services to the farmers. Besides, only large farmers who own production techniques similar to those used by plantations of these firms could utilize facilities and services provided by the firms.

Oil Palm

MNCs in Thailand used to be major consumers of imported oil palm products. Uniliver, for example, used to rely mainly on palm oil imported from Malaysia. Since 1982, however, the Thai Government has adopted a policy of protecting domestic oil palm industries, especially oil palm plantations and crushing mills. The first measure taken to achieve this was the imposition of tariffs on imported palm oil products. Since then all imports have been completely
banned. Consequently, MNCs such as Uniliver have had to operate their own plantations and crushing mills by entering into joint ventures with local firms.

Asparagus

A Japanese firm (Taniyama) has contract market dealings with many small farmers. It does not provide credit or technical services to the farmers, however. Asparagus farmers have to rely on their own resources or borrow from the BAAC. Asparagus sold by farmers is subject to regrading, and only about 20% of the asparagus sold is considered good enough for export to Japan, Singapore and Hong Kong.

Local firms buy asparagus from local dealers to whom they provide operating loans. Local firms still play a dominant role in the buying and selling of asparagus, and most of the produce goes to local markets.

Foreign Aid and Foreign Investment

Foreign aid to the Thai agricultural sector comes from many sources, the principal ones being the EEC, USAID and OECF (Japan). Apart from giving direct aid to particular projects, international donor agencies also finance projects through local agencies. For the four commodities studied here, foreign aid is channeled to farmers through the BAAC, which then extend credits to oil palm, pineapple and asparagus growers. Chicken farmers very rarely borrow from the BAAC as most of them use the services of commercial banks.

At present, over 20% of BAAC lending funds are grants and low-interest loans from international agencies. These sources play an important role in the BAAC’s ability to provide low-interest loans to farmers.

All the BAAC’s main foreign sources of funds (OECF, EEC, IBRD, etc.) have included provisions for increased lending to small farmers in their loan agreements with the BAAC.13

There was direct foreign investment in nearly all the processing plants for the commodities studied, such as in pineapple canneries, chicken processing plants, palm oil crushing mills and asparagus cold storage. According to Thai law, total foreign investment cannot exceed 49.0% of the shares of each company.

Diversification of Farmers’ Production

Nearly all the farmers producing the four commodities under our study have diversified their production. Their incomes come from both on-farm and off-farm activities.

On-farm activities. Each farm household typically produces several crops at the same time. Chicken farmers, for example, may also grow tapioca, coconut
trees, paddy, etc. The most important factors determining the diversification of each household’s production are the amount of land and the size of the labour force available. The greater the quantity of land and labour, the greater the opportunity for diversification. The labour required for raising broilers varies with the age of the chickens. When chickens are younger than three weeks old, they must be fed six times daily.\(^\text{14}\) Work becomes less intensive for a short period after that when it takes no more than six manhours daily to raise 10,000 chickens (the number an average-sized farmer raises at one time).\(^\text{15}\) Labour becomes intensive again after the chickens reach six weeks, when their appetite matures and the feed conversion ratio is high. Raising chickens requires continuous care, especially during hot weather and when the chickens are infected with any of several diseases. Normally, however, the raising of 10,000 chickens requires only one full-time labourer. Broiler-raising households in the Eastern Region, most of which have more than three active labourers (adult males),\(^\text{16}\) can therefore still diversify into other activities. And even those households which lack labour can easily hire labour at comparatively low wages (40-50 baht a day).\(^\text{17}\)

It is noteworthy that farmers who have land that is fit for growing paddy will continue growing paddy although the price of rice has not been very attractive.\(^\text{18}\) Most of the land used for raising chickens in the Eastern Region is highland and rather infertile. Farmers in this area like to grow crops which do not need intensive labour, such as tapioca (which is grown by most chicken raisers) and coconuts; this helps keep the labour market in the region quite relaxed.

Farmers growing the three crops also typically grow several other crops as well. Pineapple growers, for instance, also grow tapioca, rubber trees, and fruit trees; while most asparagus growers also grow pineapple, paddy and vegetables. Of the three study crops, asparagus has the most intensive labour requirement because, in addition to tending the crop, farmers also have to harvest it throughout most of the year. As asparagus requires one labourer per rai of productive land, the average asparagus farming household rarely works more than 2-3 rai. Even so, asparagus planters still have time to grow other crops, as normally farmers will not have to work beyond noon to collect their produce for the market each day. In addition, the peak season for asparagus is in the months of March and April when farmers are free from other farming activities while the period of October to November, which is the harvest season for many other crops, is incidentally the low season for asparagus.

Normally, farmers produce both cash crops for sale, and subsistence crops like paddy, vegetables and fruit trees for their own consumption. Diversification is favoured as a way to reduce the risks inherent in monoculture production. From field surveys it was discovered that some pineapple planters had at one time allocated more land to pineapple cultivation but when pineapple prices fell, these planters were forced to sell half of their land to pay their debts.\(^\text{19}\) In another
case, oil palm planters in a self-help settlement in Pra Saeng District of Suratthani Province were encouraged by settlement officials to grow only palm trees, and later also had to sell their land to pay the resulting debts. Diversification has one disadvantage, however, in that it discourages commercial firms from engaging in CF, as they fear that farmers will take inputs that the firms have given to them and use them on non-contract crops, especially if the other crops are selling at better prices.

**Off-farm activities.** In a typical farm household in both CF and contract market projects, some labourers will look for off-farm work either inside or outside the immediate region. Aside from general agricultural labour, the most important off-farm employment is in the various food processing plants.

Diversification therefore helps reduce barriers to exit (from CF or contract markets) for farmers, and also reduces their risks.

**Multiplier Effects**

**Broilers**

There is not much direct employment in a broiler CF project itself, as one full-time labourer is normally able to raise up to 10,000 chickens per two-month lot. The CF project of a giant firm at Si Racha, which raises about two million chickens in each lot, employs less than 200 labourers.

The firm expects contract farmers to raise chickens by using their own household labour as their principal labour source. In practice, however, farmers in the project also hire labour from both inside and outside the region for additional help. Most employees from outside the region come from the Northeastern Region. Wages are normally 2,500-3,000 baht per two months, but the employee pays for his own food. Calculated at a daily rate, wages average 40-50 baht. Contract farmers who hire extra labour are either those who are raising more than 10,000 chickens per available man in the household, or those who have many other production activities in addition to chicken raising.

Apart from direct employment in the CF project, there are spillover or linkage employment effects which increase the total amount of employment due to broiler production.

**Employment in an animal feed mill.** The animal feed mill of the large firm at Si Racha is a very capital-intensive one, using computers to control nearly all of its work. Construction of the mill cost 120 million baht, but only ten workers are required in its operation. This mill produces feed specifically for the firm's CF project in the Eastern Region.

The operation of these feed mills has increased employment outside the mills themselves. Truck drivers bringing raw materials, workers unloading raw
materials, and guards watching the grounds are examples of jobs related to the operation of feed mills. Demand for the raw materials that are used in feed production (there are about 30 different ingredients) also increases employment among raw material producers, although the extent of increase is difficult to quantify here.

*Employment in an incubation plant.* Incubation plants are also characteristically capital-intensive. An incubator which can incubate over 70,000 chickens at a time employs the direct labour of only two workers.

*Employment in a chicken processing plant which is more labour-intensive than in both the feedmill and incubation plant.* Each large processing plant employs the labour of 1,000-2000 workers (mostly women). At present there are nine processing plants in Thailand.

**Pineapple, Oil Palm and Asparagus**

Among the three crops, the growing of asparagus is the most labour-intensive. It requires the labour of one man for each *rai*, while one man can work on 10 *rai* of pineapple or oil palm. Pineapple and oil palm farmers growing less than 25 *rai* generally employs only labour from within their own households.

Only contract market arrangements were found in the study of these three crops. Firms supply no input credit or technical and extension services to farmers. The method of production practised in the contract market project is therefore not different from that of ordinary farmers who produce the same crops. Consequently, there is no difference between the patterns of labour employment of farmers who are inside and those outside contract market schemes.

Employment related to production of the three crops is principally in the processing plants. A pineapple cannery that can process 100,000-180,000 tons of fresh pineapples a year employs 1,500-2,500 workers in the peak season (April-June), and 400-500 workers the rest of the year.

Over 80% of the workers in these canneries are employed on a temporary basis; employment contracts must be renewed every three or four months. Workers receive only wages, with no other benefits. Canneries in the Southern Region pay 50-61 baht daily; in the Eastern Region, which is a growing industrial zone and has a slight labour shortage, 67 baht is the normal daily wage. Most of the workers are local residents, and many of them come from households that grow pineapples.

Other employment related to the production of these three crops consists of the transport and production of various inputs, such as fertilizer and chemicals.

However, this linkage employment is not necessarily the spinoff of contract farming schemes. The production of these crops in the open market has similar effects on employment opportunities.
NATURE OF FIRM, FARMER AND CONTRACT RELATIONSHIP

Firm

Broilers

Of the four items in the study, the case of broilers is the only-one for which normal CF practice has truly been strictly adhered to; i.e., the price to be paid to farmers is fixed beforehand; credit and various technical services are provided by the firms.

CF in broiler raising projects is most popular in the Eastern Region, where tapioca growing used to be the traditional occupation. In addition to favourable geographical characteristics, the local population's limited choice of profitable farming activities makes it particularly suitable for private firms to promote broiler raising. This new occupation, which requires intensive labour, has increased farmers' income.

There are several ways in which CF arrangements in broiler raising projects are made:

- **Direct CF arrangements between firms and farmers:** This type of CF was first tried in 1977 by Charoen Pokphand Company (CP), which is the leader in animal feed production and chicken raising in Thailand. CP invited farmers in the Eastern Region who had land of their own to join its CF project. The farmers were required to use their land as security in obtaining loans from commercial banks, with CP signing as the co-guarantor. In this way, commercial banks gave higher loans to the farmers than they normally did. Part of the loan was used by farmers for construction and equipment purchases, while the rest was used by CP as a revolving fund for purchases of chicks, feed, etc. The majority of farmers who joined the company's project raised quite a large number of chickens (an average flock of about 10,000 chickens).

- **CF arrangements between feed firms and farmers through feed agents or large-scale chicken producers:** This is the method preferred by the other six large-scale animal feed companies. The firms deal with local feed agents or a few large-scale chicken producers, who in turn deal directly with the farmers.

Feed agents contact two or three animal feed companies to procure feed, chicks, and medicines on behalf of the farmers who raise chickens for them under contract. After the farmers in the project have raised their chickens to maturity, they sell them to the agents at pre-fixed prices. The agents then sell the chickens to the feed companies contacted earlier. Under this arrangement, the agents bear the risk of price fluctuations of both inputs (animal feed, chicks, etc.), and output (grown chickens). Agents generally contact more than one feed company to allow
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them to have some options in determining the conditions of sale. It is also normal practice for the agents to minimize management problems by limiting the number of companies they deal with as contacts with too many companies can also reduce the scale of business with each company and, hence, lessening the agents' bargaining power.

Farmers joining CF projects through feed agents tend to raise chickens on a small scale, with not more than 4,000 chickens per lot. Chicken raising is, to them, an occupation supplementary to growing crops such as tapioca, paddy and coconuts. These farmers tend to have an economic status inferior to that of those who engage in direct CF with feed companies.

There are two main types of contractual relationship for contract farmers raising chicken in the Eastern Region:

— The first type is the "guaranteed price contract" which is in close accordance with CF concept. That is, the firm supplies various inputs on credit to farmers in the project, fixing prices for these inputs in advance. It also fixes the buying price for the output, which means the firm bears the risk of price fluctuations for both inputs and outputs. Participating farmers bear only the risks inherent in production; their returns are determined by the feed conversion ratio, or FCR, and the chicken death rate. The firm provides technical services, including advice on chicken raising techniques and veterinary assistance. When the chickens are fully grown, the firm first deducts the costs of inputs and repays the interest and principal borrowed by the farmers from commercial banks; the balance of the purchase price is then paid to the farmers in cash. According to field surveys, this type of CF is most popular in Si Racha and Banglamoong Districts of Chon Buri Province, in Pluak Daeng District of Rayong Province, and in Phanom Sarakham District of Chachoengsao Province.

— The second type of contractual relationship is the "guaranteed wage contract" under which the firm pays contract farmers a fixed price for each chicken or for each kilogram of chicken produced. The farmers, however, have to buy equipment and invest in shelter construction on their own, using the bank loans for which the firm acts as guarantor. The firm supplies various inputs and technical services and is still the owner of those inputs. Farmers are de facto hired workers; their returns depend on the feed conversion ratio and the chicken death rate.

Field surveys indicated that if there are other alternatives, firms usually do not favour the guaranteed wage contract as they must take special care in screening prospective farmer participants. (Dishonest farmers can easily cheat firms by selling the supplied feed or chicks outside the project or by letting their own chicks eat the supplied feed). Firms are sometimes forced to use this type of contract, however. There are two major reasons for this. First, many farmers
still do not understand the benefits they can receive from joining a CF project. Firms must therefore give incentives by offering wage guarantees to give farmers confidence. (They might switch the deal to the guaranteed price type, after farmers have joined the project for a certain period of time). Second, farmers in some areas are too poor to be recruited into guaranteed price CF. Examples of this can be found in Muang District of Chon Buri Province, Phanom Sarakham of Chachoengsao Province, and Si Maha Phot of Prachin Buri Province.

Most of the CF contracts are made verbally.

**Pineapple, Oil Palm and Asparagus**

At present, CF arrangements involving these three crops are usually made as a forward-linkage contract in the form of a guaranteed minimum price. The firm fixes a certain minimum buying price for the produce, but if the market price goes above that minimum, the firm agrees to pay the market price.28

Some of the firms dealing with either of the three crops (pineapple, oil palm and asparagus) have made CF arrangements, setting a minimum buying price for the produce and providing technical and extension services and credit for input purchases to farmers.29 These firms, however, often face the problem of having farmers in the project secretly taking contract produce and selling it to outside buyers. Apart from making firms unable to ensure the supply of raw materials for their factories, this also prevents them from deducting from the farmers’ earnings, input credits that were earlier given to them. When this occurs, firms have to turn to other systems.

**Firms’ systems to ensure a supply of raw materials.**30 Firms in some areas use a combination of firm-owned plantations (20-40% of raw materials required), guaranteed minimum price contracts with farmers (20-30%), and purchases in the open market. Firms employing this system are most often pineapple canneries and palm oil crushing mills.

Firms rarely grow on their own plantations more than 40% of the raw materials they need. Although some pineapple canneries used to grow up to 70% of their raw materials themselves in the past,31 the size of their plantations have later been reduced mainly as a result of the high cost of plantation administration. Too much reliance on firm-operated plantations also reduced the firm’s flexibility in marketing its own product, especially when the market for that product was highly competitive. When the price of raw materials in the market was lower than the production cost of materials on its own plantation, the cannery which produced most of its materials on its own plantation had to compete at a disadvantage with those that procured all their raw materials from the market.

Firms in other areas use a contract system (not exceeding 40% of their total demand), giving contract farmers minimum price guarantees and other special privileges, such as first priority in produce delivery during the peak pineapple
season. For the rest of their raw materials, firms buy from regular individual suppliers using a quota system based on the quantity of produce each farmer supplied to the firm’s plant during the previous production season, and from the open market.

When making these purchases, firms buy both from large-scale farmers who have enough produce to send it to the cannery themselves, and from middlemen who provide the service of collecting the produce from smaller-scale farmers and selling to the cannery in bulk. Most of the time these middlemen receive in return for their services 10-20% of the price the cannery pays for the pineapple. But during the peak season, when there is an excess supply, the profit margins of the middlemen may increase to as much as 50 per cent of the value of the produce sold. These profits are gained because the middlemen have better access to the canneries than do small farmers.

Alternatively, some firms purchase up to 40 per cent of their raw materials from agricultural co-operatives, obtaining the rest from regular customers and the open market. In order to ensure the level of supply from the co-operatives, firms give special incentives by fixing both the buying price and the grading of produce.32

From these various purchasing systems, it can be seen that the “guaranteed minimum price” contract system is only one of the means by which firms obtain their supply of required raw materials. The most important variables determining firms’ decision to use which systems are the production conditions of the farmers in the area and the marketing structure of the goods produced by the firm. Because these conditions may change, successful firms will maintain enough flexibility in their supply system to adapt rapidly to new circumstances. Minimum price guarantee contracts are made to ensure the supply of raw materials without backward-linkage contracts in order to maximize flexibility.

In order to make raw material supply systems more efficient, firms normally will co-operate with other agencies in making backward-linkage contracts with farmers to provide them with capital and extension services. Two important parties in this respect are the BAAC and companies which sell farming inputs.

The BAAC is at present the agency with the greatest role in providing credit to middle-scale and small-scale farmers. Joining a private firm to make market contracts with farmers helps the BAAC reduce its business risk, as the firm deducts the loan and interest from farmers’ sale receipts. At the same time, the firm does not have to extend input credit itself, and farmers are able to obtain credit they need. All three parties are made more secure in this way. At present, the BAAC gives credit, both in cash and in kind, to farmers participating in a contract market with the firm, but farmers who actually join the project receive special privileges. Those who join a contract market project are able to borrow up to 60,000 baht from the BAAC without collateral; ordinarily they would be able to borrow no more than 30,000 baht under the same situation.33
Companies which sell various agricultural inputs such as fertilizer, insecticide, and other chemicals, often contact the purchasing department of large firms in order to ask for co-operation in promoting their goods. Since firms do not make backward-linkage contracts to supply input credit to farmers, they do not give extension and technical services to project farmers directly. They instead arrange that the companies which sell agricultural inputs also provide extension services and technical advice on how to use these inputs. This is agreeable to the companies, which naturally wish to increase the level of input use among farmers.

Government agencies seem to play a surprisingly little role in giving technical and extension services to farmers of the three crops under this study, despite the fact that a government agency has been designated to provide these services in the study area. Farmers frequently complained to researchers about the lack of technical assistance available to them when faced with plant diseases or inferior crop strain problems. They were particularly aggrieved at the unavailability of relevant government officials.

Participants in market contracts demonstrate a clear division of labour. Processing plants fix guaranteed minimum prices for the farmers' produce, the BAAC releases credit to farmers, and companies selling agricultural inputs give technical and extension services to farmers. In this way, each of these private sector agencies serve farmers while maximizing their own returns.

Social Status of Contract Farmers

Broilers

Farmers in CF projects vary greatly in their background status.

"Guaranteed price" contract farmers. From the field surveys conducted in Si Racha District, it was discovered that firms prefer to recruit farmers of high economic status for the project. The most important criterion in farmer selection is that they have land of their own in large quantity. Some contract farmers have hundreds of rai of land, and in general farmers in the project own not less than 40-50 rai per household. Considering the prices of land which have soared very high, this means that these farmers are relatively well-to-do. Apart from chicken raising, the farmers usually also work as merchants, land brokers, teachers, etc., and tend to have high, secure incomes.

As for family size, each household in the field survey samples had between four and seven members. Most of the family heads had completed primary education.

Raising chickens is not the principal source of income of farmers in the CF project, although it was for most of them when they first joined the project.

"Guaranteed wage" contract farmers found during the field surveys tend
to have status conspicuously inferior to the “price contract” farmers and own smaller quantities of land or land in less fertile areas. Apart from raising chickens, the majority of these farmers grow cassava and other crops that can withstand drought; some family members also have jobs outside the farm.

Family size of wage contract farmers in the project did not differ from that of the guaranteed price contract farmers (four to six people). The majority of the family heads had also completed their primary education.

In the first period after joining the CF project, farmers received quite good returns, but the return from the raising of chickens has dropped considerably recently, to the extent that sometimes there was a net loss.

**Pineapple, Oil Palm and Asparagus**

*Pineapple.* The economic status of contract farmers varies greatly. Some are large-scale planters growing 400-500 rai of pineapple; others own no more than twenty-five rai (most of these are members of self-help settlements).

Most small-scale planters grow ten to twenty-five rai of pineapple per household, and more than half of the farmers surveyed had land of their own. Family size averaged five to six persons. Most of the household leaders had completed primary education.

During the past few years, the export boom for pineapple products has somewhat improved the status of small-scale pineapple planters. This income is used for daily food expenditures, investment in better inputs for more efficient production, and purchases of status-building consumer items, such as pick-up trucks.

*Oil palm.* Just as with pineapple planters, oil palm planters varied greatly in terms of farm size. Approximately 60% of all palm plantation area was owned by large-scale planters and owners of oil palm crushing mills.

Most of the small-scale planters were members of self-help settlements. Each household possessed about twenty-five rai of land, most of which was grown with oil palm. There were some small-scale planters outside these settlements, however. Of special interest were the small-scale planters in Khiri Ratthanikhom District of Surat Thani Province, which is about the only oil palm growing area in the Southern Region where small-scale planters have CF arrangements with firms.

On average, small-scale planters in Khiri Ratnakhirh District grew oil palm on not more than twenty-five rai per household. Most of the land was from run-down forest. Household size was the same as for other groups studied, but family heads had usually completed only the early years of primary education. The most important variable leading to differences in economic status was the communication and transportation system that provided access to the village and to the palm planting areas. In areas which had a good transportation system,
the villagers were better off since they could diversify production more efficiently given the wider market. Transport of the palm nuts for sale could be done easily and at low cost; obtaining marketing information was easier; and trips to attend meetings organized by the firm were more feasible. Moreover, in areas that had a good road system, the firm usually operated its own plantations, enabling small-scale planters nearby to easily gain technical advice. Small-scale planters in areas with poor transportation systems who were located far away from the crushing mills do not enjoy these benefits. These planters had to rely principally on one another for new cultivation techniques.

The relatively better-off small-scale planters in areas with good communication systems reinvest part of their incomes in palm growing and spend the rest on daily consumption needs. Small-scale planters in areas where communication and transportation systems are not good tend to have lower incomes which they spend entirely on daily consumption.

Asparagus. Most of the farmers grew two to three rai of asparagus per household. The average family size was four to six persons, and most household heads had completed only the early grades of primary education.

Most asparagus farmers made a profit of 34,000 to 50,000 baht yearly, which is very high, considering the quantity of land used for cultivation.

A part of the income is used for buying fertilizer and pesticides, which are required in large quantities for this kind of crop; the rest is used for daily consumption.

Since asparagus farming is a labour-intensive activity, both the husband and the wife therefore must help each other in the farm and in making investment decisions. Other household chores remain the duty of the wife.

EVALUATION OF PERFORMANCE

Main Areas of Performance

Input Supply

Broilers

CF of broilers originates from the firms’ necessity to ensure demand for the goods that they produce; that is, animal feed and day-old chicks. Animal feed is the most important input in raising chickens. Animal feed mills therefore try to create markets to absorb their products, without having to compete with other mills. Hatcheries (mostly operated by animal feed mills) must send day-old chicks to farmers immediately before having to feed them. Finding certain markets is therefore of utmost importance. The fact that supply of such inputs is very inelastic forces the firms to initiate CF.

Over ten years ago, when the animal feed industry and modern chicken
raising were first introduced in Thailand, mills that possessed the technical
knowledge to produce animal feeds were able to make handsome profits. Over
30 types of raw materials can be used as ingredients in feed production; the
producer's decision as to which combination of ingredients to use depends on
their prices. Large mills therefore have an advantage in that they can computerize
their operations and more efficiently select feed formulas. However, in the past
five to six years, technical knowledge in animal feed production has become
widespread. There are several new animal feed mills, and large-scale farmers
now have their own feed mixers, especially those raising layers, who can produce
70-80% of their total requirements. Broiler raisers can produce only about 20% of
their total requirements, because of the complexity of the work and because
broilers of different age groups require different feed formulas. Producing their
own feed is therefore not economical, especially for medium and small-scale
farmers. Farmers who are under CF, the majority of whom raise less than 10,000
chickens, therefore have to rely on animal feed from the contract firm. When
raw material shortages occur, or when the government sets control on animal
feed prices, it is not difficult for feed mills to use different, cheaper raw materials.
But the quality of feed product might decline thus affecting the farmers. (This
matter will be discussed in detail later.)

Heavy investment is required to set up hatcheries. A small one that produces
only 100,000 chicks a week needs an investment of 30-40 million baht. (Hatcheries of vertically integrated chicken firms can produce 600,000-2,000,000
chicks/week). Chicken breeds still have to be imported from abroad, especially
those of Arbor Acres which take about 60% market share and European chicken
breeds like Rose and Habbap.

The quality of chicks depends on their sizes and on the age of the mother
stock. Mid-age mother stocks produce the healthiest chicks. Mothers that are
too old produce unhealthy chicks, which die easily. It is not difficult for
hatcheries to extend the egg laying time of mother stocks when the demand for
chicks in the market increases. Contract farmers have no right to choose the
size of chicks that the firm delivers to them. The decision rests solely with
the firm. Hence, firms can easily jack up their profit margins by manipulating
chick sizes. (This topic will be discussed in detail later.)

_Pineapple, Oil Palm and Asparagus_

Since firms do not normally make backward-linkage contracts, farmers have
to rely on the market as their principal source of inputs.

For pineapple, the most important input cost is the crowns. In the past,
some canneries supplied farmers with crowns at low prices and on credit to
motivate them to grow pineapples. This was particularly true in the Eastern
Region (Chon Buri and Rayong) where pineapple growing was relatively new.
Because of the insufficient supply of local pineapple, canneries in the Eastern Region often had to rely on the produce from the Southern Region (Prachuap Khiri Khan and Phetchaburi) and pay higher costs. Farmers in the Eastern Region were not expanding their pineapple production because of the unattractive returns compared to those obtained from cassava and sugarcane, the principal crops of this region. During the past six to seven years, however, more and more farmers have switched to pineapple as the prices of cassava and sugarcane fell considerably. Moreover, rubber tree planting has greatly increased in the region and growing pineapples between young rubber trees not only generates extra income to the farmers but also helps the growth of the trees themselves, as weed growth is inhibited.

The production of pineapples in the Eastern Region has expanded considerably since 1985, because of an export boom in pineapple products. Canneries in the Eastern Region now do not have to rely so much on pineapples from the South. As a result of the increase in pineapple supply, firms have been less willing to comply with the terms of the guaranteed minimum price contract. Firms have also cut down or cancelled their provision of inputs, especially crowns. Farmers therefore have to buy crowns in the open market.

For supplies of other inputs, such as fertilizer and other chemicals, farmers depend almost entirely on the open market. In order to increase their yield per rai and to produce good pineapples, farmers have to use a lot of such inputs.

Oil palm planters usually buy seeds (claimed to have been imported from Malaysia) in the open market. For small-scale planters, seeds are a major problem, because it is difficult for them to tell the origin and quality of seeds. It takes at least four years to produce nuts which show the quality of the planted seeds. By then, it would be too late to change. Many farmers complained that they had no one to turn to for help with this problem, since government agencies involved play a passive role in providing technical and extension services. (Most government officials seem to view oil palm as "rich men's" plant, implying that owners should be able to take care of their own businesses). However, this problem is now not so serious for large scale plantation owners who have better access to good sources and many of them now hire Malaysian experts to work on their plantations.

In addition to seeds, oil palm plantations rely heavily on other inputs, especially fertilizer. For an oil palm plantation to achieve maximum yields, 150 kilograms of fertilizer is needed annually for each rai. Most planters buy fertilizer in the open market; only a small number (mostly large-scale plantation owners) can obtain fertilizer on credit from crushing mills.

Asparagus, meanwhile, is a crop which requires very intensive care. Most planters buy canned asparagus seeds in the open market. Other production inputs, such as fertilizer and insecticides, are also bought in the open market.
Extension

Broilers

Broiler raisers were the only group covered in the study that really enjoyed formal technical and extension services from contracting firms. The extension staff of contracting firms inspect the broilers every two to three days. The ratio of extension staff to contract farmers is 1:50 for farms within a radius of 40 kilometres. Most contract farmers organize themselves into groups, with each group raising about 100,000 chickens, in order to make it convenient for the firm to provide extension services to them. Extension staff normally have veterinary degrees.

In addition to providing extension services to contract farmers, extension staff also have a duty to see that contract farmers observe relevant regulations laid down by the firm. Farmers who are under the closest supervision in this respect are those under wage contracts, because most inputs are provided to them by the firm, which wishes to make certain that the contract farmers operate honestly. Extension staff are also expected to motivate farmers participating in the project to work more diligently and to adopt techniques aimed at improving productivity.

Pineapple, Oil Palm and Asparagus

Although firms have their own extension staff, these staff are not directly responsible for providing extension services to farmers because the firms do not engage in backward-linkage contracts. Their main duty is to recruit farmers to sell their produce to the firm on a regular basis in order to ensure a constant supply of raw materials. In addition, these staff are responsible for inspecting the quantity of the produce supplied by participating farmers — which is usually not consistent, as it depends on weather conditions — in order to set prices. In order to encourage farmers to sell produce to their factory, extension staff may occasionally give advice on planting methods, and on appropriate brands of fertilizer or other chemicals. Most pineapple canneries employ five to ten extension staff members. Each cannery has 700-2,500 farmers as their regular suppliers. The extension staff members visit contract farmers once or twice a month. For asparagus, only one extension officer is needed in a project area which has about 200 contract farmers.

Opportunities for Farmers to Obtain New Technical Know-How

Farmers in broiler CF projects are able to obtain new technical knowledge from their contact with the firm. However, application of this knowledge to other types of agricultural production is rather difficult; once the farmers give up raising chickens, the knowledge is almost useless.
As for the other three crops, it was found that farmers participating in CF projects can gain some new technical knowledge, mostly from input suppliers which launch sales promotion campaigns such as demonstration plots, exhibitions and farm contests. (A popular approach is to hold contests in yield enhancement).

Among the three crops, firms dealing with pineapple processing are the most active in disseminating technical knowledge to farmers, especially those in the Eastern Region which buy most of the pineapples through contract market, because most farmers in this region are in favour of double-row planting which enables them to obtain pineapple in the sizes required by the canneries. The average yields of pineapple in the Eastern Region are thus higher than those in the South (in Prachuap Khiri Khan and Phetchaburi), where over 70% of pineapple growers apparently prefer single-row planting. The average yields per rai of pineapple in the Eastern Region are six to eight tons, while those in the South are only three to five tons.

Growers of oil palm, particularly small growers, can readily apply their knowledge of rubber planting, which is similar to oil palm planting, in their plantations. Owners of large plantations hire experts, mostly Malaysians, for their plantations. As for asparagus growers, they usually learn farming methods from among themselves, because they have little opportunity of receiving technical knowledge or extension services from either private firms or government officials, although technical knowledge is very important to this crop. Without adequate technical knowledge, their produce is often of sub-standard quality. (Only 10-20% of asparagus purchased at Kui Buri and Bang Len meets with the specifications set for export).

Technical knowledge and extension services are especially needed in the period when a crop is first introduced; after that they might not have much impact on improvement of productivity since the farmers have already acquired the necessary experience. In addition, farmers can exchange technical know-how among themselves. Newcomers are found to accept new knowledge more easily than old ones who tend to think that they are well versed in their field.

Credit

Broilers

Most farmers participating in CF projects depend on the services of four or five commercial banks. Field surveys revealed that it is not difficult for contract farmers to acquire bank loans, even when the value of their collateral (land) is not sufficient, because the contracting firms guarantee the loans for them. Most of the loans are used for building chicken shelters, which constitute the highest
operation cost. A chicken shelter which can accommodate 10,000 chickens requires 300,000-500,000 baht for construction. The remaining loan money is generally used for purchasing equipment (30,000-60,000 baht for 10,000 chickens on the average).

Commercial banks seem to be quite willing to extend credit to contract farmers. They are required by the Central Bank to extend credit amounting to 20% of their total deposits to the rural sector. The banks, however, frequently fail to fulfill this obligation because farming in Thailand is generally undertaken on a small-scale basis, which makes the cost to the bank for extending this type of credit quite high. Moreover, the risk of bad debts is higher than for other sectors. Commercial banks are forced to deposit part of the money earmarked for rural credit with the BAAC, which will in turn lend it to farmers. They thus obtain less benefit from their deposits because the interest they obtain from the BAAC is usually lower than they can charge if they lend directly to borrowers. Commercial banks, therefore, are willing to extend credit to contract farmers because their risk is lowered and they can charge market interest rate.

When farmers sell broilers to the firm, the firm will deduct from the payment the cost of various inputs they have provided for the farmers. If the price is high and the farmers make considerable profit, the firm will deduct an additional sum from the payment and deposit it in a bank account which it has opened in each farmer’s name. Farmers participating in the project cannot withdraw this money except for emergencies because the purpose is to reduce the risk to the firm. Whenever farmers are faced with losses (due to high death rate or high FCR), these deposits can be used as compensation. It would not be wise to ask the firm to make repayment in cash in such a situation as doing so could easily lead to disputes.61

Pineapple, Oil Palm and Asparagus

Most large plantation owners (pineapple and oil palm planters) rely on commercial banks for credit because they concurrently engage in other businesses which provide sufficient collateral. Many pineapple plantation owners also operate gas stations or transportation services or have trading businesses in town; while many large-scale oil palm plantation owners are forest concessionaires, lawyers, merchants or government officials.

Most medium and small-scale farmers, however, have to rely on credit from the BAAC. Borrowing is divided into two types, as follows:

— Loans to independent farmers

An independent farmer who has collateral can obtain a maximum loan of 60% of the assessed value of the collateral. The BAAC will arrange small-scale plantation owners who do not have adequate collateral into groups and
allow group members to act as personal guarantors for loans of their fellow members. This arrangement is referred to as joint liability groups. The loan ceiling for farmers in a joint liability group is set at only 30,000 baht per year. However, the actual amount loaned to each farmer averages only 10,000 baht. These loans are typically used as a revolving fund for farming. It is not intended for any long term investment because the amounts are small and farmers have to repay the loan each year.

In addition to the BAAC, farmers can also seek credit in non-formal financial market. They can obtain loans from local money lenders who charge interest rates of 3-5% per month or from local middlemen who offer interest-free loans (5,000 baht maximum) to those who sell produce to them on a regular basis.

Loans to farmers in the contract market

Large-scale plantation owners who participate in contract markets usually do not have problems in obtaining loans from financial institutions because they have sufficient security to be used as collateral. By contrast, for small-scale plantation owners, who are the major target group of this study, participation in contract farming means greater access to credit in the organized money markets, especially the BAAC.

Pineapples: Contract farmers in the Eastern Region (where contract farming is very popular) whose plantations are not larger than 25 rai can use the contract they signed with the canneries to apply for a maximum loan of 60,000 baht from the BAAC, without having to use land as collateral. The BAAC extends credit to them both in cash and in kind. When contract farmers sell their produce to the firm, the firm makes payments to the farmers' accounts at the BAAC and the BAAC then deducts repayments plus interest from the accounts.

Oil palm: Farmers who own planting areas of less than 25 rai in Kiriratnikom District (which is the only area where market contracts are made directly between small-scale owners and oil palm crushing mills) can obtain a loan of 130,000-160,000 baht from the BAAC, using land as collateral. For those whose land value is not sufficient, the contracting firm guarantees the amount not covered by the collateral. The loans have a grace period of four years after the trees are planted; i.e., farmers have to start repaying the debt after the palm trees have begun yielding nuts. The size of loans given to oil palm growers is relatively large and is the most important incentive to farmers to participate in the contract market arrangement.

The BAAC could not reach its target of 44 million baht in loans to oil palm growers participating in the project; only 24 million baht was lent. The major reason for failure to meet the target was that the number of oil palm growers participating in the project was too small. Other growers might have fully qualified to participate in the project, but their planting areas were too far away.
Farmers who participate in the project are generally those whose planting areas are within a radius of 50 kilometres from the mill.  

Some agricultural co-operatives in oil palm plantation areas have also tried to encourage farmers to grow oil palm, through a similar credit scheme. The co-operatives obtained funds from the BAAC and extended loans worth about 130,000-160,000 per 25 rai to farmers. The gestation period is four years. When members sell their produce to the co-operative, the co-operative deducts 30% of the payment to repay the debts plus interest to the BAAC.

Another portion of loan — about 600-1,000 baht per month — is for oil palm growers to spend on their daily necessities while waiting for income from the plantations.

**Asparagus:** According to the quadripartite co-operation plan of the government, which was launched in late 1986, asparagus is a crop to be promoted, and under the scheme, the BAAC is required to extend 268 million baht credits to asparagus growers.

Nevertheless, the BAAC credit extended to asparagus growers was well below the target. Although the production cost per rai of asparagus, as estimated by the Agriculture Ministry, is about 10,000 baht annually, the BAAC gives only 2,000-3,000 baht loan per rai, or 20-30% to each borrower. In other words, the credits actually extended by the BAAC to asparagus growers are more or less the same amount as loans given to its client under the joint liability group scheme, (about 10,000 baht each on the average), because an average asparagus farm is only two to three rai.

The BAAC’s failure to meet the target was probably due to inadequate cooperation among the four parties concerned. As an example, the BAAC extended credit to contract farmers in the project at an interest rate of 9.5% per annum, which is about 3.0% lower than the bank’s normal lending rate, in order to induce more farmers to the project. The Agriculture Ministry is committed to offset the shortfall by using money from the Farmers Welfare Fund. However, until this very day, the BAAC has not received any such subsidy. Furthermore, frequent changes of the government, or more specifically, of the Agriculture Minister, have affected the project in that it is uncertain whether or not the subsequent government will pursue it.

**Payments**

**Broilers**

The amount of the payment the firm gives to each contract farmer depends on the farmer’s demonstrated ability in raising chickens. Two major factors are taken into consideration: the feed conversion ratio (FCR) and the death rate. The standard FCR set by the firm is 2.05 kilogram of feed per one kilogram of chicken meat and the maximum death rate is 5% (the desired rate is 3%).
Farmers face losses if the FCR and the death rate are higher than the standards. Compensation is also determined by the quality of the chickens. Payment is reduced if the meat contains excessive chemical residue. (The firm usually requires farmers not to administer certain medicine on chickens two weeks prior to the sale in order to prevent excessive residues.)

**Pineapple, Oil Palm and Asparagus**

**Pineapple:** Pineapples preferred by canneries are those that are neither too big nor too small. Pineapple growers in the South prefer single-row planting to double row planting because pineapples grown in double rows tend to be too small if production is not adequately efficient. Single-row planting requires less production cost per rai; only 3,000-5,000 crowns are needed per rai for single-row planting while twice that number are needed for double-row planting. Pineapples grown in single-rows are usually larger. However, if they are too large, the cores are too big and are not suitable for canning.

Pineapple canneries in the Eastern Region which have contracts with farmers also offer better prices if farmers sell their produce to them during the low season, usually around 1.35 baht per kilogram. The offered price is reduced to 1.10 baht per kilogram during the peak season. This is to encourage farmers to avoid the overproduction period by using chemicals to regulate flowering.

To ensure a consistent supply of pineapples in the open market, firms have imposed a quota system, which has proved to be very effective during the peak season when there is an excess supply. Under this system, the firm buys pineapples only from growers who have transaction records from the previous year. Farmers who do not have such records with any firm are in a difficult position during periods of overproduction because they will have trouble selling the perishable produce. Planters usually try to maintain their records with one or sometimes several firms in order to be able to keep their quotas. The quota system is especially popular in the South.

Middlemen play an important role under the quota system because they usually supply pineapples to the canneries on a regular basis and thus have good records at the canneries. Consequently, they can sell more produce to the canneries during the peak season when the quotas are in force. Small-scale farmers who do not have good records from the previous year must sell their produce to middlemen. The profit margin of middlemen during the peak season will increase considerably because of their high bargaining power. Middlemen also provide special services to the farmers. They pay farmers in cash and are not too strict in grading their produce; they take responsibility if the pineapples are afflicted with disease. (Middlemen are usually good at grading or they will be in trouble if the purchased pineapples are rejected by canneries.) They are also responsible for transporting the produce from the sale point to the canneries.
Farmers who sell their produce to middlemen do it on a regular basis in order to gain favourable grading. If they are not regular sellers, the middlemen will be strict in grading their produce, and during the peak season, the middlemen may not buy produce from them at all, or they may offer much lower prices.

Oil palm: In selling palm fruit to crushing mills, farmers are subject to two major determinants of the price of their produce, the size of the bunch and the ripeness of the fruit. Bunches of palm are divided into three categories according to the weight. "Large" bunches, for instance, must weigh over 15 kilograms. Ripe oil palm nuts have red skin and will give more oil; their price will therefore be higher than for green oil palm nuts. In addition to good strains, the quality of oil palm depends on maintenance, i.e., whether farmers properly apply fertilizer and herbicide. Weather conditions are also an important factor.

Large crushing mills prefer to buy oil palm fruit in bunches. In the past these mills would not buy off-bunch palm nuts, but they are now forced to buy them because of the current supply shortage. On the contrary, small mills buy only off-bunch palm nuts because they still use traditional machines, modified from coconut oil crushing machines, which can handle only off-bunch nuts. This production process lowers the quality of the oil. Off-bunch nuts may be those which, because they are too ripe, fell off the bunch or sometimes those taken off the bunch manually. Large-scale plantations do not aim to sell off-bunch nuts because it is difficult to find buyers (since large mills will not buy them) and because it would not be worth their time, hiring labourers to take off the nuts from bunches, although the prices of off-bunch oil palm nuts are higher. (The prices of oil palm nuts in bunches are about 65% of off-bunch palm nuts as the weight of bunches is not included). Small-scale farmers sell off-bunch oil palm nuts to small mills or to middlemen. Another reason why small-scale farmers prefer to sell their produce off-bunch is that, because of poor maintenance, the oil palm bunches on their plantations are smaller and weigh less than those grown on large plantations.

The field survey revealed that more and more farmers are tending to sell their produce through the middlemen, especially those owning small plantations in self-help settlements or co-operative settlements, to save them from the trouble of arranging transportation to the mills. As oil palm fruit is highly perishable, the fruit may not be fresh and the sale price falls if transportation takes too much time. Selling through middlemen means the farmers are paid in cash and the grading is less strict.

Middlemen also sometimes buy produce from medium and large plantation owners who choose this sale route in order to avoid taxes. Selling directly to the mills means they have to pay full taxes because all transactions are recorded. The profit margin of the middlemen normally amounts to 10-20% of the purchase price.
Over the past four years, the demand for palm nuts has risen because the government has banned palm oil import. As a result, crushing mills are now faced with supply shortage and thus have to rely more on middlemen. Transportation inconvenience also seems to be a factor enhancing the role of middlemen because roads in the South are in poor condition while crushing mills are scattered all over Satun, Songkhla, Hat Yai, Trang, Krabi, Surat Thani, Chumphon and Prachuap Khiri Khan (altogether there are 34 mills). Mills which are far from available palm fruit supplies will pay an extra premium to middlemen to compensate for their inconvenience.

Under the contract market arrangements in Khiri Ratthanikhom District, which is a tripartite agreement among the BAAC, the firm and oil palm farmers, the firm is required to make payment for fresh palm fruit through the BAAC. This transfer procedure is sometimes delayed, with serious effects on farmers because they do not have cash and because they continue to pay interest on the loan. In a bid to solve the problem, the firm later agreed to deduct an amount equivalent to the farmers debt to the BAAC (about 30% of the total sale price) and pay the remainder in cash to the farmers. This practice, however, caused a problem when sales were made during the peak season because the amount deducted by the firm was more than 30% of the total payment, causing frustrations on the part of farmers. The firm agreed to allow farmers to sell their produce elsewhere if they thought they could find better prices. The farmers, however, had to repay their debts to the BAAC themselves.

Government protection of the oil palm industry in recent years has led to an increase in the demand for oil palm to the point that there is now a shortage. Because of the increased demand, the price of fresh palm nuts has risen considerably. As a result, farmers have more choices; they frequently sell their produce in the open market at a higher price than that offered by the firm.

Asparagus: Prices of asparagus are subject to several quality criteria set by the firm. Good quality asparagus should have large and straight trunk and the length should be 25 cm or 18 cm. There should not be any white part at the lower end. Grade A asparagus should have a trunk length of 25 cm., with a diameter of over 1 cm at its lower end and weigh over 14 grams. Grade B asparagus should have trunk length of 25 cm and a diameter of over 0.8 cm and weigh over 8 gram. Prices for Grade A and Grade B asparagus are as follows:

- Grade A (25 cm long) 37.75 baht/kilogram
- Grade B (25 cm long) 26.00 baht/kilogram

If the produce does not meet these criteria, its sale price will naturally be lower.

As regards payment, a problem found is that the firm (Taniyama Siam Co., Ltd) usually makes payment in cheque which, for small farmers, is not convenient
because they are not used to this system. Many contract farmers have turned to middlemen who pay cash mainly because of this problem.81

The firm is very strict in grading the produce, resulting in ill-feeling on the part of contract farmers. As a matter of fact, disputes concerning grading have led to the failure of CF arrangements for this crop.

**Timeliness of Payments**

*Broilers*: Payment is made two to six weeks after sale.82

*Pineapples, oil palm, and asparagus*: Payment is made within one to two weeks after sale.83

**Indebtedness**

**Broilers**

After being admitted into a CF arrangement, farmers borrowed money from commercial banks to construct shelters and purchase equipment,84 using their land as collateral.

In order to attract farmers to the project, the firm initially offered a wage contract. Wages are paid according to the number of chickens raised or, occasionally, according to the weight of chickens. At first, most of the farmers earned a profit of about 2.30-2.70 baht per chicken or about 2.00 baht per chicken after deducting depreciation (about 0.50-0.70 baht per chicken).85 Each farmer raised about 10,000 chickens per lot, which took about two months to grow and mature. Hence, they received a net earning of about 20,000 baht per lot.

The high returns attracted more farmers to the project. The firm gave priority to those who owned a large tract of land (forty to fifty rai per household) and those who could devote their full time to chicken raising.

Because of the high returns during the initial period, participating farmers had no problem repaying their debts. Most of them could repay their entire debts within five to seven years. (The project was first launched in 1977).

However, when the farmers had almost paid off the debt; the net profit they gained from wages began to decrease significantly to only about 1.00-1.10 baht per chicken. At this point, the firm proposed that farmers turn to a guaranteed price contract. Because the wage continued declining, the proposal was made more as a condition than as an option.86

Most participating farmers, including newly recruited ones, decided to accept the new system. (The firm tried to employ only one system in one area to avoid problems due to differences in benefits between the two systems which might lead to disputes).

Initially, when the farmers turned to the guaranteed price system, they again made good profit — three to four baht per chicken (before depreciation cost).87
They were therefore satisfied with the firm's arrangement. Toward the end of the first year, however, the rate of return began to fluctuate. Some farmers were faced with heavy losses, and eventually were indebted to the firm. For farmers who had a bank account (opened for them by the firm), the firm deducted a portion of the profit they had made earlier and deposited it in the account. When losses occurred, the money was withdrawn to pay for the debts. Farmers who ran losses for several successive flocks were penalized by the firm. Penalties ranged from mere criticism, suspension of supplies, to suspension from the project. 

During 1985, when the chicken export boom began, farmers' returns varied wildly. The rate of return sometimes dropped to a very low level, even to negative values. This was quite surprising, as the export boom led to higher export prices for chicken meat, which should have resulted in higher incomes for farmers raising chickens.

A major reason why the export boom did not result in higher incomes for broiler raisers was that many other farmers were induced by high prices to begin raising chickens, causing a sharp increase in the demand for production inputs, especially chicks and chicken feed. Since the price of chicken feed was controlled by the government, feed manufacturers were induced to use poorer quality materials than were previously used in producing feed. Consequently, as mentioned by most farmers interviewed during the field surveys, the quality of chicken feed after the export boom has become poorer. Furthermore, in the past few years, there has been a boom in prawn farming in Thailand, which has added to the demand for animal feed ingredients, particularly, good quality fish meal, which is an important ingredient in chicken feed production. Government protection of soybean farmers has also resulted in shortage of soybean. Although the government periodically approved increases in the prices of animal feed, the adjustment did not correspond with the increases of prices of major ingredients. Changes in the formula of feed might have resulted in lower quality products. Farmers were eventually the ones affected by the situation.

The price of chicks has also fluctuated greatly in recent years. When chick prices were attractive, hatcheries tried to increase their production. One method employed was to use hens which should not have been allowed to produce chicks any longer because of their old age. Chicks obtained from these hens were unhealthy and had low immunity. In addition, quality control of chicks to be sold was relaxed because of the strong demand. About, 5-10% of chicks from hatcheries were rejected because of poor quality. Unhealthy chicks may have gone to CF projects because firms could not raise the prices of chicks sold to contract farmers while chicks of good quality were sold in the open market at double the price. Good chicks may also have been kept at the firm's own farms. Many farmers in CF projects complained to our researchers about the quality of
the chicks they received, saying that they had no right to choose and had to raise whatever chicks delivered to them. In addition, Japan, which is the largest market of Thai broilers, has now become very strict regarding chemical residues in imported meats. Exporters have in turn become stricter with farmers, who are not allowed to apply any medicine to chickens within two weeks before they are sold. In some cases, chickens which were almost fully grown died from diseases, resulting in heavy losses to farmers. The firm did not share these losses, although the chickens' death may not be due to the farmers' negligence.

Many farmers found it was not worthwhile to continue and decided to leave the project. The turnover rate for the CF project of a major company in Si Racha has been as high as 50%. Some decided to leave the project although they had not paid off the debts to the bank. Their way out was to sell their land to pay off the debt. Luckily, land prices in the Eastern Region have risen sharply. After leaving the project, most farmers sold off their chicken shelters to others, normally at only half price and gave up chicken raising completely.

The major firm in Si Racha had planned to expand its CF project by 10% each year. However, the number of contract farmers in the project has remained around 150. (These contract farmers raise about two million chicks per flock).

Besides their refusal to share risks with farmers, which resulted from the quality of chicks and the death of chickens from causes beyond control, the firms also created a system to reduce their risks. That is, they deduct a sum from the payments paid to the farmers whenever farmers gain much profit. The deducted money is deposited in an account opened for the farmers, on the condition that the firm can withdraw the money to compensate for loss in subsequent flocks they raise. In addition, the firms require newly recruited farmers to make a deposit of 55,000 baht for every 10,000 chicks as insurance. Farmers have to pay to the firm in cash, but the firm does not pay interest to them.

Pineapples, Oil Palm and Asparagus

Small-scale and medium-scale pineapple growers who are BAAC clients can usually pay their debts to the BAAC when they are due. The export boom which began in 1985 has enabled pineapple growers to sell their produce at relatively good prices.

Small-scale oil palm growers who joined contract market projects in two southern districts were granted a monthly loan of 600-1,000 baht during the first four years when oil palm trees are young. This scheme helped lessen the hardship of new planters to a certain extent.

Immediately after the end of the initial four-year period, the BAAC stopped providing the monthly loans, assuming that the farmers would by then be earning a ready income and should be able to start repaying the debts. (Farmers had been
given loans worth 130,000-160,000 baht each for the initial investment). The cut in financial resources meant that the oil palm trees were not properly maintained, resulting in low yields. In terms of repayment, farmers participating in the contract market operated jointly by a private crushing mill and the BAAC in Kiriratnikom District have been able to pay back 80-90% of the loans plus interest. A major reason why they could repay their debts to this extent is that at the time oil palm nuts were sold to the market, the price of oil palm was very favourable. Contract farmers could sell their produce either to the contracting firm or in the open market, depending on which price was better. In addition, the BAAC staff (whom the farmers had to obey for fear that their loans might be suspended) strictly followed up on the repayments.

By contrast, repayments by farmers who are members of co-operative settlements to the BAAC have been much lower despite the market boom; only 30-50% of the principal and interest due have been paid. Many farmers breached their contract, selling their produce in the open market to avoid the payment deductions that would have been sent to the BAAC. In addition, as co-operatives are organizations under close governmental supervision, their operations are not flexible. They are notoriously slow in adjusting their palm oil purchase price to follow the market. These farmers, therefore, sold a portion of their produce in the open market at a better price. A managerial-level officer of a co-operative estimated that about 20% of the members secretly sold their produce in the open market. Furthermore, because the co-operative is subject to numerous regulations laid down by governmental agencies involved, administration of repayment is ineffective. Also, members of several co-operatives (such as the Self-Help Settlement in Phra Saeng District of Surat Thani) are monoculture farmers, relying only on oil palm as their only source of income. The lack of alternative occupation resulted in indebtedness. When faced with losses, they had to sell their land to repay debts. Asparagus farmers, meanwhile, do not have much difficulty repaying their debts to the BAAC because most of them obtained loans in joint liability groups; their loans are therefore not for large sums (10,000 baht each on the average.)

Management Efficiency and Cost

**Broilers**

The firm has to pay special attention to management efficiency in contract farming because of the low elasticity of the inputs and outputs. As an example, day-old chicks has to be sent to raisers before they have to be fed. This is the reason why contract farmers are necessary. For independent raisers only regular clients of the firm are supplied with good quality chicks at special price. Walk-in clients can buy only chicks which are left after the firm has sold good quality chicks to regular clients and they have to pay higher prices (e.g. 0.50 baht more
per each chick). On the part of output (that is, adult chickens), they must be sold immediately when due, otherwise farmers will have to pay for increased raising cost while the chicken weight will increase at a slower pace.

The screening of farmers joining the CF Project must be done with particular care. Apart from economic status (e.g. owning enough land for use as collateral), farmers must have sufficient available labourers to raise chickens as a full time job. They must also be diligent and honest. Firms attach special attention to honesty in screening farmers for wage contracts as farmers are required to raise only firms' chickens.

Since farmers in the guaranteed price CF projects have to rely heavily on the firm, both for input supply and output purchase, firms have to deliver chicks and collect the produce punctually. The shifting cost of farmers is therefore high. If farmers sell chickens to other buyers, the firms may punish them by delaying or stopping delivery of chicks. Shifting to animal feed agents may not be as good as making contracts with firms directly in terms of security. The high investment on fixed cost (constructing shelters) also limits farmers' flexibility.

Firms regularly send extension staff to visit the approximately 150 participating farmers in Si Racha. One manager and three extension officers are used for this purpose.

In order to increase management efficiency, firms dealing with CF are generally vertically integrated. They normally have animal feed mills, hatcheries, and processing plants, each of which requires a large sum of capital. Without these facilities, vertical co-ordination will not be efficient. An example was the arrangement between animal feed agents and big independent farmers who bought animal feed and chicks from firms and released to farmers (who made CF with agents and not directly with firms). These agents took the risks associated with the fluctuation of the prices of both inputs and output. Over the past 2-3 years, despite the export boom, several agents in the Eastern Region have suffered losses, as the prices of both the inputs and output have changed rapidly and these agents failed to adjust themselves in time. A number of agents had to join hands and made their own hatchery. They also plan to expand to include other related activities, such as establishing a processing plant and animal feed mills in order to survive in the business.

The above serves as a good explanation as to why agricultural co-operatives which have poor management efficiency and limited capital failed in their CF projects and finally had to abandon the projects.

Pineapple, Oil Palm and Asparagus

CF of these three crops is difficult as management efficiency is poor, resulting from low shifting costs of both firms and farmers.

On the part of firms, shifting from contract farmers to the open market when
the price in the open market is lower than the guaranteed CF price is not difficult. As a matter of fact, it is frequently practiced (as in the case of pineapple canneries and oil palm crushing mills) because it has no difficulty buying raw materials, both directly from farmers and through middlemen.

As for farmers, shifting (from selling their produce to contracting firms) to the open market (e.g. selling to middlemen or to other firms) is not difficult to do either, and, as a matter of fact, is also generally practiced. It therefore may not be worthwhile for firms to supply input credits, as well as technical and extension services to farmers, as the latter may easily sell their produce to the open market. In fact, such backward-linkage contracts may even cause farmers to avoid selling to the contracting firms because they do not want their payment to be deducted. Consequently, firms normally cannot expect to ensure a supply of raw materials through CF.

To avoid the occasional problem of supply shortage, firms have to find ways to better ensure material sources. One method used is offering guaranteed minimum prices (a contract market), without backward-linkage contracts. Firms may also strengthen the contract market system by increasing farmers’ flexibility, allowing them to sell part of their produce in the open market. For example, pineapple canneries in the Eastern Region estimate that the fresh pineapple market demands about 20% of the total pineapple production. They therefore require contract farmers to sell the agreed amount of produce to them, ± 20%. The fresh market is not the major concern of pineapple canneries, however. It cannot absorb more than 20% of the total production and demands different types of produce. It is too time and labour consuming for farmers to select the kinds of pineapple for selling in the fresh market. A cannery’s buying competitors are therefore other canneries, not the fresh market.

For each kilogram of pineapples bought, canneries in the Eastern Region pay 0.03-0.05 baht as the cost of handling contract markets, e.g., for hiring extension officers.107 (A cannery in the Eastern Region which has a production capacity of 100,000 tons per year spends about three million baht in contract market handling).108

**Opportunity for Farmer Participation**

**Broilers**

Farmers in both guaranteed price and wage broiler CF do not form themselves into farmer organizations in order to deal with firms. As firms supply inputs and technical knowledge, as well as handle marketing of chickens, their roles are actually similar to those of farmer organizations. Also, as the prices of both inputs and output are fixed in advance, there is no need for farmers to follow price movements. Their returns are determined by only a few factors, namely the FCR, the death rate and the quality of chickens raised. CF therefore has made
them “producers” rather than “entrepreneurs”. It was found in field surveys that firms’ officers tried to discourage farmers in the project from associating with one another, telling them that diseases might easily spread from one farm to another. They also appeared to be displeased with some farmers who asked questions when their returns declined, resulting either from too high FCR or death rates.

In its accounting for the guaranteed price CF system, after grown chickens are caught for sale, the firm gives farmers records of their performance, which indicate the number of chickens raised, the chicken death rate, the quantity of feed consumed, the types and amount of medicine used, and the payment for each flock. Such simple recording does not give farmers much knowledge in accounting. In the wage CF system, accounting is in even less detail. In both systems, farmers commonly say they are afraid to challenge the accounting figures for fear that the firm will retaliate by delivering future inputs late or supplying poorer quality inputs.

Under these conditions, farmers organizations commonly do not exist in CF projects for chicken raising. Some agriculture co-operatives have tried to act as an intermediary between firms and farmers to encourage their members to raise chickens. These attempts have, however, generally failed. Input supplies and output sales were usually not arranged punctually and technical and extension services were not adequately provided to farmers, leading to losses for the farmers.109

It is virtually impossible for co-operatives to solve the problem of input quality by producing chicks and feeds themselves, as it requires a lot of capital and the economy of scale can hardly be reached. It is equally difficult to reduce the risks involved in marketing chickens by establishing their own processing plants, which also require heavy investment. (A medium-sized processing plant requires about eighty million baht investment.)

Pineapple, Oil Palm and Asparagus

Pineapple: In contract markets which are popular in the Eastern Region, firms do not like to go through farmers’ organizations, but prefer dealing directly with farmers, as they want accurate information on production. Also, this would allow them to control the farmers, especially in production planning.110 Buying through farmers’ organizations may also increase the bargaining power of farmers, and makes it harder for canneries to deal with farmers. It is therefore not surprising that the cannery of Dole (Thailand) at Hua Hin District hardly buys pineapples through the farmers organization, of which the majority of the members grow pineapples near the cannery. It often buys pineapples from farmers living farther away, but within a radius of 100 kms, although it has to pay additional transportation cost of 0.10-0.20 baht a kilogram.111
During the past 2-3 years, however, there was an export boom, causing the demand for fresh pineapples to increase. Existing canneries expanded their production and several new ones were established. Canneries therefore have to ensure the supply of raw material by various means. The largest cannery in Thailand which is located at Pranburi District of Prachuap Khiri Khan started to buy through the pineapple planter co-operative which was newly established, giving various privileges to the members, such as paying an additional 0.10 baht a kilogram, and giving farmers the right to sell to the cannery first during the peak season. The pineapple planter co-operative appears to be quite successful. It has made considerable profits (2 to 3 million baht per year), and the number of members is increasing. Most of the present members are large-scale farmers who normally are considerably powerful. However, the co-operative administration is done as if it were a family business, i.e., many of the co-operative staff members are relatives of influential large-scale farmers. During the peak season, while the purchase of raw materials for the factories is governed by a quota system, the large-scale farmers who have control over the co-operative may obtain the first priority to utilize the quotas for their own benefits. In addition, the number of pineapples sold through the co-operatives is still low — less than 10% of the total production of pineapples in the South.

Buying pineapples through co-operatives is therefore only a means to ensure the supply of raw material for the firm. Most firms use various means to ensure the supply, in order to minimize the risk of depending on any particular means. For example, a cannery in the Eastern Region, famous for its effective contract market arrangements, is presently encouraging farmers in remote areas (in Chanthaburi and Trat) to grow pineapples for supplying to the cannery. It has formed farmers into groups for administrative convenience. The principal reason why the cannery promotes pineapple growing in farther areas is that it is afraid that in the long run it will be affected by the Eastern Seaboard Development Project, which is now affecting the prices of land near the cannery. Thus, it is possible that nearby farmers will soon give up pineapple growing. However, in the short run, the nearby farmers, who have been encouraged to grow pineapples by the extension staff of the cannery, are in trouble, particularly during the peak season, when overproduction occurs and the cannery is unable to absorb all of the pineapples produced under contract. Although the minimum guaranteed price commitment is honoured, the grading of pineapples is very strict. Thus, a large number of pineapples produced are rejected, and the net price obtained by the farmers is sometimes as low as 50-60% of the minimum guaranteed price. Contract markets which once went well in the Eastern Region are now faced with difficulties resulting from the unbalanced demand and supply.

Oil palm: The role of the oil palm planters’ organizations in market contract between small oil palm planters and private crushing mills is negligible. This is
because planters can deal directly with the mills, and can turn to the BAAC for investment loans.

Normally, the BAAC prefers granting loans directly to farmers. Small-scale farmers who lack collateral are formed into groups of 10-20. Each member is entitled to a maximum loan of 30,000 baht, guaranteed under the joint liability group arrangement. (On the average, however, the farmers obtain loans of 10,000 baht per person only.) These are short-term loans that the farmers must pay off within March of each year. The organization of such group is aimed principally at facilitating the administration of BAAC loans only. The groups do not perform any other functions of farmer organizations (e.g. providing inputs, and technical and extension services to and selling the produce for members).117 Farmers who wish to apply for a loan of more than 30,000 baht are usually required to have collateral (e.g. land).118

The BAAC tries to grant loans directly to farmers in order to increase its efficiency in credit management. If loans are granted through farmer organizations, i.e. agricultural co-operatives and farmer groups, which are under governmental bureaucracy, loan administration will not be so efficient. It is shown from field surveys that the efficiency of the BAAC in managing loan recovery was better in cases where loans were granted directly to farmers (at Khiri Ratthanikhom District, Surat Thani) than in the case where loans were granted through agricultural co-operatives (as at Ao Luk District, Krabi).

Although granting loans directly to farmers enables the BAAC to achieve its business goal, it causes farmer organizations — the main business of which is to obtain loans from the BAAC and re-lend them to farmers — to lose a major source of funds for re-lending.119 The role of farmer organizations has therefore been lessened, as the most important motivation for farmers to join such organizations is an opportunity to obtain loans. (During 1984-87, while the BAAC Branch Office in Prachuap Khiri Khan granted loans totaling 85-135 million baht per year directly to its clients, the amount of BAAC loans granted through agricultural co-operative was only 3-6 million baht per year.)

In short, the tripartite contract market agreements between private firms and farmers, with direct financial support from the BAAC, has lessened the role of farmer organizations.

In early 1988, large oil palm farmers and oil palm crushing mill owners jointly established an association to protect their interests. The principal objective is to lobby the government to adopt a policy for their own benefit — such as protection of farmers and domestic oil palm crushing industry by limiting or banning imports of palm oil products and suppressing smuggling of palm oil products. In addition, the association plays a major role in negotiating with palm oil refineries (their important business competitors) for better crude palm oil sale prices, which will in turn increase the price of oil palm nuts for farmers.120
present, the role of the association in protecting the interests of the members is quite active.

**Asparagus:** Most of the asparagus farmers under contract markets make contracts directly with the firm. They obtained BAAC loans in joint liability groups. Although the farmers have formed themselves into farmer groups, the members are loosely tied together. The main activity is the monthly meeting which is sometimes attended by the firm’s representative to clarify questions.

**Resettlement**

In Thailand, most of the CF and contract market projects are arranged by private firms, and the firms deal directly with farmers. Thus, CF and outgrower schemes are not for the purpose of resettlement.

However, the Thai government used land ownership as a motivation for landless farmers to join resettlement projects, such as Phra Saeng Self-Help Settlement at Phra Saeng District of Surat Thani, Ao Luk Settlement Co-operative at Ao Luk District of Krabi, Mab Kha Self-Help Settlement of Rayong and Self-Help Settlement of Prachuap Khiri Khan. Most of resettlement projects were launched 20-30 years ago. In the early stage, the members of these settlements grew several kinds of crops, such as sugarcane, cassava, rubber-trees, and coconuts, as well as oil palm and pineapples which were relatively new. The government administrative officers of the settlements in the South subsequently promoted oil palm planting, by promising the joining members land right documents.¹²¹ This project is in the course of implementation. Therefore the evaluation on promoting monoculture of oil palm cannot be made yet. It was found from the field surveys, however, that there were many problems. For examples, some members failed to fulfill repayment requirements. Some avoided payment deduction by secretly selling their produce in the open market. Low yields of oil palm also prevented the farmers from making repayments. The reason why the yield is low in settlements is that the plantations are small and are not properly maintained, as farmers cannot afford to buy fertilizer and pesticides which are essential to increasing the yield.

In pineapple settlements, most of the members diversify their production by growing various kinds of crops and plants. At the same time they also try to earn some off-farm income. The contract market arrangement is made directly between the farmers and the firm. The standard of living of the members of these settlements is much better than that of those growing oil palm.¹²²

**CF and the Achievement of Objectives of Parties Involved**

**Broilers**

**Firms:** Ever since the animal feed production companies began CF for their chicken raising projects in 1977, their businesses have been very successful. Most
of them have expanded their chicken raising activities and diversified into other areas. Companies dealing with broilers have increased their animal feed producing capacity and the numbers of hatcheries and processing plants.

In the early stages, the principal business of the companies was the production of animal feeds for both the farmers under their CF projects and the open market. As the animal feed production process requires complicated technology, mills are sophisticated, computerized and thus very capital-intensive. Animal-feed production proved to be very profitable and was used as the "spearhead" for expanding the broiler business.

The technical knowledge of animal feed production subsequently became widespread, and many new feed mills were set up. Large animal feed mills could no longer make so much profit out of this business. (Presently, there are dozens of animal feed mills of different scales.) Large-scale, fully-integrated broiler companies then turned to other production inputs during the past five to six years. Hatcheries producing chicks for sale became a major business. The market could be controlled, to a considerable degree, by some firms which have royalty rights in producing parent stock and in selling chicks domestically.

The expansion of both domestic and export broiler markets during the past 3-4 years resulted in the increase in the demand for chicks. The price of chicks has therefore become much higher, although there were periodical fluctuations. Sometimes the price of a chick went up to ten or eleven baht while the production cost was only four to five baht. Thus, some hatcheries could profit hundreds of million of baht within only one year.

The chick price fluctuation is a principal risk for large independent chicken raisers in the Eastern Region. Some of them jointly set up their own hatchery, from which about 30% of the total chicks supplied to their farms will be supplied. These raisers feel that they should not produce more than 40% of their total demand for chicks in order to maintain flexibility; otherwise, they would not be able to adapt to a situation of overproduction of chicks, when large firms often put their chicks for sale at a low price.

The export boom of the chicken meat products during the past two to three years enabled the large processing plants (most of which belong to vertically integrated broiler companies and are Thai-Japanese joint-ventures) to export large volumes, especially to Japan. Having chickens from CF or from their own farms increased the firms' flexibility in exporting chickens, as the price of chickens from CF projects was fixed. These firms need not rely on the open market for the supply of chickens (the price of which became much higher due to the increase in the foreign demand.)

Farmers: The aim of farmers in joining the CF is to have more secure and higher income. They were quite successful, particularly during the early stages of their participation in the projects as the net profit per chicken was about two baht, which was considerably high. One full-time farmer could raise 10,000
chickens in a lot. As each flock needs just two months to mature,\textsuperscript{127} a farmer could easily earn about 10,000 baht per month, which was quite high compared to the incomes of general farmers. (The average income of farmers in the Eastern Region, where most chickens were raised, was 15,000-40,000 baht per year.) Therefore, many farmers wished to join the project, enabling firms to have a chance to screen them.

However, the income of chicken raisers, under both guaranteed price and wage contracts, subsequently began to decline. Ironically, their return was particularly low during the export boom. Many farmers experienced losses or found the profit not worth their efforts, causing the turnover rate of the farmers under the project to increase.\textsuperscript{128}

The practice of guaranteed price CF (which is more in line with true CF), has been obviously decreasing during the past 2-3 years. It is believed that direct farming will increase to 60-70% of the total broiler production in future, as several large firms have been expanding their direct farming for the past 2-3 years (C.P., for example, has constructed its own farm in Saraburi for raising one million chickens per flock). In addition, foreign companies have entered joint-venture contracts with local companies to promote vertically integrated chicken raising business.

\textit{Government:} Most of the chicken CF projects were initiated by the private sector. The government has played virtually no roles in this regard.

\textit{Pineapples, Oil Palms and Asparagus.}

True CF does not exist in either of these crops because of the factors cited earlier. Moreover, although firms have introduced the guaranteed minimum buying price system (contract markets), the open market still plays a dominant role.

\textbf{KEY DETERMINANTS OF SUCCESS, FAILURE AND OTHER OUTCOMES}

\textbf{Management Efficiency}

For commodities to be successfully produced through CF, supplies of both inputs and outputs must be inelastic. For broilers, on the input side, day-old chicks must be sent to raisers as soon as they are hatched, while the grown chickens must be sold at a specified time. Besides, chickens are very vulnerable to diseases, requiring costly technical and extension services. Planning and administration of both production and marketing are therefore important, making the shifting cost of farmers in the project very high.\textsuperscript{129} Farmers who fail to fulfill their contract or follow the recommendations of the firm usually face punitive actions from the firms and incur severe losses as they cannot easily shift to
another firm. Apart from this, the fixed cost (constructing chicken shelters) of the farmers is high. If they quit raising chickens, the shelters will be of little use for anything else.

For the other three crops studied, farmers have lower shifting costs. Input supply elasticity is not as low as for broilers since inputs such as seed, fertilizer, pesticide are readily available. (There are several companies selling these inputs). Technical and extension services are not as complicated and costly. Besides, there are many buyers available (both other firms and middlemen). The fixed production cost is also not high (except for oil palm). Farmers enjoy greater flexibility and more production and marketing options. CF of these crops has therefore not been as successful.

For crops for which farmers have low shifting cost, during the time of raw material shortage, firms will engage in market contract without making backward linkage contracts to ensure the supply of raw materials. However, the market contract is only one of the various means that firms use (such as buying from the open market, buying through farmers organization and running their own plantations). These means may be changed regularly as firms wish to maintain their flexibility, both in finding inputs and in marketing their outputs.

_Dealing with farmers._ Most Thai farmers are very flexible; the majority have small farms and diversified production activities. They traditionally grow annual crops which require low fixed costs.

_Dealing with other firms._ Different firms may use different strategies for ensuring the supply of raw materials and markets for their output. Some make direct sales, or sell through trading companies, while others sell through a parent company based elsewhere. Moreover, marketing of these firms has also been influenced by marketing strategies behaviour of both the trading partner and competitors in foreign countries, whose characteristics are flexible. Firms in Thailand have to increase their flexibility in order to compete with foreign competitors in efficiency terms. An important way to increase efficiency is to reduce production costs, which are directly related to the means of purchasing production inputs. Thus, CF arrangements (fixing in advance the price of raw materials to be purchased) may not be a good way to reduce production cost.

**Government Policies**

Government policies may have both positive and negative impacts on CF. There have been frequent changes in related government policies in past years due to lobbying by various interest groups. Firms have to adjust themselves to minimize the adverse impact of policy changes. Flexibility in operation is therefore of great significance.

Since the Thai parliamentary system is still in an early stage of development,
there are problems of stability, with frequent dissolutions of Parliament and changes of the administration. These changes can directly affect contract farming. For example, under the previous administration, the Agriculture and Co-operatives Ministry paid a great deal of attention to the development of CF, and went so far as to set up the Four-Sector Cooperation Plan to Develop Agriculture and Agro-Industry, to promote CF of various commodities, such as asparagus. Since the change of government in 1988, however, this plan has been neglected. This is one of the reasons for the failure of CF in asparagus production. Although the government has laid down a policy to promote CF, stating it specifically in a plan, no serious implementation is evidenced.

At present many businessmen participate in politics, both openly (running in elections) and indirectly (giving financial support to political parties). To a considerable degree, these businessmen influence the make-up of governments, and hence the formulation of policies.

**Problems in Co-ordinating Government and Private Agencies**

**Co-ordination Problems Among Government Agencies.**

The government agencies related to CF are placed in several ministries and departments. These agencies include the Commerce Ministry, the Office of the National Economic and Social Development Board, and the Agriculture and Co-operatives Ministry. Their operations are sometimes in conflict with one another.

The size of each agency’s budget depends on its responsibilities and performance. This results in several agencies fighting for the rights to certain activities so as to obtain a larger operating budget.

**Co-ordination Problems Within the Private Sector**

Firms engaging in agricultural business in Thailand have a clear division of labour. Processing plants buy farm produces (making only forward linkage contracts with farmers, if necessary); financial institutions (such as the BAAC) give credit (both in cash and in kind) to farmers; while companies which sell production inputs often give technical and extension services as well.

Though there are loose multipartite arrangements among private agencies to promote contract farming, co-ordination is quite haphazard. Each agency naturally focuses on protecting its own interests.

Co-ordination between firms and farmers and even between departments in the same firm also frequently encounters difficulties. Sometimes, the co-ordination is not adequately effective. There have been cases, for example, where a firm’s extension staff encouraged farmers to expand production until the supply of produce exceeded the demand of the firm’s factories.
Co-ordination Problems Between Government and Private Agencies

Government agencies are intended to supervise and to promote private agencies. Their operations may sometimes jeopardize the CF system, however. For example, farmers participating in CF can more easily be taxed because there are records of their income at the contract firm. This tends to discourage farmers' participation.

In short, government and private agencies may have conflicts of interests, causing co-ordination problems which can affect CF.

Nature of Crop Production

Spreading production throughout the year is another factor that contributes to the success of CF. Broiler production, for example, is not subject to seasonality.\textsuperscript{110} Production planning and output marketing is therefore more effective. Production of the other three crops is seasonal, however. For example, making pineapples bear fruit during the off season is effective only to a certain limit, and requires considerable investment. Although oil palm and asparagus give yield almost throughout the year, there is still a peak period. Overproduction is inevitable at this time, as firms cannot absorb all the produce available. Firms therefore have to be strict in grading to keep costs down. The buying price according to the guaranteed minimum price contract may then be almost the same as that in the open market. This leads to disputes between farmers and firms and obstructs the success of CF.

Economic Dynamism

Thailand's economic dynamism during the past 3-4 years has been great. Apart from offering more off-farm employment opportunities to farmers, this has also caused land prices to soar.\textsuperscript{131} The increase of land prices has been attributed to both economic growth and speculation. During the past 2-3 years the price of land throughout the country has risen unusually fast, especially land close to communication networks and large cities.\textsuperscript{132} This land is also suitable for contract farming, since most agricultural produce suitable for CF are perishable, requiring careful planning and high management efficiency. Good communication and transportation systems and convenient location are therefore of great importance.

The impact from the increase in land prices on CF is reflected clearly in the case of chicken raising and pineapple production in the Eastern Region. Several firms plan to relocate production to areas where land is cheaper, moving chicken raising operations from the Eastern Region to the upper part of the Central Plain (Saraburi and Nakhon Nayok, for example), and lower Northeastern Region (e.g. Nakhon Ratchasima). When investing in new locations, firms
initially place more importance on direct farming, so that they can benefit more from the export boom in chicken meat products; direct farming production can be accomplished faster than recruiting farmers to join contract farming projects. Quality control can also be conducted more efficiently, so that chicken products are more in line with specifications of importers. Furthermore, direct farming allows more intensive use of the increasingly costly land.

The middleman system in Thailand is very strong. Many middlemen are owners of commodity shops. Some own trucks, allowing them to buy produce at the farm gate. The more roads are developed, the more easily these middlemen can drive their light trucks to buy produce from farmers. Competition among middlemen give more selling options to farmers, reducing the cost of shifting from one buyer to another.

In order to consolidate patron-client relationship with their farmer clients, local middlemen visit them regularly, bringing gifts, providing occasional interest-free loans (generally not exceeding 5,000 baht), etc. This type of relationship increasingly becomes an obstacle to the promotion of a more formal CF relationship between firms and farmers.

Farmers joining CF and contract market projects do not receive adequate security regarding their returns. In the case of broilers, although firms supply input credit and technical and extension services and fix the price of grown chickens in advance, the quality of other inputs is also a crucial factor determining farmers’ income. For although firms offer minimum price guarantees for pineapple, oil palm and asparagus, their grading criteria can greatly affect farmers’ returns.

CONSTRAINTS TO REPLICABILITY AND POLICY IMPLICATIONS

Constraints to Replicability

It should be kept in mind that contract farming is only a means of ensuring the supply of raw materials of the firms; it is not an end in itself. There are several other means that can be used and that may even be better than contract farming.

Contract farming is not a means to solve the poverty problem of rural farmers in developing countries who are used to traditional or staple crops. It works well with only certain farm products and only in certain areas. Farmers with potential can benefit from contract farming, but they are not necessarily poor. However, through contract farming, poor farmers, like those engaging in pineapple and asparagus growing (although the arrangements were merely contract markets and not contract farming in the real sense) can also have access to export market. Nevertheless, contract farming may help, to a certain extent, poor farmers who grow staple crops in that it may make them reduce production
of staple crops. As a result, the supply of staple crops will decrease and their prices increase. An example is the rice farmers in the Central plains who now use part of their land for growing other cash crops.

Contract farming can be applied only to crops with certain suitable production and marketing qualities; it cannot be used with general agricultural products, especially those which are staple crops.

Contract Farming is contradictory to farmers organizations in that it tends to reduce entrepreneurship of farmers; what they gain is more production specialization; participating farmers pay no attention to accounting systems or the markets of both inputs and outputs.

Although firms give technical and extension services to farmers in their projects, which increase production skills of farmers (for example, chicken raising skills), farmers cannot apply their knowledge to other types of agricultural production.

Policy Implications

The government should not promote contract farming across the board (as being done by the Ministry of Commerce and the Ministry of Agriculture). CF should be promoted only for specific crops with appropriate qualities.

For crops which are appropriate for contract farming, the government should have a policy to promote them on a long term basis. This means the government should review existing regulations concerning both inputs and output so that they are consistent with one another. In addition, it is of great importance that government policy be pursued continually, if CF is to be strengthened.

Moreover, the government should use some instruments to encourage contract farming of suitable crops. For example, farmers are presently reluctant to join contract farming arrangements for fear that they may have to pay more taxes. The government therefore should adopt a tax policy which remedies the situation. It may, through BOI, grant certain privileges to the firms engaging in contract farming of suitable crops.

Co-operation of government agencies concerned should be improved. Re-organization and orientations aimed at making government personnel understand the concept of contract farming should be carried out.

Co-ordination between government agencies and the private sector is also of importance, particularly in improvement of production efficiency, enhancement of homogeneity and improvement of farm-level production. If farm produce is not homogenized, and there are quality problems, disputes over grading will be inevitable.

It is recommended that there be independent organizations to resolve disputes between firms and farmers concerning grading, as it is a major cause for failure of contract farming.
The government should not encourage small-scale farmers to grow a single crop (monoculture) because they will have high risk if the price of that crop decreases due to overproduction. Small-scale farmers should be free to diversify both their in-farm and off-farm activities in order to reduce their risks. Diversified activities may be either for commercial purposes or for subsistence.

The government should make use of its existing instruments to discourage land speculation, such as progressive tax rates on land. The unusually high prices of land can affect agricultural production which also includes that under contract farming schemes.

Insurance firms should be encouraged to extend more services to farmers. That is, they should have a program to insure farm produce to reduce risks both on the parts of firms and farmers. This will contribute to the development of contract farming.

If the government wishes to promote contract farming of crops with low shifting costs, it should shoulder more expenses in terms of technical and extension service. For crops with high shifting costs, the government can let the private sector take full responsibility for backward-linkage activities; it need not subsidize them.

The promotion of farmer organizations should be carried out step by step. Initially, large-scale farmers who possess a high level of entrepreneurship, such as large-scale oil palm or pineapple farmers, should act as the spearhead. Small-scale farmers will benefit from the increased bargaining power of farmer organizations. (Large and small-scale farmers usually do not have any apparent conflicts of interests.)

The government should facilitate efforts to increase information efficiency of parties involved in contract farming in order to enhance vertical co-ordination among them.

Government agencies should not interfere with produce markets, including contract farming, unless it is necessary, because the interference is likely to affect the efficiency of the various parties involved. Committees set up by the government, comprising people from several circles, to find solutions to existing problems, are often unable to solve any problems, and become problems themselves.

Notes


3. Ibid.
4. Ibid.
5. The Japanese Government subsequently agreed to lower the tariff rate by 14% in early 1986 and the present rate is 12%.
6. In practice, however, such minimum price guarantee measures have never been effective.
7. The minimum prices for palm nuts and crude palm oil were fixed at 1.40 and 9.00 baht/kilogram, respectively and the maximum prices at 2.20 and 13.00 baht/kilogram, respectively.
8. However, the proportion of double-row planting is on the increase.
10. Field survey.
11. BOI is an agency under the Prime Minister's Office. It was established in 1954, to consider granting promotional privileges to domestic and foreign private businesses investing in industrial projects in Thailand. Promotional privileges granted by BOI include tax incentives, local industry protection by several measures, such as imposition of tariffs or surcharges or banning of imports, and giving special export facilities.
12. The company paid 50 baht to employment agents for each worker placed.
14. From interviews with farmers in CF project at Si Racha.
15. From interviews with extension officers of firms at Si Racha.
16. Field surveys.
17. This situation was still true at the time the field survey was conducted in 1988. However, the economy in the Eastern Region at present is unusually dynamic as the Thai government has designated it to be an industrial area and deep seaport, which may result in a shortage of labour in the near future.
18. About 20% of farmers in Si Racha District are still growing paddy, mostly for their own consumption. (From interviewing agricultural co-operative officials of Si Racha District).
19. In one case, the pineapple grower had to sell 25 of his 50 rai of land after devoting the whole to pineapple planting for two years.
20. Farmers who are members of the Self-help Settlements do not have documents showing their right of possession, but the selling of land rights is a normal practice.
21. Besides the wages for raising chickens, employees may also receive certain additional benefits, such as permission to eat chickens which die on the farm.
22. From an interview with the manager of an animal feed mill in Si Racha District of Chonburi Province.
23. There are 106 workers in the mill, but only ten are directly responsible for the production of animal feed. The rest are other officials, such as guards, repair-and-maintenance men, accountants, secretaries, and laboratory technicians. The ratio of staff to capital investment is 1 person:1.13 million baht.
24. Dole (Thailand) pays 61 baht daily, but workers must pay for their own transportation
(4-8 baht daily), while other factories pay daily wages of 50-52 baht, plus transportation expenses.

25. 76% of the farming area of Si Racha District, where CF in chicken raising was first introduced, was used for tapioca growing. (Information from the office of Agricultural Economics, Ministry of Agriculture and Co-operatives).

26. Normally, farmers cannot borrow more than 60% of the value of their land as assessed by commercial banks.

27. Laem Thong, P. Charoenphand, Saha Farm, Betagro, Centagro and Sri Thai.

28. Such contracts have been made in written form between the firm and the farmers, but there has never been any legal action taken when a party to the contract refuses to honour the agreement.

29. In the case of pineapple, after the factory in the Eastern Region had just been established (around 1977-1978), it made CF arrangements with farmers to ensure a supply of raw materials in addition to the production from its own plantation. In making such arrangements, apart from guaranteeing a minimum price, the factory also provided backward linkage services, such as selling crowns on credit at low prices, providing soil preparation services and transportation services. Only large-scale farmers had access to these facilities and services, however.

30. Field surveys.

31. Dole (Thailand) Company Ltd. is a particular example.

32. It was noted that the bargaining power of some co-operatives (e.g. those at Hua Hin and Sam Roi Yod Districts of Prachuap Khiri Khan Province) increased significantly during periods of strong demand for raw materials. During the recent pineapple export boom, the co-operatives played a larger and more active role in marketing their produce to the processing plants.

33. From field survey and BAAC report.

34. From field surveys it was discovered that most of the companies selling agricultural inputs would use one or two men from their extension staff to meet farmers to promote sales of their goods, and give technical advice, the cost of which is 1.5-2.0% of their sales.

35. These private firms co-operate in various ways, which help promote the business of one another. For example, while the team of researchers was conducting field surveys, it was discovered that a pineapple factory in Prachuap Khiri Khan Province had held an exhibition to create good relations with planters. As part of this exhibition, there were displays from companies selling fertilizer and agricultural chemicals, BAAC, and government agencies concerned.

36. Each rai is worth 100,000-300,000 bath at current prices.

37. But at present the prices of these lands have soared because of the development of the Eastern Seaboard.

38. From field surveys, it was discovered that half of the members of the settlements who grow pineapples had pick-up trucks.

39. Field surveys.

40. These small-scale farmers may make a profit of 100,000 baht yearly.
41. Field surveys.
42. Field surveys.
43. Field surveys.
44. From an interview with the manager of an animal feed mill at Si Racha District, Chonburi Province.
45. Field survey.
46. From interviews with independent chicken raisers at Muang District of Chonburi Province who jointly set up a hatchery in 1988.
47. Field survey.
48. Normally mother stocks lay eggs until they are 16-18 months.
49. From an interview with the owner of a hatchery in Chonburi.
50. Chicks received by farmers in the project are usually mixed males and females. Raising mixed chicks may be a handicap to raisers, as male and female chicks mature at different ages. Raising mixed chicks will make the average FCR lower than raising chicks of either sex alone (field survey).
51. Each crown costs 0.50-0.70 baht. (Field survey.)
52. From interviews with agricultural officials in the oil palm plantation areas.
53. For example, if they report death of chickens, they must show supporting evidence; e.g., legs of the dead chickens.
54. One method widely used by extension staff is to give awards to outstanding farmers. Other farmers will thus work harder in order to surpass the honoured farmers. (Field surveys.)
55. For this reason, many suppliers of agricultural inputs try to approach extension officers of the firm in order to have their products included on the list of recommended inputs. One pineapple cannery has four fertilizer firms and eight chemical firms on its list.
56. From field surveys, it was found that the turnover rate of farmers at major projects, particularly in Si Racha District is as high as 40-50% since the launch of the first project in 1977 and many of them have now given up this occupation, selling their broiler shelters to other raisers.
57. Field surveys.
58. Field surveys.
59. Field surveys.
60. According to prevailing regulations, loans extended by commercial banks cannot exceed 60% of the assessed value of collateral.
61. Some contract farmers had losses for several production periods, and their accumulated debt with the firm was greater than the deposit in the bank. After the firm asked them to repay the outstanding debt, they refused to do so. As a result, the farmers had to leave the project and the firm cancelled its provision of chicks to them (from field surveys).
62. From a BAAC report. (The bank charges an interest rate of 14% per annum on this type of loan.)
63. From an interview with a local money lender who also owns a coffee shop.
64. Field surveys.
65. Field surveys.
66. From the field survey, it was found that the firm guaranteed only 10% of the total loans.
67. Field surveys.
68. The BAAC could offer credit to only 250 farmers, against the target of 480. (From interviews with BAAC staff in Suratthani).
69. From an interview with the manager of the BAAC’s Surat Thani branch.
70. The co-operative pays an interest rate of 9.5% per annum to the BAAC and charges an interest rate of 12.5% per annum to members.
71. Field surveys.
72. The Farmers Welfare Fund is raised mainly from export premiums, especially on rice.
73. Field surveys.
74. Field surveys.
75. The role of middlemen in purchasing pineapples from farmers to supply to the canneries has increased in recent years. The export boom encouraged pineapple canneries to increase their production capacity and several new canneries were set up. Because of the increase in the demand, small-scale farmers can now sell their produce directly to the canneries. Although the profit margins of the middlemen have decreased, their earnings are still considerable because of high turnover rate. A middleman who has been in the business for only a year revealed during an interview that he gained about 2,000 baht daily from his business. He has already bought a six-wheel truck to transport pineapples to the canneries and no longer has to hire a truck for this purpose. This middleman usually buys a truck load (about ten tons) of pineapples each day.
76. Field surveys.
77. The wage for labourers to take off the fruit from the bunch is 0.25 baht per kilogram.
78. The field surveys revealed that a crushing mill in Chumphon Province sometimes had to buy oil palm nuts in Krabi while another in Surathani bought oil palm from farmers in Chumphon.
79. Field survey.
80. According to the contract between Taniyama Siam Co. Ltd. and farmers.
81. Field surveys.
82. Field surveys.
83. Field surveys.
84. Construction of a shelter used to cost around 300,000 baht. The cost has now increased to approximately 500,000 baht.
85. Depreciation cost is the money a farmer has to repay on installments to the bank for the loan obtained for this purpose (field surveys).
86. From interviews with contract farmers in Si Racha.
87. From interviews with contract farmers in Si Racha.
88. From interviews with contract farmers in Si Racha.
89. From interviews with contract farmers in Si Racha.
90. Sometimes it went up to 10-11 baht each (while the price set by firms in CF arrangement was only five to six baht each).
91. Hens which have laid eggs for over sixteen to eighteen months are usually not used for producing chicks.
92. From interviews with officials of a hatchery in Chonburi.
93. From an interview with officials of hatcheries in Chon Buri Province.
94. There was a case in which 500 out of 10,000 chicks died at the same time. The raiser complained to the firm but the firm made no acknowledgment of responsibility. In the next flock another 2,000 chicks quickly died because they were obviously unhealthy; this time the same raiser made a stronger protest and the firm agreed to pay compensation for the loss of 300 chicks, which was an exceptional case, as firms very rarely pay for any damages of this kind.
95. If the farmers were found to have given medicine to chickens, after the time limit, two baht per kilogram would be deducted from the price of the chickens. Such a penalty resulted in a sudden loss to the farmers. Prohibition of the use of medicine two weeks before the sale resulted in an increase in the average death rate from 3-5% to 5-10% (field survey).
96. Field surveys.
97. Field surveys.
98. Field surveys revealed that small-scale farmers (who grow pineapple on an area of twenty-five rai or less) are able to buy pick up trucks of their own. Fifty percent of the members of two settlements in pineapple growing areas, the majority of whom cultivate on twenty-five rai or less, have their own pick-up trucks, mainly to show off their financial status. Rather than using them for transporting pineapples, they hire other trucks to transport the produce for fear that if they use their own trucks, the vehicles might become scratched.
99. The average annual yield per rai of small-scale growers is less than 2 tons per rai while those of average large plantation owners are about 2.7 tons/rai.
100. From interviews with the manager of the BAAC branch in Surat Thani.
101. From an interview with the Chief of Ao Luk Co-operative in Ao Luk District of Krabi.
102. Ibid.
103. Field surveys at the co-operatives of the self-help resettlements in Phra Saeng and Ao Luk Districts.
104. Field surveys.
105. It is noticeable that firms usually encourage CF in areas where farmers tend to have free time available, by observing from career choice. In almost all of the chicken raising areas in the Eastern Region, the farmers in the projects make their living growing cassava and coconuts, which shows that the terrain is rather arid and
infertile. Farmers who join the projects therefore have more time to devote to chicken raising.

106. From an interview with the manager of the CF Project of a firm at Si Racha.

107. The guaranteed minimum price of pineapple is 1.10-1.35 baht a kilogram, depending on the season.

108. From an interview with the manager of the pineapple purchase department of a cannery in the Eastern Region.

109. From an interview with the managers of Chonburi Co-operative and the Agricultural Co-operative of Si Racha District.

110. From an interview with the manager of the raw material purchase department of the firm at Chonburi Province.

111. From an interview with an official of Hua Hin Pineapple Farmer Co-operative and farmers who have farms near the Dole (Thailand) cannery.

112. Most Agricultural Co-operatives in Thailand often run losses.

113. These large-scale farmers have various production activities, both agricultural (e.g. sugarcane planting) and non-agricultural.

114. Field surveys.

115. There is a report that even the cannery itself plans to cut down or stop operating its own plantations in order to use land for other purposes which yield better returns; e.g., a golf course.

116. From field surveys, it was found that during the peak season in 1988 (May-June) the rejection rate was as high as 50%, although normally it should not have been more than 20%.

117. The groups exist only insofar as their individual members are legally bound to one another and to the BAAC. The legal commitments cease once the loans are repaid. Therefore, they are conceptually quite different from co-operatives and farmer groups, which are more permanent.

118. Under some project, however, farmers are entitled to a BAAC loan of 60,000 baht without any collateral, such as pineapple contract market projects in the Eastern Region.

119. Most of the executive staff of agricultural co-operatives interviewed seemed to be dissatisfied with such a loan policy of the BAAC.

120. The formula for calculating palm nut buying price is: fresh palm nut price = (crude palm oil price - 2)/5.

(Normally, 5 kgs of fresh palm nuts yield 1 kg of crude palm oil, and the production and marketing costs charged by the palm oil crushing mill are 2 baht per kg of crude palm oil).

121. From interviewing members of Ao Luk Self-Help Settlement of Krabi.

122. It is found from field surveys that 50% of the members of the Self-Help Settlements at Rayong and Prachuap Khiri Khan have pick-up trucks of their own.

123. From an interview with the manager of a feed mill in Si Racha.

124. From interviewing businessmen dealing with hatcheries.
125. From interviews with large-scale independent raisers and hatchery operators.

126. From interviews with large-scale independent raisers who started their own hatchery.

127. It normally takes fifty to fifty-two days to raise a flock of chickens. After that the shelters will be cleaned and left unused for 1-2 weeks before the next flock is brought in.

128. Generally, if farmers run losses for four to five consecutive flocks, the firm will instruct them to cease raising chickens (field survey).

129. “Shifting cost” is a farmer’s cost in changing from one buyer to another. For a detailed discussion of the concept, see Ammar Siamwalla, “Farmers and Middlemen: Aspects of Agricultural Marketing in Thailand”, Economic Bulletin for Asia and the Pacific, Vol. XXIX, No. 1 (June 78).

130. During the hot season, however, chicken raising is not as profitable as during the cold season, because both the death rate and FCR are high.

131. The price of land in the Eastern Region that was used for producing chickens and pineapple increased by eight to ten folds, from 10,000-30,000 baht to 100,000-300,000 baht a rai only in 1988 alone.

132. Other lands for which prices are particularly high are in areas suitable for construction of tourist resorts and hotels.

Abbreviations and Conversion Rates

1 rai = 0.16 Hectare
1 Baht = US$0.038
BAAC = Bank of Agriculture and Agricultural Cooperatives
OECF = Overseas Economic Cooperation Fund
IBRD = International Bank for Reconstruction and Development
EEC = European Economic Community
CP = Charoen Pokphand
BOI = Board of Investment
NESDB = National Economic and Social Development Board
USAID = United States Agency for International Development

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CONTRACT FARMING IN MALAYSIA
WITH SPECIAL REFERENCE TO
FELDA LAND SCHEMES

Lim Teck Ghee and Richard Dorall

INTRODUCTION

Amongst contract farming and outgrower schemes in Southeast Asia, the programme of agricultural land settlement and development schemes operated by the Malaysian Federal Land Development Authority (FELDA) has been the longest running and largest in terms of area and number of farmers involved. Since the creation of FELDA in 1956, the agency up to the end of 1988 was operating a total of 422 schemes covering 714,945 hectares and involving over 100,000 families. Clearly an assessment of settlers in these public schemes and FELDA as an agency would be useful to any effort to assess the experience of countries with contract farming and outgrower schemes. This report, which contains an evaluation of the factors contributing to the performance of settlers in the land schemes and FELDA is based on a survey conducted in three scheme areas in May-August, 1989.

Field Study Localities

Three schemes were selected in which to carry out the survey. The first, Lurah Bilut, was one of the earliest land development schemes to be launched in Malaysia. Opened in 1958 and 1959 with rubber as its main crop, it was the first directly administered FELDA scheme. It was decided to include Lurah Bilut as one of the study localities because of its early development and its role as a model for subsequent schemes and because the scheme has now entered into a second settler generation and second crop cycle. Towards the end of 1988, a total of 2,740 hectares had been developed in the Lurah Bilut scheme.

Whilst Lurah Bilut is a long-established scheme based on a single-scheme, single-village approach, the second study area consists of three schemes that are part of a large complex. By the 1970s FELDA's thinking on settlement and agricultural development planning had moved away from small independent schemes to favour large multi-scheme, multi-village ones. This evolution was
due to the agency’s concentration on oil palm cultivation (rubber had been the preferred crop in the early ’60s) and its milling demands which necessitated a substantial production area to justify investment in a factory. Also, FELDA was concerned about the remoteness of new schemes and the need to offset their disadvantages through the establishment of large village complexes with a greater number and variety of services and facilities. The three schemes in the second study area, Besout 3, 4 and 5, cover a total area of about 4,000 hectares. Opened between 1976 and 1980, it was expected that their inclusion would highlight the impact of the newer generation of FELDA schemes on settlers.

The third study locality is the Taib Andak scheme. Initially developed by the state government in 1960, the scheme which covers an area of 3,095 hectares was handed over to FELDA soon after. Subsequently, it became FELDA’s first oil palm growing project and has served as a model for other FELDA oil palm schemes. Taib Andak was also chosen for study because its settlers have been very much in the news lately on account of conflict over scheme ownership status and land title rights. As this issue was still unresolved at the time of the study and was looming as the most critical problem in the history of the schemes, it was hoped that settlers’ response to questions on their participation in scheme management and organisation would help explain the differences in perception held by settlers and the authorities.

A summary of some profile data on the 3 study localities is provided in Table 3.1.

FELDA: AN OVERVIEW

FELDA was established in 1956 under Federal legislation to undertake large-scale planned land settlement. The idea of an independent authority under Federal auspices to undertake rural land development of smallholder agriculture was first mooted by the dominant Malay political party, the United Malay National

<table>
<thead>
<tr>
<th>Name of Scheme</th>
<th>State</th>
<th>Year of Development</th>
<th>Area (ha)</th>
<th>Number of Settlers</th>
<th>Crop</th>
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<td>Lurah Bilut</td>
<td>Pahang</td>
<td>1958/59</td>
<td>2,740</td>
<td>614</td>
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<td>Taib Andak</td>
<td>Johore</td>
<td>1960/61</td>
<td>3,095</td>
<td>628</td>
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Organisation (UMNO). In August 1955 in response to UMNO pressure a Government Working Party was established with two main objectives:-

(a) To assess the needs of the various states in Federal assistance in the development of new areas for land settlement; and

(b) To make financial and administrative recommendations in respect of the organisation most suited for achieving new land development.

The Working Party concluded that "there is a very real need for planned and coordinated development of land so as to ensure that economic development goes hand in hand with social development" (Bahrin & Perera, 1977: 2). It stressed the vital necessity for land resources to be carefully assessed and utilised, and that large areas for new development should be alienated only after careful considerations and planning (Bahrin & Perera, 1977: 2). It further recommended that the settlement and economic development of areas should be coordinated and controlled to ensure that the size of holdings remained adequate, that fragmentation be prevented, that the settlers would have cash and subsistence crops, and that the standards of agriculture and animal husbandry be maintained at a high level.

The basis for the new land development was to be medium and large-sized family holdings and FELDA was to be the agency entrusted with undertaking the proposed large-scale planned land settlement. However, the initial move to involve the new agency mainly as a lending organisation to the state governments already operating land schemes was quickly abandoned in favour of a direct role for the agency in opening up and developing land. The progress of the new agency was rapid and by the early 1960's, it had established a number of basic principles in operating its schemes. These principles were to remain virtually unchanged over the next twenty years.

They were:

1. The best available land in the country was to be used for schemes.
2. The best people i.e. farmers with initiative, drive and perseverance would be chosen to attain the objective of maximum wealth.
3. The size of land given to each settler family was to be sufficient to provide full employment to the family.
4. Co-operative institutions and collective work were to be employed wherever necessary and practicable.
5. Sub-division of land would not be permitted as the planners believed that fragmentation of land arising from inheritance patterns was one of the main causes of rural poverty.
6. Schemes should be provided with full-time management to ensure efficient leadership to supervise the projects right from the start.
7. Schemes would be integrated and would include housing, community facilities as well as factories.
The adoption of these principles led to important organisational initiatives within FELDA itself to ensure that the agency could undertake this formidable task of opening up large tracts of new land and manage them. Staff strength was rapidly increased and the level of technical competence enhanced. At the same time, two high level committees with membership from key relevant departments were established to plan all schemes and the agency itself was given a prominent position in a newly established Ministry of National and Rural Development in 1960. These measures were successful in cutting down the excessive red-tape that had hindered earlier land development attempts. Perhaps the most important decision made in this early period was to have the government bear all administrative and organisational costs of schemes, i.e. the cost of running FELDA. This reduced the sums that settlers would have to repay and increased the attraction of the schemes to potential settlers.

THE CONTRACT FARMING SYSTEM

Land Development Method

The present system of contract farming found in FELDA schemes is one that has evolved over 30 years. During this period FELDA has adjusted its policies and working methods as its knowledge of the physical, technical and human aspects of group agricultural development has grown and also in response to criticisms and pressures from settlers. This can be clearly seen in the approach to land development in schemes which has undergone much change.

In the earliest land schemes, the preferred strategy was to provide the minimum of direct assistance to settlers and to have them undertake all the work of pioneer land opening, crop planting and building houses by themselves. The results of this early method of collective work were found to be unsatisfactory - "some lots were clean, most were dirty, some were planted and many were not" and the poor quality of work has been attributed to the reluctance of settlers to "put in a day's work when the chances were that it would be to somebody else's benefit" (Bahrin and Lee, 1988: 90).

The failure of this early method of collective work resulted in the introduction of a modified system in subsequent rubber schemes after 1962 under which settlers were required to work in groups of between 15 and 20 on blocks ranging from 40-80 hectares during the first three years of planting. This procedure helped provide a training period, especially for settlers with little or no skills in rubber growing, the favoured main crop, during the early period of development as well as ensured that the terrain and trees were uniformly maintained. Since settlers were required to work in the same block until they were allocated
CONTRACT FARMING IN MALAYSIA

individual plots where they had worked, there was a common incentive to work well. Other advantages of the block system were:

(i) The standard of growth and maintenance in each block would be uniform.
(ii) Expenditure in each block would be shared equally by the settlers of that block.
(iii) Should a settler slacken in his work the common opinion of other members would weigh against him and induce him to work harder.
(iv) Sufficient time was available for the carrying out of proper surveys for the demarcation of individual lots in an equitable and practicable manner. (Bahrin and Lee, 1988: 30).

When the rubber trees reached their fourth year, settlers were allocated their individual plots to manage on their own, although assistance and guidance were available from FELDA field staff.

Early FELDA experience with entrusting settlers to undertake early crop planting work, however, revealed that the standards of agricultural husbandry of many settlers left much to be desired. It was recognised that the quality of work at the time of planting is important if good results are to be obtained in subsequent years and that the heavy investment poured into land clearance and other preparatory work would be lost if a high standard of maintenance was not kept. Thus FELDA decided to introduce the method of contracted work to cover the initial planting and crop maintenance phases. As a result of this decision settlers in Taib Andak and subsequent FELDA schemes after 1960 have been able to enter schemes in which not only ready-made settlements but also fields containing well-established crops await them.

The system of ready-made schemes in which settlers do not play any role in the early phases of development has been criticised as stifling the self-reliance of farmers and raising the costs of development. However, Bahrin and Lee (1988: 47) have argued that “it is too demanding to expect a man unaccustomed to regular working hours to plant and maintain 2.4 to 3.4 ha. of rubber, build his own house, cultivate his residential plot and in addition, carry out co-operative work on roads, drainage and others”. They have also pointed out that “the existing system (of packaged development) used by FELDA has actually evolved over time in response to the weaknesses and drawbacks of the original system (of pioneering settler development) which FELDA wished to introduce” (Bahrin and Lee, 1988: 48). The introduction of a new main crop — oil palm — has also resulted in development and cultural practices that are different. This is because oil palm as a crop requires a coordinated approach in cultivation, harvesting and processing to reap the full economies of scale unlike rubber which permits individual and uncoordinated work without undue impact on product quality and productivity. An efficient harvesting and transport system is required to increase the oil content and quality of the palm oil fruit and a large-scale estate-style
system of organisation is necessary, especially if the scheme is to invest in its own milling facilities to process the fruits.

For these reasons, FELDA has insisted on cooperative land ownership in which there is no specific identification of the settlers to a fixed plot of land and all settlers participate as equal owners as a condition for its oil palm schemes. Along with it, settlers were initially organised to work on a piece-rate system which rewarded settlers according to the amount of work they performed. The piece-rate system, however, was found to cause many problems, including wide income disparities and allegations of favouritism, and resulted in settler disunity and the lowering of morale.

To overcome these problems, a block system of co-operative work was introduced in oil palm schemes after 1970. In this new system settlers are divided into groups of 20 and given responsibility for harvesting and maintaining a block varying between 60 to 80 ha. The essence of the new system is to make a small group of settlers responsible for all the work in their block on a collective basis. Within the group, the settlers are further divided into two specialist sub-groups undertaking different work tasks and rotating their duties so that all settlers learn the skills required for efficient production. According to FELDA, the block system has proven to be a considerable success. Settler participation has been enhanced since block members are required to be accountable to other block members for work done and productivity has been increased. However, settlers interviewed in the scheme have complained that the system has been effective only during the early stages. After a period of time, it is alleged that some settlers would look for better paying jobs and hire others to do their work. Since the newcomers were often paid fixed monthly wages, they were not concerned about the long-term future of the scheme; neither were they inclined to cooperate with the original members of the scheme.

Partly as an extension of the block system and to overcome the problems caused by absenteeism, FELDA has introduced the share system of ownership (and work) into new schemes after 1985. According to Bahrin and Lee (1988: 55-56) this new method of ownership is implemented in the following way:

(1) When a settler is brought into a scheme, he is paid wages at rates fixed for each type of work.
(2) After three years in a scheme and when the scheme has reached its break-even point, the settler is allocated shares equivalent to 4 ha. of farm land.
(3) Also, after three years, the settler is able to earn dividends and bonuses on the profits from the crops. The payment of bonus takes into account the labour contribution of each settler in the running of the farm.
(4) When all the costs of development of the scheme are fully paid-up, the settler (together with other settlers) is issued a share certificate for his share of the farm and a title to his house-lot.
With this new system, we see that FELDA has come almost full circle in its thinking on how to improve settlers' attitudes and performance. The former concern to equalise incomes and prevent uneven income distribution has been replaced by a new one seeking to reward settlers who are prepared to work hard.

Just as important perhaps, the new system is a response to the declining participation of many settlers in the work on the schemes. A recent case study has found that sub-contracting of working plots in schemes is extensively carried out by settlers as a result of the sharp increase in illegal Indonesian workers in the country. At the same time it has found that male children of settlers are generally not interested in becoming settlers or working in scheme areas if employment is obtainable elsewhere. This has created a labour vacuum in new settled land scheme which in turn attracts labour from labour-surplus areas such as Indonesia. Ironically too, FELDA’s own use of the contract labour system to reduce the costs of land development and scheme maintenance has encouraged widespread use of illegal labour which is the cheapest available to private contractors. The result, according to the researcher is “a whole system of illegal labour immigration into scheme areas which reduces the level of wages of contract workers and encourages local labour, particularly settlers' children further into other forms of employment.” (Halim Salleh, 1987: 168).

With the new system of share ownership and work, it appears that FELDA is attempting to stop the use of outside labour through ensuring that settlers themselves work in the field. At the same time it has been claimed that the new wage and attendance systems have generated greater initiative, higher standards of farm maintenance and higher levels of productivity amongst participating farmers. (Bahrin and Lee, 1988: 56-57). Settlers in the new system are said to be managing as many as 14 ha. compared to 4 ha. previously with the highest farm standards increasing the economic life of rubber trees from the normal 15 years to 25 years. It has also been stressed that there has been a stoppage in the unauthorised sale of latex outside the scheme, a practice prevalent amongst settlers under the individual ownership system found for rubber schemes. These claims of FELDA need to be thoroughly studied before they are accepted but it is noteworthy that, despite the extravagant claims made by authorities in favour of the new system, it has yet to find favour amongst the majority of settlers. In a later section we shall examine some other aspects of the new ownership system and the reasons for settler rejection.

Crop Choice

One of the key issues in any new agricultural development is the main crop or crops to be grown. For FELDA schemes in Malaysia, the parameters of choice have been deliberately restricted to proven, profitable export-oriented crops that can be grown in a plantation-type organisation so as to exploit economies of scale.
This emphasis is not surprising given the country's long history of successful involvement with rubber and the advantage of a strong infrastructure that Malaysia has enjoyed over other tropical producers. Moreover, traditional smallholder food crops such as padi had consistently produced lower returns and there was a shortage of suitable land for food crops. However, whilst crops selected for schemes were to produce the highest returns, provisions were also made for settlers to be provided with a small garden plot to grow subsidiary crops for home consumption and to provide some temporary income during the long gestation period of the tree crop.

In the 50's and early 60's rubber was the first crop of choice in FELDA's scheme due to the country's long and successful involvement with it as a smallholder and plantation crop. The record high prices fetched by the commodity during the Korean War period further encouraged confidence in its profitable cultivation and the agency was also able to draw on the considerable technical expertise obtainable from the public and private sector. In fact amongst the first staff members recruited for FELDA were officers from rubber agencies.

The early dominance of rubber in FELDA's scheme is shown in Table 3.2. Over time, however, there has been much concern with over-dependence on it and numerous official calls for crop diversification especially after 1961 when rubber prices declined substantially from its post-war peak. Of the several plantation crops considered, oil palm was the preferred alternative. The plant had been grown commercially since 1917 but its expansion in the country thereafter was slow. By 1960, about 55,000 hectares had been planted, entirely on estates since smallholders were unable to undertake the large investment in milling facilities and no private groups had emerged to do so. This situation contrasted with the rapid development of independent rubber smallholders whose total planted area had become as large as that of plantations by the early 60s partly because the initial processing of rubber sheets could be done by smallholders themselves on an individual basis.

From about 1960 however, the price of palm oil became progressively superior to that of rubber and its planted area on estates began to increase sharply. This development and concern that the national economy was overdependent on rubber prompted FELDA to plunge into oil palm cultivation on its new schemes, beginning initially with Taib Andak in 1961. Since then the area of FELDA schemes given to oil palm has increased rapidly from 375 ha. in 1961 to 11,093 ha. in 1965, 64,992 ha. in 1970, 181,571 ha. in 1975 and more than 500,000 ha. in 1988. By 1980, oil palm had overtaken rubber as the dominant crop grown in FELDA schemes and in 1987, it accounted for 73% of the area of FELDA schemes in production, with rubber accounting for 24%.

Encouragement to the dominance of oil palm as the main crop in FELDA schemes has been provided by a number of factors. The price superiority of oil palm and consequent higher incomes obtained from it has been the major factor.
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<th>Year</th>
<th>Rubber</th>
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Besides a higher rate of return, oil palm provides a quicker return since it has a shorter immaturity period (2.5 years) compared with the four year immaturity period of rubber. Suitability of soil, climate and the adaptability of the crop to organised smallholder production are also other factors.

Other than oil palm and rubber there are three other main crops grown in FELDA schemes — sugar cane, cocoa and coffee. The former was first planted over 809 ha. in a scheme in Perlis in 1972 and a total of about 5,737 ha. had been developed by 1980. Since then no new areas have been developed for sugar cane due to the numerous problems encountered with labour supply and declining yields. At the same time, the world sugar market has experienced a long and continuous period of depressed prices making its cultivation by a high cost producer such as Malaysia not worthwhile. While the existing plantations are likely to continue to be maintained by FELDA to provide a domestic source of supply, it is highly improbable that any new areas of group sugar cane production will be opened. What is especially notable about FELDA’s venture in this crop is that the share system of ownership was first introduced in a sugar cane scheme to help overcome the problem of labour shortage, given the intensive labour requirements of the harvesting and re-planting phases of this crop. It now appears that this development derived from the experience with one crop might have been misplaced in view of the many problems with implementing it with other crops.

A more promising alternative crop than sugar is cocoa which was first grown in a FELDA scheme in 1973 and whose planted area has increased substantially compared with sugar cane. By 1987 a total of 21,433 ha. were planted with this crop, mainly in Sabah and 12,600 ha. were in production. Whilst the cocoa plant is a much easier crop to harvest and process compared to oil palm, its expansion has been slowed by the numerous plant diseases and pests which destroy the plant or reduce its yield. Just as important, cocoa prices which had been on a sharp uptrend from 1972 to 1977 fell sharply thereafter and have not recovered to their earlier levels since.

Finally, a small quantity of coffee is cultivated as the main crop in a few FELDA schemes in Sabah, East Malaysia (about 800 ha.). Although FELDA itself has been very cautious in developing new main crops, it has consistently advocated settler cultivation of short-term food and cash crops in the settler garden plots and on vacant land in its schemes. However, tangible Agency support for these subsidiary crops has fluctuated over time. In the early years, it was a ruling that a substantial area of total holding (0.8 ha. out of 5 ha.) be allocated to dusun (garden) crops but poor settler response quickly led to an abandonment of the ruling. Since 1967, settler holdings have only a small area (part of the 0.2 ha. given to the house plot) to grow subsidiary crops. Bananas, vegetables, tapioca, groundnuts, fruits and other quick-yielding crops that can meet local and regional demand are presently successfully grown in various schemes but none of these crops have been developed on a large scale.
Scheme Area and Settler Farm Size

In addition to the question of crop type, much attention has been given by FELDA to the optimum size of land to be developed per scheme and the area that a single settler family could efficiently operate and obtain good incomes from. In the earlier land schemes cultivated with rubber, scheme sizes tended to be small (about 400-600 ha.) due to the limited resources that were available to state governments, at that time the development authorities. When FELDA took over the responsibility for developing land schemes, it initially envisaged schemes to contain about 400 families each and to be of a large enough size (about 1,600-2,000 ha. each) to become an optimum management unit based on the plantation experience. This size would also enable sufficient economies of scale in providing for standard social services and utilities whilst settlers would not be required to walk more than two miles to the furthest holding.

Initially, settlers were allocated about 4 ha. each but only 2.8 ha. was to be planted with rubber with the rest given to the dusun and house plot. In the late '50's, rubber prices were still high and a 2.8 ha. holding was expected to provide a good income for a family. The subsequent fall in rubber prices in the '60's and '70's, however, compelled FELDA to increase the size of rubber holdings in newer schemes, firstly to 3.2 ha. in the early '60's and 4 ha. in 1977. In Lurah Bilut the area allocated for dusun cultivation has been permitted to be planted up with oil palm or rubber to compensate for the small rubber holding.

Overall scheme size in areas planted with oil palm have similarly tended to grow as the advantages of greater size became more apparent and as the Agency itself developed greater expertise in large-scale management techniques. Thus, more recent schemes have entailed as much as 8,000 ha. each although developed in phases, this area permitting the construction of milling and other major economic and social infrastructure as well as ensuring better prospects of further employment linkages. Smallholding area for each settler in oil palm schemes has also undergone change over time. When the crop was first grown in the early '60's, its long-term profitability relative to rubber, the other main crop, was not yet clear and a larger area, 4 ha., was provided to each smallholder growing the crop. This was reduced to 3.2 ha. subsequently but increased again to 4 ha. in 1967. In 1973 the government decided that individual holdings should be increased to 5.6 ha. but the area has been reduced again to 4 ha. since 1977. The ceiling on individual holding size is not due to any inefficiencies arising from larger holding size operation. Households with two adult male members are capable of efficiently operating up to 12 ha. of oil palm land.

The allocation of smaller individual holding sizes by FELDA was due to concern for the rapid reduction in the large number of landless families in the country, a policy priority in the last 30 years. Smaller holdings whilst negatively affecting enterprising settlers have increased the number of settlers benefitting...
from the programme — a reduction in individual holding area by 20% from 5 ha. to 4 ha. results in an increase in settler intake by the same proportion. At the same time, FELDA has been sensitive to the amount of income that can be derived from different sizes of holdings and has sought for a balance that would maximise employment impact for national needs and ensure minimal income standards for participating settlers. The policy of fixed individual holding size allocation, of course, does not prevent energetic settlers from operating or owning land outside scheme areas which as we shall see later is a tendency with a small group of settlers.

Process of Scheme Placement

After selection, settlers generally have to wait a considerable period of time before emplacement in schemes. When the first schemes were opened in 1958/9 most settlers had to wait only a year before emplacement, but as the schemes became established and popular, a long queue of applicants began to develop. According to Bahrin and Lee, during the 2nd Malaysia Plan period, the waiting was so long that FELDA was compelled to announce a freeze on new applications for a period of time so as not to discourage potential settlers. Even when successful, settlers have to endure a long wait to be emplaced. In 1980 there were 22,103 families on the waiting list but this number has since been reduced. The other reason for the wait was the use of the contract system of development work which meant that settler entry was dependent on the capacity of contractors to meet work schedules punctually. Recurrent labour shortages, especially in Sabah, have resulted in delays to scheme completion and held up settler entry, especially in the more remote areas.

For a considerable period after scheme entry, settlers are still not yet in a position to earn any income from their holding, owing to the long immaturity period of their main crop of rubber or oil palm. During the period of wait which can take up to 2 years, settlers are kept busy by FELDA through work on the scheme area for which they are paid a subsistence allowance. As with many other aspects of the scheme operations, the policy on subsistence allowance has evolved through a process of trial and error. Initially, settlers were provided with monthly subsistence allowances of up to $70 for which they are required to work on the schemes. However, the quantity and quality of work left much to be desired and the monthly system was replaced by another one in 1962 which calculated work and reimbursement on a daily basis. The new system also permitted other family members, such as wives and children, to work and increase the household income, although at lower rates of payment. This system has remained in force but the rates of payment have been increased several times during the past 2 decades in line with the general level of rural wages.

Besides work in the scheme holdings for which they are paid by FELDA,
settlers are free to engage in other economic activities to increase their incomes during the immaturity period of their crop. Activities such as livestock rearing, vegetable cultivation and cottage industries are encouraged and a degree of technical assistance is provided by FELDA. However, for both the agency and settler, it is the main crop which is the focus of attention for on it depends their future.

**Evaluation of Performance**

**Resettlement**

There is little doubt that FELDA has been successful in terms of the area of land opened and developed, and number of settlers resettled. From modest beginnings, FELDA is today acknowledged as the most successful Agency organising group farmers in the country. By December 1988, FELDA had developed 800,857 hectares of land and resettled over 100,000 settlers in more than 400 schemes, with an annual increase of over 6000 settlers targeted for the remainder of the Fifth Plan period. These settlers are provided with social services and amenities not usually found in the traditional “kamponds”. Medical centres/clinics, schools, recreational and religious facilities are provided in most schemes while the rest share the facilities with neighbouring schemes or other traditional villages. To date, FELDA has also built 1360 km. of access roads and 2723 km. of village roads for the settlers. Upstream and downstream facilities, especially for oil palm, are also available in some schemes. In terms of physical facilities, then, it is obvious that FELDA has set a standard that is high by rural Malaysian standards.

One pertinent question to ask is who benefits from these schemes. FELDA’s original objective, as may be recalled, was to provide land for the landless and to set these settlers in nucleated settlements provided with infrastructural services in order to establish and maintain dynamic rural communities enjoying household incomes well above the rural average. Although settlers are by and large from low-income, low-skilled groups (61% of our sample having pre-entry monthly income of less than $200 and 37.8% with no skills besides agriculture), it is significant that right from its early days FELDA’s settlers selection has not tried to restrict successful applicants to practising agriculturalists but has sought to meet a variety of criteria. Demobbed military or retired police personnel although scoring lowly on age — the average ex-serviceman would be at least 40 years old compared with other settlers who averaged around 30 years, the preferred FELDA age group — were regarded as a favoured target group since they were already socialised into the regimented and disciplined life demanded by schemes, as well as for political reasons. In Taib Andak scheme, for instance, our study shows that 48% of the settlers are without previous farming experience and 4.8% were ex-police/military personnel.
The selection system was also modified in 1974 to increase the weight given to non-agricultural skills in the selection process. With the new system a settler family was able to obtain 9 points out of a maximum total of 40 points for possessing non-agricultural skills. This change was prompted by the argument that FELDA schemes would no longer be considered as purely agricultural since some had become more diversified entities approximating urban settlements and generating non-agricultural activity. As such, a more literate and skilled settler population was increasingly favoured by the selection committees. To what extent this particular change in the selection criteria has reduced the chances of unskilled and uneducated rural poor to obtain scheme entry can only be guessed at since there is no data from FELDA or other sources on unsuccessful applicants.

Some data is available on the state of origin of settlers. In the case study, it was found that only a small proportion of the settler community (11.4%) came from the northern land-poor states of Kedah, Perlis, Kelantan and Trengganu where the most sizeable communities of rural poor were (and still are) to be found. This is a result of state land laws which provide each state the right to decide on who is eligible for land titles and the policy of limiting selection to applicants from their own state unless no suitable applicants are available. The situation has made it difficult for FELDA to relieve land employment pressures in the labour surplus northern states. Data from FELDA's records on the state origin of settlers from all schemes indicates that up to the end of 1986, only 17,495 of the 100,413 settlers (17.4%) in all FELDA schemes came from the 4 northern land-poor states. If the intention of FELDA was to settle farmers from land-poor states then the schemes have only been partially successful.

Perhaps the most glaring feature of FELDA's settlers selection system is that settlers are almost entirely from one ethnic stock, i.e. Malays. The Land (Group Settlement Areas) Act of 1960 that governs the development of scheme areas does not specify any ethnic preference in settler recruitment, merely requiring settlers to be Malaysian citizens. FELDA's own policy guidelines permit it to recruit 30% of any scheme population from non-Malays for schemes that are located outside Malay reservation areas. However, even though there are sizeable numbers of non-Malays rural poor with little or no access to land, in practice, little effort has been given to recruiting non-Malay settlers. This ethnic bias in settler recruitment has long been a source of complaints from non-Malay organisations. In 1980 the World Bank lent its voice to these complaints by pointing out that if the government was serious "about increasing the non-Malay share in agriculture, some increase in the non-Malay share of settlers was warranted". It was especially concerned about Indian estate workers who faced increasing under-employment following the estates' conversion from rubber to oil palm and who in normal circumstances would be "good candidates for land development schemes" (World Bank, 1980: 70-71). However, data on settlers' racial composition in the schemes studied as well as in newer schemes since the Bank's report
indicates that no change whatsoever has been made to the policy emphasising Malay participation and excluding non-Malay participation. Settler population in the three scheme areas shows that it is almost entirely of Malay ethnic stock, with the Lurah Bilut Scheme alone having a small number of non-Malay settlers.

**Management Efficiency and Cost**

The cost-effectiveness of FELDA schemes is a contentious issue. While many have lauded FELDA for its success, others like Ozay Mehmet have argued that the FELDA model is a major explanation for the failure of rural development strategies under the trusteeship (system) to solve the problem of poverty (Mehmet, 1986: 70). A more influential critic, the World Bank, has noted that the FELDA model which is packaged as a new self-sufficient community relying on a large bureaucracy and use of private land contractors is a high-cost method of attempting to reduce rural poverty and "the number of beneficiaries seems small for the amount of funds invested in land development" (World Bank, 1980).

That the cost of running FELDA is high is undeniable. As one FELDA official puts it: FELDA has to "start from scratch, go into isolated areas using private contractors to clear, prepare and develop the land and build roads and houses for the settlers, sometimes having to provide them with 'incentives' to get work done on time". FELDA has to provide the educational, recreational and religious facilities as part of the package to make its schemes more attractive to the settlers. Settlers also have to be guaranteed a minimum net monthly income due to sharp price fluctuations. Besides these, FELDA is responsible for crop maintenance and paying settlers a subsistence allowance during the crop immaturity period. This is in addition to the administrative cost of running FELDA. It is important to note that both rubber and oil palm, the two main crops, have long gestation periods and require considerable expenditure before returns are forthcoming. Moreover, yields in the first few years of harvest are low before they reach their peak of around eight to ten years for the two plants. Finally, both crops have limited economic lives and require replanting after 18 to 25 years if income levels for growers are to be maintained.

When FELDA was first set up, it was decided that settlers in schemes would repay all the costs of inputs and development through monthly deductions from their scheme income. Loans to settlers were to be charged a rate of interest of $6_{1}^{1} \%$ and repayments were to be spread over a period of 15 years from the first year of crop production. Repayments were to be collected through settlers' sale of their produce to FELDA which under the scheme legislation was empowered to collect and sell all scheme produce.

It was also originally intended that land development schemes be run as commercial enterprises and that settlers would have to meet the administrative and management costs of schemes, i.e. they would pay for agency staff salaries
and other costs. But in 1961, the momentous decision was made by the government to separate the costs of FELDA schemes into two broad groups: administrative and development. The former was to be regarded as a non-recoverable grant, whilst the latter was treated as the loan part, recoverable from settlers.

This was in response to the difficulties that settlers in the earlier schemes faced with loan repayments and the fear that any attempt at full costs recovery would meet with resistance on the part of the settlers and lead to abandonment of holdings. Ten years later, in 1971, as a result of difficulties settlers faced due to the prolonged depression in the prices of rubber, it was decided that the settlers be entitled to a minimum net monthly income of $125 before any repayments were made. This minimum income standard which also required FELDA to top up the difference in any month, was increased to $250 per month in 1982. Another concession to rubber settlers was made in 1975 when a further liberalization of repayment was implemented with a system calculating costs according to a progressive scale (the smaller the rubber area, the lower the total costs calculated) and requiring recovery of these costs over a 15 year period without any calculation of interest. A system of minimum net monthly income was also instituted for block scheme settlers with the figure pegged at between $150-$300 in response to settler agitation. As with the rubber schemes, shortfalls in repayments for any one month (or extra loans taken to ensure the minimum net monthly income) are debited from the income of subsequent months when the settlers' incomes have improved.

Presently what the settlers have to repay is limited to:

(i) Cost of jungle clearance, land preparation and planting of main crop, inclusive of maintenance by contractual arrangements until settler entry.
(ii) Cost of development of house sites and construction of settler houses.
(iii) Cost of maintenance during the immaturity period of the main crop, including the cost of materials, fertilisers, chemicals, tools and the equipment.
(iv) Subsistence allowance paid out to settlers for work done.
(v) Quit rent, premium and other land costs incurred since the planting of the main crop.
(vi) Costs associated with oil palm fruit transportation, operation of rubber collection centres, maintenance of agricultural roads, and any personal loans they obtained for social and economic purposes from FELDA.

Since the 1961 decision to make administrative costs non-recoverable, FELDA's administrative expenditure has grown steadily as the number of schemes increased and staff numbers also increased correspondingly. Between 1960 and 1987, FELDA's staff establishment increased from 44 to 8,295. This means a staff-settler ratio of about 1:12. Implementation of increases to salaries and other service conditions in line with recommendations by various public
service salaries commissions in 1975, 1977 and 1980 have also inflated administrative expenses. By 1986 the administrative component of FELDA’s accounts was costed at $198.6 million. In the 25 years between 1962 and 1986, this public subsidiary element of FELDA schemes has totalled $1,912 million.

At scheme level, administrative costs for 1988 amounted to $314,059 in Lurah Bilut, $271,704 in Taib Andak and $237,124 for phase four of the Besout schemes.

Settlers benefit from the subsidy in two ways — in the initial cost of scheme development, the infrastructural development and management and administrative costs are not charged to them; and subsequent administrative and management costs at scheme, regional and headquarters levels are not charged to them. The savings for settlers have been considerable. In a study of six FELDA schemes set up between 1961-1968, Lim Sow Ching estimated their administrative and management costs to vary from $166,000 to $228,000 (Lim, 1976: 72) and the costs of providing public amenities to them to vary from $665,000 to $2.4 million (Lim, 1976: 109). The cost of providing public amenities such as access roads, village roads, water supply, religious buildings, schools, teachers’ quarters and clinics was estimated at between $2,370 to $6,160 per settler family. Another estimate of infrastructural development and administrative and management costs is provided by Bahrin and Lee: according to them, their costs averaged $8,900 and $9,700 per settler family for oil palm and rubber schemes respectively in 1976 and had increased to $17,364 and $18,424 per settler family by 1986. (See Table 3.3). This means that about one-third of the total development costs is being subsidised.

Development costs are equally high. Total development costs for oil palm and rubber schemes amounted to some $800 million by 1987. In the study area development costs of resettling 520 families in the 11 phases of Taib Andak scheme totalled $4.757 million by 1988 while that of Besout 3, 4 and 5 reached a high of $12.536 million. This worked out to an average of $26,392 for each settler in the three Besout schemes.

Recovery of costs is often the thorniest part of any contract-farming system. Despite various efforts at lessening the burden of loan repayment by settlers, FELDA’s efforts to recover punctually loans have been hampered by low prices and also by the unauthorised selling by many settlers of their produce to independent dealers. This has happened particularly in rubber schemes. The practice provided settlers with an immediate cash return but resulted in delays in loan repayments. According to one study, this method of evasion of payment was so widespread in Lurah Bilut, one of the study cases, at one time, that payment records showed only 10% and 18% respectively of settlers in 2 months in 1975 had turned in some latex when the average yield on all FELDA schemes was between 85% and 95% of the target (MacAndrews, 1979: 146).
Table 3.3  
Cost of Resettling One Family in FELDA Schemes, 1976-1986 (M$)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Infrastructure Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5,200</td>
<td>5,500</td>
<td>12,302</td>
<td>12,302</td>
</tr>
<tr>
<td>Management and Administration</td>
<td>3,700</td>
<td>4,200</td>
<td>5,062</td>
<td>6,122</td>
</tr>
<tr>
<td>Sub-total</td>
<td>8,900</td>
<td>9,700</td>
<td>17,364</td>
<td>18,424</td>
</tr>
<tr>
<td>II. Agricultural Development (4 ha.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15,500</td>
<td>14,800</td>
<td>28,996</td>
<td>27,856</td>
</tr>
<tr>
<td></td>
<td>2,200</td>
<td>2,200</td>
<td>3,400</td>
<td>3,400</td>
</tr>
<tr>
<td>Sub-total</td>
<td>17,700</td>
<td>17,000</td>
<td>32,396</td>
<td>31,256</td>
</tr>
<tr>
<td>Total</td>
<td>26,600</td>
<td>26,700</td>
<td>49,760</td>
<td>49,680</td>
</tr>
<tr>
<td>I as % of II</td>
<td>33.5</td>
<td>36.7</td>
<td>34.9</td>
<td>37.1</td>
</tr>
</tbody>
</table>

Source: Bahrin and Lee, 1988: 93

Oil palm growing and larger sized holding schemes which have produced higher income levels for settlers have generally been able to repay more quickly compared with smaller sized holdings and rubber growing schemes, the latter further plagued by illegal sales to outside dealers, a practice not possible in oil palm schemes owing to the block system of ownership and the harvesting and processing requirements of the crop. Within schemes, settler ability to repay punctually is conditioned to a great extent by individual traits such as thrift, diligence and skills as well as by the luck of the settler during balloting for holdings which can differ considerably in soil and the physical attributes. Another factor affecting loan repayment is management skills in obtaining settler support to meet their repayments punctually.

Our case study of Taib Andak — an oil palm scheme — revealed that only 55.77% of the total recoverable loans had been repaid to date. The average period of cost recovery was 17 years for fully-paid settlers, with a small proportion of them repaying ahead of the 15-year period allocated. Late-paying settlers in the
scheme were mainly located in stages 3 and 4 of the scheme area which were opened earlier but were provided with poorer yielding planting stock and had lower husbandry standards as oil palm was still an experimental crop in the early 1960's. More recent phases of the Taib Andak scheme have received the full benefits of higher quality planting stock, better planting and maintenance methods and assistance from the wide range of modern research and extension services built up by FELDA in the 1970's and this shows up clearly in their record of repayment.

In Lurah Bilut all the settlers had taken more than 15 years to repay their loans with the average time taken to fully repay at 25 years. There was also a small number of cases where the settlers have not been able to repay their loans after 30 years of participation. On examination, these cases were found to be due to the settlers being allocated low-lying holdings (allocation of individual rubber holdings in Lurah Bilut was done through a ballot process) which flooded easily and contained trees with very low yields. In such instances (and there are invariably a small proportion of them in each scheme) it does not appear that FELDA has yet come up with a policy to lessen the loan burden of the settlers or to compensate them for lower-productivity holdings.

A slightly different perspective on loan repayment is provided by Bahrin and Lee who have been able to access FELDA's records of loan repayment collection over all scheme areas. According to them, loan recovery up to 1976 was almost 100% for oil palm settlers and 85% for rubber settlers. Since then, the recovery rate has been somewhat erratic for both groups. Figures of loan amount repayment by rubber smallholders have fluctuated from a high 93% in 1983 to a low of 55% in 1986 before the rate picked up to 76.3% in 1987. By 1987 rubber settlers had repaid $176.8 million of the $252.8 million due, an achievement of about 77.8% repayment (see Table 3.4). With oil palm, repayment collections which were consistently high in the 1970's and in 1980-81, declined by 73.6% in 1983, picked up again to 96.9% in 1984 before declining to a disastrous 22.9% in 1986 owing to the collapse in oil palm prices that year. Improved market conditions for oil palm in the last two years have raised the recovery rate again (see Table 3.5). Overall, by 1987 oil palm settlers had repaid $490.8 million of the $613.1 million they owed, giving a recovery rate of 80%, a slightly higher figure than that achieved by rubber smallholders.

Analysis by Bahrin and Lee of the loan recovery data date have led them to the conclusion that "although these figures may not be as high as those attained in the seventies, they must surely compare favourably with any loan recovery for similar projects anywhere in the world" (Bahrin and Lee, 1988: 98). Whilst this conclusion is difficult to argue against, it must be noted that it takes 15-25 years for an average settler to repay his loan. By then the crops would have reached the end of their economic lives and require replanting. This brings about another round of extended indebtedness for participating smallholders.
Table 3.4  
FELDA Schemes: Loan Repayment by Rubber Settlers, 1980-87

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount Due ($)</th>
<th>Per Cent Collected</th>
<th>Cumulative Due ($)</th>
<th>Per Cent Cumulative Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>13,922,600</td>
<td>93.2</td>
<td>13,922,600</td>
<td>93.2</td>
</tr>
<tr>
<td>1981</td>
<td>18,186,300</td>
<td>75.4</td>
<td>32,108,900</td>
<td>83.1</td>
</tr>
<tr>
<td>1982</td>
<td>21,975,400</td>
<td>61.9</td>
<td>54,084,300</td>
<td>76.8</td>
</tr>
<tr>
<td>1983</td>
<td>28,014,700</td>
<td>72.8</td>
<td>82,099,000</td>
<td>78.4</td>
</tr>
<tr>
<td>1984</td>
<td>34,938,400</td>
<td>70.3</td>
<td>117,037,400</td>
<td>78.0</td>
</tr>
<tr>
<td>1985</td>
<td>40,814,900</td>
<td>55.0</td>
<td>157,852,300</td>
<td>73.5</td>
</tr>
<tr>
<td>1986</td>
<td>44,411,600</td>
<td>62.4</td>
<td>202,263,900</td>
<td>73.5</td>
</tr>
<tr>
<td>1987</td>
<td>50,513,100</td>
<td>76.3</td>
<td>252,777,000</td>
<td>77.8</td>
</tr>
</tbody>
</table>


Table 3.5  
FELDA Schemes: Loan Repayment by Oil Palm Settlers, 1980-87

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount Due ($)</th>
<th>Per Cent Collected</th>
<th>Cumulative Due ($)</th>
<th>Per Cent Cumulative Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>48,840,000</td>
<td>91.4</td>
<td>48,840,000</td>
<td>91.4</td>
</tr>
<tr>
<td>1981</td>
<td>56,485,000</td>
<td>96.9</td>
<td>105,325,400</td>
<td>94.3</td>
</tr>
<tr>
<td>1982</td>
<td>66,673,000</td>
<td>81.7</td>
<td>171,998,400</td>
<td>88.9</td>
</tr>
<tr>
<td>1983</td>
<td>72,636,800</td>
<td>73.6</td>
<td>244,635,200</td>
<td>84.8</td>
</tr>
<tr>
<td>1984</td>
<td>74,595,700</td>
<td>96.9</td>
<td>319,230,900</td>
<td>90.7</td>
</tr>
<tr>
<td>1985</td>
<td>96,424,800</td>
<td>81.0</td>
<td>415,655,700</td>
<td>91.2</td>
</tr>
<tr>
<td>1986</td>
<td>97,914,300</td>
<td>22.9</td>
<td>513,570,000</td>
<td>78.3</td>
</tr>
<tr>
<td>1987</td>
<td>99,562,500</td>
<td>70.0</td>
<td>613,132,500</td>
<td>80.0</td>
</tr>
</tbody>
</table>

Economic Returns to Schemes

The economic returns to schemes can be ascertained by indicators other than the incomes obtained by settlers and loan repayments. During the early 1980's, World Bank assessments of FELDA oil palm operations at the input and output prices current then indicated an economic rate of return of 15-18%. This compared with the estimate of 15-33% rate of return from estates, the higher upper end of the latter a result of better soils and topography as well as greater efficiency. (Malek and Barlow, 1988: 31). Another estimate is reported by Bahrin and Lee. Quoting from FELDA studies, they report an economic rate of return of 14.6% for a rubber project and 12.5% for oil palm in 5 study areas in 1976 and 13% and 16.7% respectively for the 2 crops in 2 other study areas in 1986. On this basis they have concluded that “though the cost of development is high, the economic returns more than compensate for the investment. It must also be emphatically stated that FELDA projects generate social benefits and for the social rate of return the figure would be at least 4% higher than the economic rate of return” (Bahrin and Lee, 1988: 224-225).

As the economic rate of return is an average figure calculated by matching the flow of annual returns over the whole life of a stand of trees, it would be interesting to see how this translates into actual income estimates at different yield levels over the different ages of holdings. In Table 3.6, we provide this estimate for oil palms holdings of about 4 ha. at current price levels. From it we see that the best annual gross profits (not taking into account imputed family labour costs) is $8,041 with profits peaking between the 6th and 20th years (over $10,000 annually) and slowly in the early and late years of the stand (about $4,000 annually for years 1-5, 26-30). The worst annual gross profits ranged from minus $61 for years 1-5 to $7,162 for years 11-15. Comparable detailed estimates could not be obtained for rubber holdings but discussions with FELDA officials indicate best annual gross profits ranging from $8,766 to $17,833 and worst annual gross profits ranging from $1,189 to $3,916.

IMPACT ON SETTLEERS

As pointed out earlier, massive amounts of public funds have been spent on the development of FELDA schemes. How have the settlers benefitted? This section will evaluate the impact of the schemes on the settlers in terms of income, land ownership, other asset acquisition, and expenditure and saving patterns. Evaluation is also made of the socio-economic status of the children of FELDA's settlers. Unfortunately detailed data on the socio-economic position of the settlers before scheme entry is not available and the analysis here has to depend heavily on case study data.
Table 3.6
Average Yields, Costs and Incomes of Oil Palm Holdings in FELDA Schemes, 1989

<table>
<thead>
<tr>
<th>Age Group of Trees (years)</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prices ($/tonne FFB)</td>
<td>$105</td>
</tr>
<tr>
<td>Yields (tonne/ha/yr)</td>
<td>8.9</td>
</tr>
<tr>
<td>Costs &amp; Incomes of a 10 acre (4.04ha) farm</td>
<td></td>
</tr>
<tr>
<td>Gross Income/yr</td>
<td>$3775.38</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Fertilizers</td>
<td>$1800</td>
</tr>
<tr>
<td>Loan Repayment</td>
<td>–</td>
</tr>
<tr>
<td>Quit Rent</td>
<td>–</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$1800</td>
</tr>
<tr>
<td>PROFIT</td>
<td>$1975.38</td>
</tr>
<tr>
<td>Best Income Estimate</td>
<td></td>
</tr>
<tr>
<td>Best Yield (tonne/ha/yr)</td>
<td>14.4</td>
</tr>
<tr>
<td>Gross of a 10 acre farm</td>
<td>$6108.48</td>
</tr>
<tr>
<td>PROFIT</td>
<td>$4308.48</td>
</tr>
<tr>
<td>Worst Income Estimate</td>
<td></td>
</tr>
<tr>
<td>Lowest Yield (tonne/ha/yr)</td>
<td>4.1</td>
</tr>
<tr>
<td>Gross Income</td>
<td>$1739.22</td>
</tr>
<tr>
<td>PROFIT</td>
<td>$60.78</td>
</tr>
</tbody>
</table>

Source: Field Survey Data, 1989.
Income

The net average monthly income of all settlers in FELDA's oil palm and rubber schemes for the years 1980-88 is shown in Table 3.7. Incomes are high by rural Malaysian standards, averaging at $736 per month for settlers in oil palm schemes and $492 per month in rubber schemes during the past 9 years. In comparison wages of rubber plantation workers have averaged about $300 per month whilst that of oil palm plantation workers have averaged about $400 per month during the same period. But incomes fluctuate widely according to the prevailing market conditions. During the best year (1984), an average settler in FELDA's oil palm scheme was able to fetch $1231 per month but only two years later with the collapse in oil palm market, settlers' monthly income plunged to $376.

It cannot be inferred, however, that FELDA's schemes have not brought about the upliftment of the economic status of the settlers. Based on the sample study carried out in Lurah Bilut, Taib Andak and Besout schemes, it is obvious that the economic positions of the settlers have improved greatly since joining the schemes. Not only have incomes increased but income sources have diversified. In addition to receiving a guaranteed minimum level of farm income, quite a few farmers reported obtaining income from part-time activities (4.9%). Mean real total household incomes for settlers have increased from $241 to $414 per month since joining the scheme while mean income from the main activity rose from $205 to $316 per month.

Table 3.7
Net Average Monthly Income of Settlers in FELDA Schemes (M$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rubber</th>
<th>Oil Palm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>472</td>
<td>709</td>
</tr>
<tr>
<td>1981</td>
<td>492</td>
<td>643</td>
</tr>
<tr>
<td>1982</td>
<td>402</td>
<td>624</td>
</tr>
<tr>
<td>1983</td>
<td>482</td>
<td>765</td>
</tr>
<tr>
<td>1984</td>
<td>505</td>
<td>1231</td>
</tr>
<tr>
<td>1985</td>
<td>421</td>
<td>889</td>
</tr>
<tr>
<td>1986</td>
<td>405</td>
<td>376</td>
</tr>
<tr>
<td>1987</td>
<td>530</td>
<td>522</td>
</tr>
<tr>
<td>1988</td>
<td>721</td>
<td>871</td>
</tr>
</tbody>
</table>

Source: FELDA.
Interestingly when only the settlers who were previously engaged in agriculture as their main activity are studied, it is found that 25.9% of them used to obtain less than $100 per month from agriculture, 40.9% between $100-$200, 31.6% between $201-$500 and 1.4% above $500 per month. The percentages of settlers obtaining the same levels of farm income in real terms today are 8.2%, 21.7%, 66% and 4% respectively. There has been therefore a perceptible upward shift in farm income for most farmers and the emergence of a solid block of what can be considered to be middle-class farmers — the result of economic-sized holdings and higher farm incomes through the judicious choice of crop and better farming techniques.

Off-farm incomes have also increased for participants, despite the concentration on a main crop, indicating some form of socio-economic mobility. About a third of settlers (31%) derive income from sources such as small-scale business, livestock, fisheries and dividends from investment, although income from such sources are low: averaging $59 per month. Apart from off-farm incomes, many farmers — especially in Lurah Bilut and Taib Andak — also derive monthly or less regular remittance from children. The amounts reported received from children varies but remittances to Lurah Bilut households were generally higher in amount reflecting again the poorer economic status of rubber smallholders as compared to oil palm smallholders and a greater burden placed on working children. Mean monthly remittance to settlers who were recipients was $131.

**Land Ownership**

Unlike before they entered the scheme when most farmers had to work as agricultural labourers or operators on uneconomic holdings, FELDA settlers presently operate on substantial sized holdings of about 4 hectares each. It must be noted that FELDA’s plots were designed as economic units which a single family can comfortably manage, with returns high enough to ensure that each settler family is, by rural Malaysian standards, relatively well-off. More important to the settlers is that all of them are making steady progress towards ownership of the holding that they are currently operating, i.e. if they have not already gained ownership. Land and house ownership whether individual, cooperative or shared form is accomplished when settlers fully pay up their loans. For the country as a whole, by the end of 1987, 15,984 settlers out of a total of 106,510 settlers (15%) had discharged their loans. In the case study areas, titles were issued to the first batch of settlers in 1977 and by the end of 1988, over 90% of the settlers in Lurah Bilut and Taib Andak schemes had fully discharged their loans. Only a small number of the 695 settlers studied (11%) owned land outside scheme areas. Of this group, 62.3% own less than 2 acres each whilst 12.9% own more than 5 acres. But this apparent lack of land asset does not necessarily imply settlers’ failure to accumulate wealth. Further indepth interviews of a sub-sample
of 171 of these settlers revealed that most (92.4%) consider their scheme land sufficient for agricultural activities. Also, it was found that the pattern of land acquisition of FELDA settlers' families is marked by minor land purchases and acquisition through inheritance, and small-size allocations to those settler children who subsequently go on to become settlers themselves. Extra farm land hence appears to be low on the settler’s priority list and owning more agricultural land is no longer viewed as wealth. In fact, most FELDA schemes face labour shortages as their settlers age, and more especially as the children of settlers show little interest in FELDA-type pioneering land settlement or even in inheriting their parents’ land to carry on farm activities.

Settler children’s education and upward social mobility is instead given greater importance by settler families. Hence the premium given to the education of settler children. The children’s movement to urban areas would appear to be the preferred life-style of the next generation of the hitherto predominantly rural and agricultural-based Malay community in Peninsular Malaysia. Herein lies the problem for FELDA. Instead of developing a land-owning rural class which would use FELDA’s holdings as a basis for expanding land-based wealth, it appears to create a class of rural elites in transition from landlessness to disengagement from agriculture as they grow old whilst their children seek urban employment to become the future generation of urban dwelling Malays.

Acquisition of Other Assets

While wealth accumulation and investment in the form of land asset becomes less popular, many settlers appear to have switched to acquiring household consumer durables. The survey data shows that 92.5% of all households possess television sets, 88.2% motorcycles, 85.3% radios, 81.2% gas stoves, 68.6% sewing machines, 60.9% electric fans and 55.4% refrigerators. In Taib Andak which is considered the most prosperous of the three schemes, practically all the households are equipped with television sets (98%), sewing machines (96.4%), refrigerators (92.2%), gas stoves (89.8%), and electric fans (89.8%). In addition, 19.6% possess cars. Even in Lurah Bilut, a rubber scheme where farm incomes are generally lower, 97.5%, 77%, 62.7%, 78% and 85.8% respectively of settler families own the above household durables — items that were considered luxuries just a few decades ago. While this is in part a reflection of the general economic advancement of the country, it is also a reflection of the changed priorities of settlers as they enjoy stability in their incomes and occupations.

Expenditure and Saving Patterns

The economic position of settlers can also be gleaned from their expenditure and savings patterns. Average monthly household expenditure after deduction of
compulsory repayments on land development expenses is $574 with slightly less than half of them (42%) spending more than $500 per month. Taib Andak settlers confirmed that they were the most well-to-do settlers in the three schemes with over 70% reporting expenditure of over $500 compared with only 30% in Lurah Bilut and 25% in Besout. Only 2.9% of settlers in Taib Andak spend less than $300 per month compared with 19.2% in Lurah Bilut and 15.4% in Besout.

A considerable proportion of household income predictably went towards food costs. Average food expenditure was $302 per month. Other basic needs expenditure i.e. housing, medical and clothing expenses were minimal with schemes being provided with houses whose costs of construction are included in the loan repayments and medical care provided for by the public health service. Expenditure on education was surprisingly low considering the fact that a large number of settlers have school-going children. On average, each household reported spending only $51 per month on education. Although most primary and secondary school expenditure is borne by the government, the reported figures are lower than actual expenditure because FELDA operates a deduction system for certain educational costs from settlers’ earnings and many respondents failed to take these deductions into account when reporting on their monthly expenses.

Savings are another indicator that provided evidence of changes in economic well-being. Almost half (45.7%) of settlers had savings, mostly with the Permodalan Nasional Berhad, a government run investment trust that provides a high rate of return, and with commercial banks. A smaller number (the older settlers) save with a Pilgrim’s Trust that helps settlers save towards pilgrimages to Mecca. Frequency of savings varies. The majority (57.7%) despite regular and stable incomes, do not keep to any fixed pattern with only 8.2% managing to save monthly. Savings were also reported to be small with 56.8% of settlers having savings of less than $500 each and only 8% having savings exceeding $3,000. Of the latter group, 92% are from Lurah Bilut and Taib Andak schemes, suggesting a positive correlation between length of stay in the schemes and total savings, and indicating the economic sustainability of schemes over a long period of time.

**Impact on Settler’s Children**

What sort of impact have FELDA schemes had on the children of settlers in scheme areas? Have they been able to take advantage of their parents’ enhanced socio-economic mobility? The establishment of schools has been part of the infrastructural development in FELDA scheme areas since the start of schemes in the late 1950’s. It was recognised by the agency that social development had to go hand-in-hand with economic development and that the provision of schools, roads, health clinics and other social amenities had to be an integral part of the general facilities located in scheme areas. Government schools providing free education up to the Fifth Form level are available in most schemes.
Besides that, there are other schools — public and private — found in close proximity to scheme areas. As a result, the educational levels of settlers' children have risen compared with their parents'.

The educational achievements of children in the 3 FELDA schemes studies are useful to compare. 53% of these children have obtained lower secondary education while 8% have had college or university education. These rates compare very favourably with those attained by their parents. Comparing the educational levels of the female children (above 18 years) with those of their mothers, it is found that 50% of the female children with college/university education have mothers without any education themselves while another 50% have mothers who have had only primary level education. Of the female children with upper secondary education (Form 4-6), 48% of their mothers are without education, 92% had only primary education and 2.3% had secondary education. In the case of male children, 15% of those with tertiary education come from families where the father had never attended school and 81.5% where the father possessed only primary education. Additionally, 19% of the male children with upper secondary education have uneducated fathers; 77% have fathers with primary education and only 4% have fathers with secondary education. The same trend can be found in all the schemes studied.

Whilst the educational achievements of FELDA scheme children look impressive alongside those of their parents, there are also worrying indicators. One is the school drop-out rate which is quite high, especially after the primary level. The study shows that 7.4% of the children at Form One level (aged 13) is 32%. By the time they reached 18 years (Form Six level) 68% of settlers' children have dropped out to join the pool of unemployed. It is noticeable that 64% of all non-schooling children between the ages of 12-18 years are unemployed. What is surprising about the figures for the respective schemes is that the relative affluence of the Taib Andak scheme settlers has not translated into higher levels of educational achievement for their children — if anything, Taib Andak children seem to drop out earlier to join the labour pool. The dropout rate is higher amongst girls. Of children above 18 years, 7% of the females have no education compared to only 0.9% among the males. 22% of the females dropped out by the time they reached Standard Six and 47% by the time they reached the Fourth Form. The corresponding figures for males are 20% and 46% respectively. Another problem is that the education imparted to the children has not provided them with the skills necessary to take up employment in the non-agricultural sector. Of the total of 1783 children (over 18 years old) studied, 1354 or 59.5% were reported to possess none of the skills listed in the survey questionnaire. This is even higher than the proportion of settlers without skills (37.4%). The rest possess skills in business (4.8%), carpentry (5.3%) and sewing (14.6%, confined to females). This and the fact that many were unable to obtain satisfactory employment in scheme areas or found the scheme life-style
unattractive have resulted in an exodus of settlers’ children to seek employment outside the schemes. It is significant that only 46% of the adult children remained behind in the scheme areas. Of those that remain, there is a higher rate of unemployment (35.7%) than those who have migrated out of the scheme areas (20.5%). Overall, 27% of adult children were unemployed, 5% were still schooling and 68% had found employment. Only 28.4% of settlers’ children had been able to find employment in the scheme areas.

Opportunity for Settlers’ Participation

In the farming system practised by FELDA, group farmers are bound by contract to produce and sell crops to the agency as a condition to the eventual transfer of land to them. FELDA’s role, then, is basically that of a trustee, and its management role in the schemes has a finite duration after which the settlers would have to take over the running of the schemes — a step which automatically comes about once the settlers have fully discharged their loans. How has FELDA prepared the farmers for this role?

A Social Development Division was created by FELDA in 1967 — one decade after its first schemes were opened — to initiate a planned programme of community development. It was decided that FELDA would train potential leaders, step by step, by involving them in all phases of scheme management. This was to be done through the Youth Organisation (Gerakan Pertubuhan Belia or GPB); Women’s Organisations (Gerakan Persatuan Wanita or GPW and Gerakan Wanita Perladangan or GWP); FELDA’s cooperatives (a cooperative established to mobilise settlers’ fund in profitable projects); Settlers’ Cooperatives (cooperatives dealing with the transportation business in oil palm schemes); and especially through the Settler Development Committee (commonly referred to as JKKR or Jawatan Kuasa Kemajuan Rancangan). Comprising elected settler leaders, block representatives, representatives from the Youth, Women and Cooperative organisations, as well as police chief, religious, school and health officials, the JKKR was first designed as a committee responsible for the operation and management of the schemes. It remains until today the body that offers the broadest scope for settlers to partake in all aspects of scheme management.

The actual effectiveness of the JKKR and other organisations in scheme management and in grooming settlers to take over the leadership role, however, depends on a number of factors. Whilst the JKKR is regarded as being relatively important in representing settlers’ interests, there are also many complaints about the quality of the leadership it provides. Part of the explanation for settler disillusionment with their own leaders lies in the system of selection of JKKR representatives. When the scheme development committees were first proposed and established, it appears that a democratic system of selection of committee members was intended as well practised. Block members first elected their own
block leaders and settlers in the scheme as a whole subsequently selected various
block leaders to represent them in the JKKR. Over the years, however, this
principle of democratic election has been undermined. In the election of block
leaders now, settlers are required to select three candidates with the agency
reserving the right to confirm one of the three as block leader. Candidates and
their backgrounds are also scrutinised by the FELDA scheme management and
a District Steering Committee before being sent to FELDA headquarters and the
State Government for final approval as block leaders. At any stage in this process,
a block leader can be dropped and replaced by another candidate. A similar
procedure of FELDA control is used in deciding the Vice-Chairman of the JKKR,
the most important settler member on the committee. Other practices that are
alleged to have undermined greater confidence in their own leadership include
the term of three-year tenure of committee members and the failure to use a secret
ballot method when voting on important matters. The result, is the selection of
FELDA 'Yes-men' into the committees and the intrusion of political factors
directly into the system.

In this study it was found that more than half (51.5%) of the settlers consider
the JKKR in their scheme to represent more the voice of FELDA rather than the
settlers themselves. The degree of disillusionment was greatest in Lurah Bilut
with 71.4% of the settlers asserting so and lowest in Taib Andak (40.3%). Many
complaints about the quality of the leadership provided by JKKR were reported.
Common grouses were that JKKR leaders (i.e. block leaders) tended to side with
FELDA authorities, made unilateral decisions or failed to carry out their respon-
sibilities. Unilateral decisions appear to be most frequent in Lurah Bilut where
40.9% of the settlers complained about it.

On the part of the settlers, it is also true that the sense of community interest
is still relatively underdeveloped as compared with individual material self-
interest. Few join the organisations to promote the welfare and social interests
of settlers and fewer still see participation as a means through which managerial
knowledge is acquired. The case study data shows material benefits to be the
main reason for their joining the organisations with about half (47.6%) citing
capital/wealth accumulation as their primary objective. A significantly less
proportion (22.1%) participated out of social/welfare interests while only a
marginal number of them participated to acquire managerial knowledge (4.1%)
and enhance self-discipline and morale (0.7%). With the exception of the JKKR — the so-called key managerial committee — many members of the organisations
complained of being forced to participate by the authority ("diarahkan oleh
FELDA", "diwajibkan"). The proportion of involuntary participation was
highest in Taib Andak which is a relatively long-established scheme (27 cases)
and where one would have expected voluntary participation tendencies to be well-
established. Also most of those who participate do so in their capacities as
ordinary members and thus attendance at meeting of settler organisations is
relatively infrequent. 15.7% of interviewed settlers said that they attended meetings at least once a month and 80.7% attended between 1-5 meetings per year. With the exception of Taib Andak settlers, very few of them (less than one-third) speak up during meetings, possibly because of the high likelihood of their views being rejected. It is interesting to note that 76.3% of those who had presented their views had them rejected, a similar pattern in all schemes.

Part of the explanation for the limited participation seems to be the compulsory organisational structure of JKKR and other scheme organisations which are modelled after typical bureaucratic committees and have procedures and rules that would be intimidating to the less literate or educated members. Another factor likely to discourage fuller participation is the system of the FELDA scheme manager automatically assuming the chairmanship of the JKKR in each scheme. Undoubtedly, this measure was promoted by FELDA’s desire to promote coordination between settlers and the agency. In the early phase of schemes when settler leadership was lacking, or less developed, the assumption by the chief FELDA scheme officer of the highest position in the JKKRs also provided an important transitional leadership. However, the continuation of the system of not permitting settler leaders to take over the chairmanship of their own decision-making body, has clearly had negative impact on settler participation.

Despite these problems more than half (65%) of the settlers are currently satisfied with their involvement in the decision-making and management process in the schemes. The satisfaction level is highest in Taib Andak (80.6%) and lowest in Besout (52%). 61% of settlers interviewed in Lurah Bilut indicated that they were satisfied with their participation. A high 48% of settlers in Besout are dissatisfied with their participation compared with (39%) in Lurah Bilut and only 19% in Taib Andak. Whilst it is clear that different levels of scheme well-being and affluence have also influenced the responses of settlers and explain the higher satisfaction rate in Taib Andak, most of those who are dissatisfied have explained that FELDA authorities should only act as advisers while leaving decision-making to the settlers. Others were of the opinion that FELDA was not sincere in guiding the settlers towards full participation and have suggested that the authorities hold more regular discussions and consult them more often so as to ensure a stronger settler input into the decision-making process. Comparison of settlers’ responses to their current participation in scheme management as compared with three years earlier provided some encouraging signs that the level of settler participation is increasing. The proportion of settlers who feel that their level of participation is “good” or “very good” currently compared to three years earlier has increased by 11.6% whilst those who have responded with “poor” or “fair only” have decreased in proportion by 9.3%.

Even then, many settlers in FELDA schemes today are still not confident of their own abilities to eventually take over and manage the schemes. In the study
it was found that many (28.1%) were not sure of their ability to do so. The proportion of settlers who think that they can do or cannot do are evenly divided at 36.3% and 35.7% respectively. Settlers in Lurah Bilut tended to be more confident of their abilities, possibly because of their longer stay in the scheme (53%). Those in Besout were least confident (75% answered “No” or “Not sure” to the question on their capability to take over scheme management). Of those who think there is no possibility of a takeover now, 18.3% felt that they would be prepared to do so 3 years from now while a large group (48.3%) thought that they would not be able to do so even if given another 3 years.

Why this pessimism? Apparently FELDA has not done much or enough to prepare the settlers for their eventual takeover of scheme management. Of the 171 settlers studied, a high proportion (81.7%) felt that FELDA has not provided sufficient opportunities to prepare them for this objective. It is true that FELDA does conduct management courses but the numbers benefitting are small. Over half (53.2%) of the settlers were not even aware of FELDA conducting such courses. The incidence was highest in Besout (63.3%) which is also the scheme where settlers show the least confidence in their abilities to take over management. The relative newness of the scheme and the fact that most Besout settlers are recent entrants has much to do with it. In the Taib Andak and Besout schemes, many settlers complained that such courses were conducted only for block leaders, thereby bypassing the majority of settlers (only 1 settler can serve as block leader in a group of 20-40 settlers).

In responding to questions about the future of settler participation in management, settlers were more optimistic than their earlier responses indicate. The majority (69%) were of the opinion that those with managerial experience would have the most opportunity for assuming JKKR leadership with only 13.5% of the opinion that those with political influence would be in the best position to do so. The greater problem in the future perhaps is indicated by the opinion of a substantial proportion of settlers (28.1%) who felt that a class difference between the JKKR leaders and settlers was beginning to emerge in FELDA schemes as there were more opportunities being made available to JKKR leaders to obtain FELDA contracts, loans and other social and economic benefits.

Another study which has probed this issue more deeply in 2 scheme areas has asserted that “it is ... more advantageous for settlers, particularly members of Regional JKKR (who are Vice Chairpersons of JKKRs) to maintain close rapport with their respective Regional Controllers ... in order to be kept in the books and invited to bid for their tenders” (Halim Salleh, 1987: 124). According to Halim the stakes can be very high. Profits accruing to a settler contractor for winning 2 weeding contracts on 1600 acres in 1984 totalled $228,096 for the 3 years of the contract or an average of $6,339 per month. The settler contractor in turn has sub-contracted the work to 7 sub-contractors who were estimated to earn among them a minimum of $83,176 annually. It is difficult to assess how
widespread the above practices are and whether the allegations of JKKR leaders and FELDA staff collusion to ensure privileged access to scheme contracts, and windfall profits from contracts can be generalised to other schemes. However, in the 3 schemes studied, constant allusions were made to the growing economic and social gulf between JKKR leaders and the average settler, and there appears to be much simmering resentment which can obstruct the process of settler participation if not checked.

THE TRANSITION FROM LAND SETTLEMENT AND DEVELOPMENT TO CONTRACT FARMING AND BEYOND

Contract farming has been defined as “agricultural production within the context of a commercial agreement between the grower and the buyer which affects important production decisions” (Minot, 1986: 1). It is usually studied in the form of the vertical coordination between the grower and buyer in respect to quantity, timing, and location of supply and demand (Minot, 1986: 50). Contract farming as practised world-wide reflects a great variation of contract provisions, and each individual contract farming arrangement needs to be studied to identify its particular characteristics and relationship developed to meet the specific conditions under which farming takes place at a given place.

Contract farming of rubber and oil palm in many Third World countries involves both plantation and smallholder production. In the context of land settlement and development programmes undertaken by special government agencies to meet demands of landless people, such contract farming agreements when standardised for entire projects or programmes can involve thousands of individual growers. FELDA land settlement and development schemes are but one example of such contract farming undertaken under the auspices of a single developmental agency. The study of FELDA’s contracts signed between the agency and its settlers, and the subsequent developments arising from the implementation of these contracts, can provide useful lessons for those interested in the experiences with contract farming in the Third World associated with administrative decree from above.

Contract with Government

The contractual relationship in FELDA schemes is a complicated matter. Because ownership and disposition of land are state matters under the Federal Constitution, FELDA being a Federal government agency, has to first acquire the land from the state government and develop them on behalf of the settlers. State land required by FELDA are specifically governed by the provisions of the Act of Parliament No. 13 of 1960 titled Land (Group Settlement Areas) Act, 1960 as amended (or GSA (1960) for short) which enables state land to be
designated Federal development areas and to be developed by FELDA. The GSA (1960) amongst its other provisions states that:

(1) Express conditions imposed under, and conditions and obligations implied by virtue of the provisions of this Act shall run with the land and shall bind the holder thereof and shall commence to run from the date of occupation of expectation of title authorised by entry in the register of holdings or from the date of alienation, whichever is earlier (Section 11(3));

(2) There shall by virtue of this section be implied in every document of title to a holding the condition that a breach of or default in the observance of any of the conditions of the said document of title, whether expressed in the document or implied by this Act or by the State land law, shall render the holding liable to re-entry and the title to forfeiture in the manner provided in the State land law in respect of such breach or default (Section 11(4));

(3) No crops, other than the appropriate crops, shall at any time be planted upon any portion of the holding (Section 17b);

(4) The State Authority, in consultation with the Minister, may by notification in the Gazette declare that the whole or any part of the area within a group settlement area shall cease to be a group settlement area for the purpose of this Act (Section 44(1)).

The Act upholds all conditions which FELDA may lay down in the document of title issued to settlers and threatens forfeiture if any person receiving title under this Act transgresses any FELDA regulations. Significantly, the Act of gazetting an area as a group settlement area under the jurisdiction of FELDA requires express de-gazetting for FELDA to relinquish its responsibility over a scheme and its inhabitants. In the absence of such a de-gazetting notice, the provisions of the GSA (1960) remain in effect, and in practice, therefore, grant the settlers with title issued in their name the use of their land, but invest in FELDA the final say in all important matters such as change of crop (prohibited without FELDA’s express approval), sale of land (prohibited), sub-division (prohibited) or even expansion (prohibited). The transition from the development phase to the ownership phase which the settler experiences, if any, therefore, is directed by the provision of the GSA (1960) so long as the scheme area is not formally de-gazetted, and by the title documents granting ownership by FELDA even if de-gazetting does take place.

Contract with Farmers

In addition to the GSA (1960) which provides the larger framework within which schemes are set up, FELDA has developed agreements which it requires settlers to sign as a condition of entry into the scheme. These agreements govern the relationship between FELDA and settlers during the development and
settlement phase of the projects. Besides these, there are also several post-title agreements which FELDA requires settlers to sign as a condition to their receiving from the state government titles to land, be these in the individual, block or share-system format. The contract agreements FELDA has developed include Post-Title Agreements for settlers receiving individual title and growing oil palm (main crop) with rubber (subsidiary crop), rubber (main crop) with oil palm (subsidiary crop), and oil palm (with titles issued in the name of the cooperative of which the settler is a member). This is the type of agreement settlers in the older schemes such as Lurah Bilut have already signed. Another type of agreement is Block System Agreements for rubber and for oil palm. These agreements cover schemes based on the block system. After the settlers pay up their loans from FELDA, they are issued titles in the name of the cooperative FELDA establishes to continue to manage the scheme under the block system, and this agreement is replaced by a post-title agreement with each settler which allows for the cooperative to hold the settler’s title. This is the type of agreement settlers in Besout and Taib Andak have signed upon entry into the scheme. The most recent type of agreement is Share System Agreements for both rubber and oil palm. These agreements cover schemes under development based on the share system. After the settlers pay up their loans from FELDA, they are issued shares to the scheme, and titles to their individual plots of land. There is no post-title agreement since under the share system all agricultural work is undertaken for wages and dividends. Some of the new settlers sampled in the Besout scheme have been settled under this scheme. Finally, there is a fourth production agreement entered into by FELDA and its settlers covering crop replanting. Replanting Agreements spell out in detail the legal and operational relations between FELDA and the settlers when the time comes to replace the original crop with a new one. Some settlers in both FELDA Lurah Bilut and Taib Andak have had their crops replanted, and have entered into such replanting agreements with FELDA.

Each of these agreements involving the production of crops by the settlers have clauses which spell out in greater detail the relationship FELDA requires settlers to have with it before and even after they have received title to their land. These, then, are contracts, valid for a specific period, imposed on the settlers by FELDA which limit the freedom of land owners to freely do with their land what they will. They imply that FELDA production contractual farming is of the type which the settlers enter into not of their own free will, but because it is required by the development agency. Settlers who have paid up what they owed FELDA and are to be given by the state government, either individual land ownership titles or block titles, sign Post-Title Agreements. These agreements are generally similar, there being minor differences in the wording of clauses which reflect crop differences, and the difference between individual and block field practices.
The Post-Title Agreement for rubber which, for example the Lurah Bilut settlers have signed, states that only upon signing the agreement shall FELDA “recommend to the State Government ... to issue to the Settler a document of Title of Proprietorship for all the lands where the Settler has registered as a resident”. The Agreement then requires the settler to appoint FELDA as the Management Agent “to manage the administration of the Settler’s land”, used for agricultural as well as for housing purposes. It provides that FELDA shall “use its experience” to advise the settler “from time to time” on how to develop his land, and to supply the settler “equipment, fertilisers, chemicals and other necessary items for the development of the Settler’s land”. For these management services rendered by FELDA, the Agreement stipulates that the settler pays FELDA a fixed rate per acre per month (which may be subsequently changed upon mutual agreement by both parties). The Agreement specifically requires the settler to sell all the produce of his land (including rubber scraps) to the factory or buyer designated by FELDA, and that the prices to be paid shall be fixed by FELDA based on “the average sale during the said month” after deductions for cost of processing and storage, cost of transportation to the factory, and the cost of marketing are made. Furthermore, the agreement empowers FELDA to make deductions from the sum due to the settlers from the sale of his produce for a “Settler’s Development Account”, the cost of setting up FELDA’s latex collecting centres, maintenance of the estate, the “Estate Restoration Account” and various other assessments and taxes which government may impose from time to time. The agreement also enables FELDA to deduct from payment due to the settler the cost of goods taken on credit by the settler from “the Business Corporation of FELDA”, and any other expenses “borne by FELDA and required by the Settler to pay”.

The Agreement further requires the settler to accept a “Scheme Development Committee” to be appointed by FELDA which is empowered “to carry out the administrative functions in the Scheme Area including the Settler’s Land”. Referring to the matter of ownership of land, the agreement specifies that “The Settler shall agree not to sell, charge, lease or subdivide the lands which have been issued documents of Titles without prior written approval from the relevant State Government”. Finally, the Agreement stipulates that in the event of any dispute between the two parties to the Agreement, the settler has to submit the matter for arbitration to the Minister responsible for FELDA. A more recent version of the Post-Title Agreement governing rubber schemes with oil palm as a subsidiary crop stipulates in addition to the above that the monthly rate per acre the settlers agree to pay FELDA for its management services shall be reviewed after five years. Settlers signing this agreement also agree that FELDA deduct payments to be made to an “Oil Palm Replanting Scheme”. The tenure of this Agreement is also set at five years after which it is to be reviewed.
Since oil palm production is an estate enterprise unlike rubber which is adaptable to the smallholding system of production and ownership, FELDA schemes planted with oil palm are based on the block system, and this ownership system requires a different Post-Title Agreement. In this Post-Title Agreement the document of land title is not issued to the settler as is the case in the rubber schemes, but "in the name of the Cooperative of which the Settler is a member". Like his rubber scheme counterpart, the settler in the oil palm scheme does, however, receive in his name the title for his housing lot. All the other provisions governing appointment of FELDA as "Management Agent", the purchase of equipment, fertilisers, etc., payment of FELDA's services, sale of produce to FELDA, deductions which FELDA is entitled to make, contributions to various funds and accounts, and the restriction of the freedom to sell or subdivide the land which are spelt out in the rubber agreements are repeated in the oil palm agreements.

It is clear that the receipt by FELDA settlers of individual or block land titles means little in terms of the freedom to use the land (which is legally theirs) in any way other than that decreed by FELDA. FELDA continues to control many aspects of the economic and administrative life of the community, even preventing the settler from purchasing the supplies he needs to produce his crops from alternative suppliers who may offer him a better price. In short, attaining title to the land does not free the settler to engage freely with the market. His supplies are controlled as are the prices he receives for his product from FELDA which continues to maintain a monopolistic strangle-hold over the settlers. Thus settlers, after paying off FELDA for the cost of developing their land, and having made the transition to the ownership phase of their community's life find that FELDA once again maintains its dominance over the individual's and community's life through the Post-Title Agreements which settlers are required to sign as a precondition to FELDA recommending to the respective state governments the issuance of individual/block land titles.

**Block System Agreements**

The block field system replaced the individual field system in later FELDA schemes in an effort to use peer pressure on individual settlers not to slacken in their work. The documents of agreement developed by FELDA for block system schemes contain minor differences relating mainly to the particular crop and associate conditions attached but they are basically similar in their scope and effect on the settler.

The Block System Oil Palm Agreement, similar to its rubber counterpart, comes in two parts. The first part is signed by the settler upon arrival in the scheme, and the Appendix "A" to the agreement is entered into by FELDA and the settler after three years when the whole scheme is yielding or when the
scheme reaches the "break-even point" whichever is later. The agreement remains in effect even until the settler is due to be given his individual or block title, whereupon he signs a Post-Title Agreement of the kind discussed above. Since most FELDA schemes have not yet made the transition from the development and settlement phase to the Post-Title phase, these settlers live out their lives in their respective FELDA schemes governed by farming arrangements spelt out in the block agreement.

The Block System Oil Palm Agreement (in use in FELDA Taib Andak and FELDA Besout) requires that “The Settlers shall diligently and to his ability cultivate the Scheme Area in accordance with the rules and directives which may be issued by the FELDA”. He may not request the FELDA for whatever wage, salary or payment except that of the cost of living subsidy and loans which may be granted to him by FELDA from time to time”. The settler is prohibited from putting up any structure other than a house of residence on land he has been allocated. FELDA has the right to expel any troublesome settler, and not pay him any compensation other than monies expended by the settler on his house. The settler is also guaranteed a “cost of living subsidy” and loans in the event of his falling ill.

After three years or so, the settler who in FELDA’s opinion has satisfactorily met all the Agency’s rules and conditions, is invited “to enter into another contract of agreement” by signing a Supplementary Agreement (Appendix ‘A’) which makes him “resident owner-designate” of agricultural and house-lot land. The Supplementary Agreement spells out that the settler will “own” title to his land only through a Cooperative Society, and that he shall cultivate his land through group effort. It also spells out what payments and repayments the settler must make to FELDA, contributions to Replanting Provident Fund, Settlers’ Development Fund, Welfare Fund and advances made to the settler by the Business Corporation of FELDA, among others. Further the agreement requires the settler to sell his produce to a factory designated by FELDA and compels him to accept “the sale price determined each month by FELDA”. From this FELDA will deduct the cost of management, transportation, processing, packing and marketing. The Supplementary Agreement also binds the settler to cultivating crops which FELDA deems suitable and requires him to carry out at all times any instructions of the scheme manager.

Bearing in mind that FELDA schemes are Government-initiated development projects, the close management feature of the Block System Agreement in the development phase of the scheme is understandable. However, when one compares the Block System Agreement with the Post-Title Agreement it is clear that there is little difference between them and no change in FELDA’s effective presence and position in the schemes even though there has been an important transition in the settler’s status from “resident-owner designate” to owner.
Replanting Agreement

Individual and block owners sign one more production agreement with FELDA when their tree crop has matured and is in need of replanting. In the Replanting Agreement the settler appoints FELDA as management agent to undertake the replanting "on behalf of the settler", but subject to the condition that FELDA has the right to replant "in the manner it shall see fit", that the settler shall not at any time "obstruct" FELDA as it replants, and that the settler will "participate in the work of replanting by doing those activities so decided by FELDA". In return the settler is paid a minimum wage. The Agreement specifies what the settler is required to pay back, and he agrees to sell all the produce of his land to FELDA "in accordance with the price as decided by FELDA". The Replanting Agreement thus guarantees the continued pre-eminence of FELDA as developer, processor and marketer of the settler's produce, and appears to confirm the settler's perception of his subordinate role as labourer in agricultural land he owns but has no effective control over.

Share System Agreements

With the Share System Agreement, it might be argued that FELDA is no longer concerned with its original objective of providing agricultural land to the landless peasantry. Settlers entering schemes developed since the beginning of 1985 have been given an unambiguous contract to sign which states that "...the Share System means that the Participant shall not be given a title of ownership for the land operated by him"; the "document of Title of Proprietorship shall be in the name of FELDA Estate Corporation; that "...the Participant shall be given ownership of the housing lot on which shall be erected a house; and that "the Participant shall be duly paid a wage for the work done by him". Besides this wage "the Participant shall also receive a bonus and dividend depending on the profit earnings of the Share System Cultivation Area". The Agreement offers the settler units of shares "calculated on par with the ten acres of cultivation land", and it goes on to state that a Share Certificate shall only be issued to the settler upon repayment of all the development costs of the area cultivated to FELDA.

The Agreement spells out that all excess income from the sale of produce from the entire scheme shall be subject to deductions such as the cost of development, maintenance cost, payment of land assessment and other government fees, premium payments for insurance, transportation, processing and marketing costs and the wages of participants. The Agreement provides for FELDA to audit the accounts which determines the total sum of bonuses and dividends payable to the participants and that the accounts so prepared "shall be final and non-debatable except in case of errors or omissions". In the case of settlers violating the rules and regulations, FELDA is given the right to expel the settler and his family from
the scheme, and if this happens "then the Participant and his family members shall not be entitled to whatever reimbursement, compensation or any other payment thereof".³

Under the Share System Agreement, the FELDA settler has become a wage earner who owns a share in a FELDA company — "FELDA Estate Corporation" — and like any shareholder in a company, he receives bonuses and dividends. The settler, to be sure, is not a shareholder in the ordinary sense of the word, in that he may participate in shareholder meetings, and vote on who should be on the company’s board of management. He is, instead, a shareholder in the agricultural land which the company owns and a part of which he works for his living.

Under the Share System Agreement, therefore, FELDA ceases to have a contract farming agreement with its settlers. Instead, it signs a working and "ownership" contract with its settlers using the schemes’ share "owners" as labour. This can be considered akin to that of a plantation agency managing a wage labour force. Agency bureaucracy, therefore, has emerged triumphant through the process of reducing the settlers from landowner to block-owner and finally to share-owing wage labourer. FELDA’s land settlements have become, under the share system, FELDA plantations, and guaranteed work has replaced the original objective of developing a land-owing democracy among rural peasants who were landless. It would be difficult to refute the settlers’ perception that under the Share System Agreement, they remain landless, the only difference now being that they each hold a sheet of paper on which appears their signature which tells them that they are "shareholders" of land which is no longer demarcated on the ground for each owner to behold as proof of having escaped the plight of landlessness.

Reaction to FELDA’s Changing Contracted Arrangements with Settlers

FELDA’s adoption in 1985 of the share system for its new schemes came in for immediate criticism which has continued until today, and has resulted in unprecedented unrest in the schemes, hitherto regarded as the outstanding success story of Malaysia’s rural development strategy.

Halim Salleh who undertook field work for his doctoral dissertation in the early 1980’s was one of the first to describe FELDA settler unrest which first began manifesting itself in the late 1970’s and early 1980’s (Halim Salleh, 1987: 459ff). He cited the failure of settlers to understand the legal provisions of the GSA (1960) regarding land ownership, the complexity of the income deduction schemes employed by FELDA, and the elaborate system of formal organisation and control over the settlers’ social life by the scheme management as causes for settler unrest. According to him, the settlers retaliated against FELDA by demanding the speedy implementation of the permanent block system, and
detaining officials in at least one scheme in Pahang (pp. 467-470). He even reported cases of settlers assaulting FELDA scheme personnel (pp. 470-473). Generally, however, Halim discovered that FELDA settlers engaged in more subtle non-violent retaliation such as selling their produce independently, organising strikes, and protesting through Malay political parties, both the ruling United Malay National Organisation (UMNO) and the opposition Parti Islam SeMalaysia (PAS). Finally, Halim concluded that the establishment of formal settler associations, especially in the early 1980's, allowed settlers to more formally put forward their grievances to FELDA (Halim Salleh, 1987: 489).

One of the most vocal of these settler associations was the Johore Settlers Association whose leadership came from the Taib Andak Scheme, one of the three schemes the present researchers studied in 1988. In 1983 that association sent a memorandum to the Minister of Land and Regional Development which stated among other things that FELDA is a land development agency and not a land owing agency. Hence it objected to FELDA controlling the land, and the extensive role played by the FELDA scheme manager in the activities of committees supposedly representing the settlers. The memorandum also suggested that FELDA should reduce its staff and supervisory role after implementation of the block system because block leaders elected from among the settlers themselves were capable of doing the job, and it requested that all FELDA scheme accounts ought to be certified and given to the settlers (Halim Salleh, 1987: 491-492).

FELDA's initial response to the setting up of these associations was hostile, and after the Minister publicly denounced them, FELDA took steps to discipline the association leadership, and sought to suppress the association to prevent it from spreading to land schemes outside Johor. Halim's conclusion was that,

"In the final analysis, it may be argued that FELDA tried to control if not abolish all formal channels of protest by settlers. To ensure that future settlers will be fully controlled, the Minister of Land and Rural Development announced that from 1984, settlers would not only be required to sign the Settler's Agreement binding them to FELDA but also to sign an oath of loyalty to FELDA before they are allowed to settle in a scheme" (Halim Salleh, 1987: 493-494).

The announcement that the share ownership system would be adopted in all FELDA schemes from 1985 only served to radicalise FELDA settler unrest which was based on the fear that such a scheme, especially if extended to FELDA schemes established earlier under which settlers were promised land ownership (be it individual or block), would result in FELDA settlers losing out on their most cherished and basic dream: to become land owners.

Starting in 1987, FELDA settler unrest began spilling out of the confines of individual schemes where they had hitherto been largely confined, and into the national area where the demands of the settlers were taken up and debated in the national media. In August 1987, some 234 FELDA settlers in Johor took
their FELDA management to court over their claim that FELDA prevented them from obtaining land title deeds. Days later, the National Association of Smallholders demanded that FELDA be scrapped and replaced by scheme-level co-operatives which would be set up and managed by the settlers themselves (New Straits Times, August 9, 1987). FELDA settlers all over the country quickly supported this call because, they said, FELDA did not protect the right of settlers.

FELDA must have been shocked when Malaysia's generally pro-Government press supported settler demands for a review of FELDA's role. And political opposition parties were quick to exploit this unrest in FELDA schemes, hitherto pro-Government bastions in the rural areas because they were projects heavily favoured by the Government for development assistance. By championing the cause of the settlers against the FELDA management, the opposition parties appeared to be making inroads which most especially alarmed the ruling United Malay National Organisation (UMNO), whose championing of the rural Malay population is the basis of its political supremacy.

The official history of FELDA commissioned on the occasion of the 10th anniversary of the Agency which was published in 1988 admitted that "despite the intensive information given the settlers, there is still some unhappiness with the adoption of the Share Ownership System" (Bahrin and Lee, 1988: 56). This book, however, was confident that "some unhappiness" was transitory, and that not only was the Share Ownership System the necessary step to take, but that "the task ahead is to change the ownership system of the older schemes in order to facilitate the creation of larger production units". Hence it supported the idea that share ownership of the settlers should be extended beyond the confines of the individual scheme to include all of FELDA's various corporations and joint-ventures (Bahrin and Lee, 1988: 232).

FELDA, however, failed to fully appreciate the depth of settler opposition to the share system and to FELDA's other practices which, in the eyes of the settlers, limited their freedom. Settler protest escalated, bringing mounting political pressure on the Malaysian Government which was forced in mid-April 1988 to review the structure of FELDA. "There are also weaknesses that must be overcome", said the Deputy Prime Minister, Abdul Ghafar Baba. "A review is inevitable if FELDA is to be effective". He continued: "The intention is to make FELDA more efficient, creating a more dynamic structure for the settlers": (New Straits Times, April 16, 1988). This announcement did not stop settler protests and pickets, and neither did an especially grand celebration of "Settlers' Day" in July 1988 on the theme "Settlers Unite, the Country Progresses" mollify settler unrest. Elsewhere fears mounted that settler unrest would contribute further to the disunity of the Malays.

Finally, the Government was forced to give in to the mounting pressure from FELDA settlers demanding individual titles and the scrapping of the share system. On October 30, 1988 the Deputy Prime Minister, Abdul Ghafar Baba
announced that the cabinet had decided that the issuing of shares to settlers would be scrapped, and in its place the original individual ownership scheme would be reinstated. Settlers would, therefore, be given their own land titles (New Straits Times, October 31, 1988). He, however, also said that several problems were bound to arise from the decision particularly maintaining settler land ownership production and marketing (The Star, October 31, 1988). Subsequently the Land Rural Development Ministry announced that individual titles would replace collective and share ownership titles but only after a survey “which would take time” had been carried out to determine which areas belong to which individual (The Star, November 3, 1988). The Deputy Minister of Land Rural Development, Datuk Khalid Yunus, said that in re-introducing the individual ownership system, FELDA would still be required to administer the land given to individual owners based on any agreement between the Agency and the settler. Further, the Government would continue to emphasize management, marketing and production aspects in FELDA schemes to ensure a high standard of living for the settlers (The Star, November 3, 1989).

At first glance, it would appear that FELDA had capitulated to the demands of its settlers, but the caution given by the Deputy Minister was the first indication that FELDA was contemplating using the Post-Title and other production agreements to ensure that it retained control over agricultural production. If this was to be the case, as shown above in the analysis of FELDA’s Post-Title and Block System Agreements, land ownership could in practice mean very little if all aspects of land use were still invested in FELDA’s hands.

Developments in 1989 — Coming Full Circle

In 1989 a series of announcements were made by FELDA through the press which could be interpreted as moving FELDA away from the spirit, if not, letter of the October 1988 announcement giving in to FELDA settler demands.

In January 1989, FELDA’s public relations officer announced that settlers under the share ownership system would only get their individual titles in 11-15 years’ time because they had first to pay off their $50,000 loan to FELDA. This had the effect of deflating settler euphoria about getting titles immediately. Next the Deputy Minister of Land and Rural Development announced that all settlers in a scheme would have to repay their loans before titles would be issued. He argued that “we do not want to burden the remaining settlers by forcing them to pay up faster when we know their income is low” (The Star, February 15, 1989). With more reports of settler unrest reported in the mass media, the Deputy Prime Minister told settlers in May 1989 to withdraw their threat to break away from FELDA and operate independently on their own. He promised that the Government was planning to review FELDA’s administration and role “to make it more
effective in serving the settlers” (*The Star*, May 6, 1989). He announced that he would call a special meeting of Menteris Besar and Chief Ministers to discuss how to improve the management of schemes under FELDA. The Deputy Minister of Land and Rural Development next warned that the plan to convert all FELDA schemes into ownership system “may run into some problems” because of fears that “the settlers may mortgage or sell the land once they get the titles (*The Star*, May 27, 1989). He said that “the plan could not be implemented until a way was found to prevent the sale and mortgaging FELDA land”.

In July, the Prime Minister himself announced that FELDA schemes would be “restructured” to make the agency “more economically and financially independent” (*The Star*, July 7, 1989). Taking the cue from this announcement, within one month FELDA had submitted a proposal to the Government that it be allowed to open up its “own plantations” to generate income and help it to stand on its own feet (*The Star*, August 7, 1989). Subsequently the Government announced that it was studying a new system of plantation management for FELDA. In early September 1989, the Deputy Prime Minister said that the Government was “still looking for the best system to allow FELDA settlers to own their land”, but he hastened to add that “the settlers can be assured that they will be given ownership” (*The Star*, September 11, 1989). This latest development clearly suggests that the Government was having second thoughts about the wisdom of its October 1988 announcement, and that it was casting around for a way to give the settlers what it had promised them, and at the same time take into account FELDA’s position which has all along been that tight control over the land planted with crops is vital if production is to be maximised.

In late September 1989, the new Minister for Land and Regional Development, Datuk Kasitah Gaddam, announced that “all new FELDA schemes to be set up from the beginning of next year” would be “run on a private basis”. Under this concept, FELDA would set up a company, and this company would develop the land and recruit “settlers” as workers who would receive monthly salaries. He further went on to say that in each project, the company and the workers would have an equal share in the equity, and that the workers would be paid annual dividends. He said that 80,000 hectares of land had been identified for development under the privatisation concept with about 15,000 potential “settlers” to be recruited (*New Straits Times*, September 27, 1989). From this announcement it would appear that the Government was in fact resurrecting almost in toto FELDA’s original share ownership scheme which many FELDA settlers condemned and rejected, and which the Government itself only eleven months had turned its back on.

Full circle was achieved in early October 1989 when the Parliamentary Secretary to the Land Regional Development Ministry told newsmen that FELDA’s proposed system to have private companies operating its new schemes
from next year may also be extended to its existing 455 schemes (The Star, October 5, 1989). He said,

"Settlers who joined under the new system will have to sign an agreement which does not allow them as shareholders to later change and adopt the old system, where they eventually get land titles. The benefits will be different in the new system where they will receive wages and dividends and bonuses unlike the old system where the settlers are paid according to the produce from their plots."

The privatisation plan was made official on October 26, 1989 when the Ministry’s Parliamentary Secretary formally announced it in the Lower House of Malaysia’s Parliament.

Although the final chapter to the Malaysian public contract farming experience has yet to be written at this stage, FELDA’s bureaucracy would appear to have won the day. Its argument that FELDA’s vast plantations cannot afford to be sub-divided into individual lots without loss of efficiency in production, transportation and marketing has won the key support of the politicians who this past year have sought to gingerly move back to the pre-October 1988 position without appearing to have abandoned FELDA’s settlers and their demands to abolish the much despised share ownership system. That system has now been reinstated. By announcing that all new FELDA schemes from 1990 onwards will be developed under this “privatisation” plan, and by suggesting that old FELDA schemes may also be incorporated into the new format, the Government has in effect abolished the individual and block format for FELDA’s new schemes, and thrown its full support behind the very scheme that thirty years of settler experience indicates is unacceptable to the landless peasantry who look to FELDA to provide them with the land they seek.

SOME PRELIMINARY CONCLUSIONS

On the basis of the case study and the findings of the general body of research work on FELDA schemes a number of preliminary conclusions can be drawn.

1. It can be said that the schemes have been successful for participating farmers. Over a period of 30 years, the schemes have successfully resettled a large number of landless and poor rural families and facilitated them engaging in what has so far proved to be profitable and sustainable agricultural production.

2. Perhaps the most important reason explaining the success of these land and agricultural development schemes is the strong and continuous support provided by the Government to FELDA, the agency set up to manage and administer the schemes. Right from the onset, FELDA received the full support of the Government and was provided with extraordinary resources to implement its various projects.
This support has never wavered during the last 30 years and, in fact, has become even stronger after 1969 when the implementation of a new national development policy, the New Economic Policy, saw greatly increased funds and emphasis given to the land schemes as a key component of the country’s rural modernization programme.

3. Whilst a degree of political interference has been found in various aspects of the schemes, notably in the selection of settlers and settler leaders, FELDA has been left a relatively unfettered hand in developing a professional centralized organisation and providing efficient management to attain its welfare and economic goals. Whilst the schemes have been able to reap important economies of scale under FELDA similar to those obtained by plantations, the important costs of scheme administration have been met by state subsidy.

4. Despite the large degree of agency control and centralization of management, the system of land development and organization of production in scheme areas has been able to undergo rapid modification over time to increase effectiveness. Early reliance on settler involvement during all stages of development and production has given way to a system with private contractor inputs in initial farm establishment and settler participation during the later stages. Crop choice, method of labour organization, payments and other important aspects have also undergone change to ensure the attainment of production goals whilst maintaining a degree of welfare concern.

5. For settlers, the schemes have produced improved incomes and higher standards of living based in part on the returns from their own efforts and in part from the subsidy provided by the state in respect of administrative and infrastructural development costs.

6. Over the long term settlers in oil palm schemes have benefitted more than their rubber growing counterparts because of the higher prices fetched by the former commodity. Both commodities, however, have been subject to sharp fluctuations in their price movements. Periods of low commodity prices and low returns have been cushioned by various measures designed to alleviate distress, the most important being a scheme providing for loans to ensure guaranteed minimal income levels. In-scheme income stabilization measures and access to outside income sources have successfully lessened the problems of dependence on a main export-oriented crop and its resulting vulnerability.

7. Apart from crop type, variations in settler incomes between and within schemes are dependent on size of holding, soil type, husbandry standards as well as factors such as access to off-farm income opportunities, etc. The impact of scheme income variation is discernible in the different lengths of time taken by settlers to repay loans.

8. At the same time tight management and favourable commodity prices have
helped produce a low turnover rate amongst settlers and a high repayment rate. For settlers who have successfully repaid their loans and FELDA, the Agency that has guided settlers to this successful outcome, a new relationship is emerging but it is not clear yet what its implications are. FELDA's original purpose was to provide land for the landless. After the settlement and development phase during which settlers pay back to FELDA the expenditures incurred on their behalf, FELDA has sought to extend its presence beyond this pay-back period in the form of Post-Title contractual agreements tying the farmer into FELDA's crop management, processing, marketing and replanting structures.

9. FELDA's very success in opening new land settlement schemes, and its concern for maintaining the highest standards of crop production efficiency as well as to achieve other economies of scale, prompted it to re-examine the fundamental issue of settler land ownership, first proposing the block (small group ownership) system and finally abandoning settler ownership of agricultural land lots altogether in preference for paying them wages and offering them ownership of shares (in the entire scheme). Rubber and oil palm, FELDA's staple crops, are essentially plantation crops best suited for group labour and share ownership. However, the traditional Malays' historical deep attachment to land and the sense of personal economic and social empowerment that it gives the individual, clashes with FELDA's enduring managerial perspective which supports greater bureaucratization and centralization. This has resulted in growing settler unrest since the mid-1980's as the two different world views of the settlers and of FELDA's bureaucracy came more and more into conflict.

Notes

1. In the Block System Rubber Agreement the supplementary Appendix "A" is signed after one calendar year after the whole scheme has begun to yield.

2. This is in lieu of the settler not being able to earn anything from his main crop which is being replanted.

3. A settler expelled under the Share System Agreement is pointedly denied compensation even for the house, a compensation which is provided for under the GSA (1960) which states:

"The Collector shall make a valuation of any dwelling house remaining on any land which has been re-entered in accordance with the provisions of Section 22 and shall pay as compensation to the former hold the amount of such valuation after deducting the cost of any material or other service supplied to the holder for the erection of such dwelling house and such sum for expense as the Collector, with the approval of the State Authority, shall fix" (GSA (1960), Section 23/3).

4. One FELDA settler leader was quoted in the press as saying, "FELDA was set up
to give land to the landless. Those of us who joined the scheme were given the idea that after paying off our debts to FELDA, the land would be ours. Now after paying off the debts and getting our land titles, FELDA wants us to sign away our land and to go into debt again. I believe in the individual’s right and as I see it, a cooperative to run the scheme is the only way we can protect this right" (The Star, August 10, 1987). Another settler was quoted in the same newspaper as claiming, "FELDA had promised as far back as 1975 during a settlers’ seminar in Kuala Lumpur to allow settlers to have a say in how a scheme is run, but till today they have not kept this promise. As settlers in the scheme for the past 20 years, we are better suited to running the scheme for ourselves. We can only fight FELDA by refusing to sign these forms."

5. One editor wrote: “FELDA has played nanny to the settlers for far too long. Now that they have ‘grown up’, they would like to make more decisions on their own instead of depending always on FELDA” (The Star, August 14, 1987).

6. Malay disunity has been a central theme in Malaysian politics since April 1987 when political in-fighting within the largest Malay-based political party, UMNO, escalated resulting in factionalism, and the resignation of some senior party and Malay community leaders. The FELDA settler unrest was to become embroiled in this UMNO in-fighting (Mingguan Kota, October 9, 1988; Far Eastern Economic Review, November 24, 1988).

7. Unrest was in various forms including demonstrations, detaining of scheme managers, claims that FELDA officials had not passed on settlers payments to state governments, and demands for settlers to review scheme accounts.

Bibliography


Glover, David, “A Comment on Transnational Corporations and Asymmetries in the Latin American Food System”. In Bulletin of Latin American Research,
New Straits Times, various issues.
The Star, various issues.
INTRODUCTION

Background

The sharp drop in oil prices in the mid-eighties severely impinged upon Indonesia's economy, leading to a growing concern over its ability to sustain the development momentum built over the previous two decades. With a strong commitment to rural development, the government had successfully rehabilitated its plantations, improved rural infrastructure and launched a host of projects aimed at raising the incomes of the most resource-poor households.

The government is encouraging the private sector to bridge the budgetary gap by participating in rural development, preferably in the state-initiated core-satellite schemes. Such schemes, aimed at developing the smallholding sector by harnessing plantation technologies and managerial expertise, have already met with considerable success in their initial stages.

It appeared very timely to study existing schemes in an attempt to devise feasible models for large-scale private emulation. Two industries seemed most appropriate for this kind of study: rubber, as it is one of the most important traditional export crops, and dairying, since milk products comprise the most rapidly rising agricultural import.

Dairy Industry

Dairying had been one of the most neglected sub-sectors prior to the seventies. A major reversal in government policies has resulted in the large-scale imports of highly productive breeds, and their distribution on credit to thousands of farmers. Schemes have been set up with private enterprises chanelling the credit, providing technical assistance, and marketing all farmer's produce. The government has also implemented policies to ensure that local milk-
Table 4.1  

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<td>1.</td>
<td>Population of Cows</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td>2.</td>
<td>Milk Production</td>
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<td>117.6</td>
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<td>178.5</td>
<td>191.9</td>
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<td>192.7</td>
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<td>- Sold to Milk Processing Industry</td>
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<td>22.8</td>
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<td>15.7</td>
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<td>28.9</td>
<td>39.1</td>
<td>34.2</td>
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<td>4.</td>
<td>Domestic Production (Value)</td>
<td>US$ million</td>
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<td>0.3</td>
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<td>3.0</td>
<td>8.4</td>
<td>9.5</td>
<td>14.3</td>
<td>16.5</td>
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<td>Imported Milk (Volume)</td>
<td>'000 tonnes</td>
<td></td>
<td>440.3</td>
<td>474.2</td>
<td>594.3</td>
<td>521.1</td>
<td>536.0</td>
<td>529.8</td>
<td>533.5</td>
<td>521.5</td>
<td>473.0</td>
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<td>Imported Milk (Value)</td>
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<td>85.4</td>
<td>69.0</td>
<td>90.7</td>
<td>69.5</td>
<td>64.8</td>
<td>56.3</td>
<td>53.4</td>
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<td>Milk Consumption:</td>
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</tr>
<tr>
<td></td>
<td>- Total</td>
<td>'000 tonnes</td>
<td></td>
<td>457.3</td>
<td>499.0</td>
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<td>626.2</td>
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<td></td>
<td>- Per Capita</td>
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<td>3.31</td>
<td>3.41</td>
<td>3.88</td>
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<td>8.</td>
<td>Domestic-Import Ratio</td>
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<td>1:25</td>
<td>1:20</td>
<td>1:15</td>
<td>1:8</td>
<td>1:6</td>
<td>1:4.6</td>
<td>1:3.4</td>
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<td>1:2.5</td>
<td>1:2.2</td>
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<td>9.</td>
<td>Value of Milk</td>
<td>Rp. billion</td>
<td></td>
<td>0.7</td>
<td>2.2</td>
<td>5.4</td>
<td>12.4</td>
<td>18.4</td>
<td>28.6</td>
<td>41.5</td>
<td>44.5</td>
<td>45.3</td>
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<td>10.</td>
<td>Value of Cows</td>
<td>Rp. billion</td>
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<td>28.0</td>
<td>29.0</td>
<td>31.0</td>
<td>44.0</td>
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<td>75.0</td>
<td>80.0</td>
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<td>11.</td>
<td>Total Dairy Farmer</td>
<td>'000 person</td>
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<td>48.6</td>
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<td>67.9</td>
<td>73.9</td>
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<td>12.</td>
<td>Cooperative Members</td>
<td>'000 person</td>
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<td>2.8</td>
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<td>12.8</td>
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<td>Number of Cooperatives</td>
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<td>11</td>
<td>32</td>
<td>63</td>
<td>113</td>
<td>162</td>
<td>173</td>
<td>173</td>
<td>173</td>
<td>173</td>
<td>181</td>
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<td>14.</td>
<td>Fresh Milk Prices</td>
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<tr>
<td></td>
<td>- Processor Prices (IPS)</td>
<td>Rp.</td>
<td>90.0</td>
<td>175.0</td>
<td>220.0</td>
<td>265.0</td>
<td>290.0</td>
<td>315.0</td>
<td>320.0</td>
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<td>350.0</td>
<td>390.0</td>
<td>400.0</td>
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<td></td>
<td>- Farm Gate</td>
<td></td>
<td>60.0</td>
<td>150.0</td>
<td>180.0</td>
<td>190.0</td>
<td>235.0</td>
<td>260.0</td>
<td>265.0</td>
<td>290.0</td>
<td>290.0</td>
<td>330.0</td>
<td>340.0</td>
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<tr>
<td></td>
<td>- Import</td>
<td></td>
<td>35.0</td>
<td>95.0</td>
<td>105.0</td>
<td>152.0</td>
<td>152.0</td>
<td>152.0</td>
<td>150.0</td>
<td>150.0</td>
<td>170.0</td>
<td>221.0</td>
<td>330.0</td>
</tr>
</tbody>
</table>

Source: Directorate General of Livestock, Ministry of Agriculture.
processing industries absorb increasing amount of fresh milk (*pari passu*) with the growth of the national dairy industry.

The Indonesian dairy industry is currently growing at 12.5 per cent annually; however a larger share (60 per cent) of current domestic needs is still being met through import. In 1984, Indonesian milk supply was 712,000 tonnes comprising 178,500 tonnes (25 per cent) of domestically produced milk and 533,500 tonnes (75 per cent) of imported milk. In 1987, the domestic consumption was 658,200 tonnes; around 234,900 tonnes (34.1 per cent) were produced domestically and around 452,600 tonnes were imported, as shown in Table 4.1.

Despite such rapid growth, the industry has remained small. In the early 1970s there were 60,000 dairy cattle with an average annual production of less than 500 litres per head. By 1980, with imports and distribution of some 15,000 heads of Friesians to small farmers, the size of Indonesia's dairy herd had grown to approximately 100,000 heads. If one assumes that lactating cows represent forty per cent of the national herd, this represents a growth in production per lactating cow per year from 1,250 to 1,875 litres.

During Pelita III, domestic milk production grew at a relatively high rate of 18.6 per cent per year. Domestic milk production declined slightly during Pelita IV when annual average growth was reported to be only 8.47 per cent. The level of production was still far below domestic demand, especially for processing. More than half of the milk supply used by the milk processing enterprises was still being imported.

A pressing problem currently facing the government is the huge gap between supply and demand of milk and milk products. In addition, in densely populated regions, the lack of grazing area is evolving into a major problem. To overcome these problems, the government has launched several policies to improve the development of livestock, such as the establishment of the National Association of Dairy Cooperatives (GKSI).

The major milk production areas are located in West Java (Bandung and Pengalengan), Central Java (Semarang and Boyolali), and East Java (Malang and Pasuruan). These three areas are considered to be the "Milk Belt" of Indonesia. In 1987, these three areas contributed 90.8 per cent of the total Indonesian milk production. The respective production shares of these areas can be found in Table 4.2.

From the above data it is evident that East Java is the largest producer of Indonesian milk with a share of 34.2 per cent, West Java produces 31.2 per cent, while Central Java supplies 25.4 per cent.

*Government Dairy Development Policy*

Dairy development policies aimed at organising the dairy smallholders have been implemented in Indonesia since 1948 with the formation of Dairy Co-
Table 4.2
Indonesian Milk Production in Several Major Producing Areas, 1983-1987 ('000 tonnes)

<table>
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</thead>
<tbody>
<tr>
<td>West Java</td>
<td>31.7</td>
<td>50.4</td>
<td>55.5</td>
<td>55.9</td>
<td>70.9</td>
</tr>
<tr>
<td>Central Java</td>
<td>32.3</td>
<td>35.2</td>
<td>43.3</td>
<td>50.4</td>
<td>57.6</td>
</tr>
<tr>
<td>East Java</td>
<td>52.8</td>
<td>76.9</td>
<td>74.7</td>
<td>76.4</td>
<td>77.8</td>
</tr>
<tr>
<td>Other Province</td>
<td>26.1</td>
<td>16.3</td>
<td>18.4</td>
<td>18.5</td>
<td>20.9</td>
</tr>
<tr>
<td>Indonesia</td>
<td>142.9</td>
<td>178.5</td>
<td>191.9</td>
<td>204.8</td>
<td>227.2</td>
</tr>
</tbody>
</table>

operatives. The 1948-1960 period witnessed a great deal of progress in the dairying industry in Indonesia. The role of milk cooperatives was firmly established and a large number of cooperatives were founded in the fresh milk production regions such as Pengalengan, Garut (West Java), Pujon (East Java), Ungaran, Boyolali, and Grati (Central Java). However, between 1960 to 1968, the prominence of the milk cooperatives declined.

In 1969, at the beginning of Pelita I, the smallholders with the help and guidance of the government revived a number of cooperatives. However, they were unable to compete with the IPS (Milk Processing Enterprise) which grew very rapidly. The cooperatives became almost defunct between 1969-78 as milk factories grew in number and milk powder imports escalated dramatically.

The five most important government policies to promote the dairy industry are:

1. The introduction of an import quota scheme aimed at fifty per cent self-sufficiency in dairy products by the end of Repelita IV. This guarantees a ready market for domestic milk and milk products as import quota entitlements are tied to the level of milk supply purchased from domestic producers. The ratio was set at 8:1 for 1980 but reduced to 1:1 by 1988.

2. Government regulation of minimum farm gate prices which rose from Rp.60 per litre in 1978 to Rp.255 per litre in 1984, while imported milk cost around Rp.150 per litre. The government has also imposed a 25 per cent ad valorem levy on imported milk which nets annual revenue of around US$19 million.

3. Government importation of Friesian cattle from Australia and New Zealand for distribution to smallholders via the cooperative movement. The dairy cattle are allocated primarily to smallholders who are also given credit to cover the price of the cows, start-up costs, purchased feed, and sundry expenses. Between 1979 and 1988, an estimated 140,000 cows were
imported and distributed in 70,000 dairy credit packages. Total credit extended to farmers amounted to Rp.90 billion (i.e. approximately $105 million). However, the cost to the Government of Indonesia was much higher. Between 1978-83, Indonesia imported about 67,000 dairy cattle from Australia and New Zealand, at an average cost of $332 (Australia, DPI 1984) per head. A comparison of these data with the numbers delivered from Australia to the cooperatives for distribution between 1978 and 1983 indicates losses due to mortality of almost 11,000 animals, or one-third of those despatched from Australia. As a result of these losses, average cost of dairy cattle purchased from Australia came up to $468 per head.

4. Provision of a comprehensive artificial insemination (AI) service based on imported progeny tested bulls, mainly from New Zealand. The AI system is provided virtually free to the farmers, although they are expected to pay a small gratuity to the AI technician. The number of cows that are not serviced by the AI system in Indonesia appears to be extremely small. A comprehensive veterinary and extension services are also provided free of charge.

5. Public investment in bulk milk collection testing, cooling, pasteurisation, storage, packaging, distribution and processing in order to secure farmers a market for their milk at guaranteed minimum prices.

The most recent policy affecting the dairy industry is the Dairy NES system, which takes the form of a loan package with completely different characteristics compared to other loans.

**Rubber Industry**

The natural rubber industry has been a major revenue earner for decades. Rubber is spread over a wide geographical area, and provides a major means of livelihood for more than ten million rural inhabitants. But deterioration in the terms of trade has discouraged the erstwhile progressive farmers from replanting their ageing stands with high-yielding clones, while governmental assistance rendered to date has only reached a mere twenty per cent of rubber plantations. A host of schemes have been initiated over the last ten years, with mixed results. Nucleus Estate and Smallholders (with large plantations serving as cores) have fared quite well, but a number of other schemes have not been as successful. The search for alternative strategies continues, as millions of rubber smallholders with ageing stands remain virtually entrapped within the vicious cycle of low productivity — inadequate returns amidst depressed rubber prices — no replanting — declining productivity as stands age further. For years rubber has been one of the main foreign exchange earners in Indonesia. It has also been the source of income for millions of small farmers in several regions. Traditionally, Sumatera and Java have been the main production areas.
In 1987, rubber contributed 47.31 per cent of the agricultural export revenue. At the end of Pelita IV (The Fourth Five Year Development Plan), it covered 30.06 per cent of the estimated 10,008,000 hectares under major crops, of which 79.87 per cent were smallholdings. Rubber production now fluctuates at around 1,132,000 tonnes per year of which some 50,000 tonnes are consumed locally and the rest exported. It provides income for over 12 million smallholders with holdings predominantly in the range of 1 to 3 ha. Large government estates comprise around 0.3 million hectares, while private estates account for some 0.2 million hectares.

Very little input is used by most of the smallholders. Traditionally, the farmers have been shifting cultivators, clearing tracts of forest for food crops and intercropping rubber seedlings in the second or third year in order to establish possession of the land. They planted unselected seedlings, did not apply any fertilizer and practised no weed control. Consequently both girth development and yields have been poor. There has been no discernible progress in their way of production method over the last two decades and their productivity has remained consistently below that of both government and private estates, as shown in Table 4.3.

The low level of productivity of smallholders stands is attributed to a number of factors including poor stand maintenance, ageing stands due to smallholder replanting incapability, etc. This situation has prompted the Government of

<table>
<thead>
<tr>
<th>Year</th>
<th>Smallholder</th>
<th>PTP</th>
<th>Private</th>
<th>Average</th>
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<tr>
<td>1965</td>
<td>613</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>508</td>
<td>965</td>
<td>660</td>
<td>711</td>
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<tr>
<td>1975</td>
<td>500</td>
<td>1,100</td>
<td>715</td>
<td>785</td>
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<tr>
<td>1980</td>
<td>523</td>
<td>1,234</td>
<td>813</td>
<td>857</td>
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<tr>
<td>1985</td>
<td>512</td>
<td>1,319</td>
<td>884</td>
<td>905</td>
</tr>
<tr>
<td>1986</td>
<td>525</td>
<td>1,232</td>
<td>1,132</td>
<td>963</td>
</tr>
<tr>
<td>1987</td>
<td>544</td>
<td>1,180</td>
<td>950</td>
<td>891</td>
</tr>
<tr>
<td>1988</td>
<td>595</td>
<td>1,260</td>
<td>1,058</td>
<td>971</td>
</tr>
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</table>

Source: Directorate General for Estate Crop, Ministry of Agriculture.
Indonesia to implement a host of policies and programs to increase smallholders’ income as depicted in Table 4.4.

**Rubber Development Programs**

In order to promote national rubber production the government has implemented various policies in the past. Basically, there are four policies and programmes that have been introduced since 1978, namely:

1. **Nucleus Estate and Smallholder Schemes**: These projects have absorbed a substantial amount of investment from both local and external sources. Under these schemes, one of the publicly-owned estate companies is made responsible for the planting and subsequent management both of a nucleus area which it operates as part of its own commercial undertakings, and a surrounding smallholder area. Smallholders, who acquire land rights upon maturity of rubber trees are supervised closely by the nucleus estate which also assumes responsibility for the processing and marketing of smallholders’ produce.

2. **Project Management Unit**: These are projects in which loans are provided to smallholders to cover the cost of planting with improved hybrids, and for clearing and maintaining the land until the rubber trees reach maturity. In addition to this financial assistance, the smallholders are also provided with technical supervision.

3. **The Self Support Scheme**: This scheme aims at developing the rubber smallholdings sector through self-help approach. Government assistance under the scheme is very limited, entailing only the provision of seeds, extension, and the establishment of sample plots.

4. **The National Private Estate Scheme**: The development of large plantations is affected through the Large National Private Estate Scheme. Under the scheme, the government provides investment loans to large plantations at subsidized interest and on easy repayment terms. Foreign private entities are also invited to joint-venture with national private companies.

These four schemes combined addresses the diversified needs of all forms of farming organizations, opens opportunities for the participation of the various segments of the population, and reaches all regions.

**Objectives**

This study attempts to assess the distribution of costs and benefits between the parties engaged in various types of relationships loosely defined as contract farming — somewhere along Glover’s market-hierarchy continuum, and gauge the agricultural (and rural) development potential of such forms of contract farming.
<table>
<thead>
<tr>
<th>Policy</th>
<th>Description</th>
<th>Objectives</th>
<th>Target</th>
<th>Year</th>
<th>Funding</th>
<th>According to source of funds</th>
</tr>
</thead>
</table>
| I. NES System          | National estate as nucleus guides smallholders surrounding it in mutual beneficial manner | - To form plantation society consists of integrated farming  
- To increase participant farmer's income  
- To increase export volume, value and employment | The participants are expected to be able to use technology which will be beneficial to group as well as to individual | 1977 | Non Credit Funds provided by the government for survey, feasibility study and others  
- Participants Local Farmers | - Main plant (ha)  
- Food crop area (ha)  
- Yard land (ha)  
- Participants: Local Farmers  
- House: Around existing plantation  
- Location: New opening  
- Source of funds: Self-finance | Exist  
- Other: Local farmers  
- SCDP funds from abroad  
- SRDP funds from abroad  
- P3R5 funds from abroad |
| II. UPP System         | One way access the existing plantations scattered in different locations | To form private, well-off plantation society without harming the environment | The farmers are directed to be able to organize themselves into farmer groups | 1977 | Funds from domestic and foreign sources | | Exist  
- Other: Foreign loan |
| III. Self Support System | A system to improve the existing smallholders to increase their productivity | To improve income and its distribution | The areas outside UPP and NES Systems | | Own funds | | |
| IV. Large Private National Estate Plantations System | A system to promote investment in plantation | Full utilization of the existing plant and land | The expansion of plantation to the surrounding area to achieve the minimum scale | | Investment credit and operating capital credit are provided | | |

Source: Directorate General of Estate Crops, Ministry of Agriculture.
Methodology

North and South Sumatera were chosen for this study. These two major rubber producing regions encompass all types of existing farmer-processor arrangements, ranging from firmly-established government-owned estates to independent smallholders barely eking out subsistence on their tiny rubber plots. Study sites included:

1. The Nucleus Estate and Smallholders I at Alue Iemrah, Aceh, on the border of North Sumatera,
2. The former North Sumatera Smallholder Development Project at Aek Nabara, North Sumatera,
3. Independent smallholders in the vicinity,
4. Government Estates V (at Sungei Karang) and IV (at Pabatu), North Sumatera,
5. The NES-I at Tabenan, South Sumatera,
6. The Smallholder Rubber Development Project at Prabumulih, South Sumatera,
7. The former PRPTE at Aek Molek, South Sumatera, and
8. Independent smallholders in the vicinity.

Besides these, the independent farmers and milk factories in East and West Java as well as the core-satellite project at Boyolali in Central Java were studied. Boyolali is the site of the major dairy project in Indonesia. Central processing plants here, however, also draw their fresh milk supply from farmers in East and West Java.

Primary data were collected through questionnaire survey. In West Java, which is the second largest milk producing region in Indonesia, eighteen farmers located within the (IPS) area, three Village Unit Cooperatives (KUD), one Milk Treatment and two IPS were selected. In Central Java, respondents were limited to those participating in the existing NES dairy system. This included 15 participating dairy farmers and 2 cooperatives, (PT. Nandi Amerta Agung (NAA) as the nucleus, and PT. Tirta Amerta Agung (TAA) as the IPS). All of the above respondents were located in the Boyolali and Semarang districts. In East Java which is the largest milk producing region, 15 farmers, 2 cooperatives, 2 intermediate traders and 2 IPS from Pasuran and Malang — the two major producing districts — were selected.

CONTRACT FARMING IN INDONESIA

Dairy Contract Farming

Development Programs Prior to the NES Scheme

Prior to the introduction of the Nucleus Estate scheme — which is one variant of contract farming — several programs had been implemented by the govern-
ment to improve the well being of the dairy farmers. These programs were mainly
credit programs that enabled the farmers to enhance the number and the quality
of their herds. Among these programmes were the Cooperative Cattle Program,
the Dairy Development Program (PUSP), and the Presidential Aid (Banpres) cattle
program.

The Cooperative Cattle Program

Through this program, each member of the local dairy cooperative receives
one heifer, with the cooperative acting as the guarantor. Prior to acquiring this
package, however, the respective farmer has to satisfy several criteria, namely,

— he has to be a bonafide dairy farmer
— owns at least 300 square metres of land
— lives or works close to the cooperative
— is registered as a member of the cooperative.

Each credit is given individually. Upon requests from its members, the
cooperative contacts the Indonesian Milk Cooperative Association (GKSI) which
in turn forwards it to the Minister of Cooperatives. Only after the minister has
approved the requests can the provision of the cows be realized.

Repayment of the credit is in kind and is calculated at three litres of milk
per day during the lactation period for seven consecutive years.

The cooperatives play a major role in providing various services to the
program participants, such as feed, immunization, artificial insemination, and
other related services. The cooperative also serves as a collection unit, by
providing collection tank vehicles which collect fresh milk at the farm gate, and
later stores it in cooling tanks. The quality of the milk is tested for its fat and
other contents prior to collection and again in the cooling unit. Marketing of
the produce is also handled by the cooperatives.

The Dairy Development (PUSP) Program

Through this program Dinas Peternakan loans cows to farmers who
requested for them. Each farmer can loan from two to a maximum of ten cows,
depending on the collateral he puts forward. Such collateral has to be in the
form of land certificates or the model C title to land.

In this case, the role of the cooperative is to handle the loan and ensure that
it is repaid by recipient members.

The Presidential Aid (Banpres) Program

This program is very much like the PUSP program except that it does not
require any collateral.
The Dairy Nucleus Estate System

The main feature of this scheme is that the nucleus firm owns part of the production area with the rest being owned and operated by small-scale dairy farmers. This scheme had earlier been successfully implemented for rubber planting. The plan for the formation of the dairy NES was conceived in 1986 although it was only implemented in 1988 with the appointment of PT. NAA as the nucleus. The participants are members of the KUD in the surrounding areas.

The decision to adopt contract farming in milk production came about due to the overproduction of milk in 1985, especially in the Boyolali area. The excess supply was dumped into the river because the existing milk processing plants could not absorb all smallholders' produce.

Several objectives were spelt out when the NES scheme in dairying was adopted, namely,

a. To improve and to promote better income distribution and employment opportunities for the dairy smallholders.
b. To increase domestic production capacity to satisfy the raw materials needs of the domestic dairy industry to allow for optimization of investment.
c. To eliminate the dependency on imported milk and to save foreign exchange.
d. To participate in the development of local economy without endangering the environment.

The preparation for the dairy NES began in February 1987, when location selection, cattle selection, livestock shipping, building of barns, construction of service facilities, instructor's training, farmers' training, and other related activities began. The first delivery was realized in January 1988, and every month thereafter until November 1988. By the time this study was conducted as many as 5,720 cows had been delivered. The remaining 9,080 heads were expected to be delivered at the end of 1989.

The Nature of The System

The dairy NES is specially designed as a joint-enterprise between the nuclei and the smallholders in performing agro-business functions ranging from providing production inputs to processing and marketing. In general, the provision of production inputs and the marketing of produce are carried out by the nuclei, while the smallholders assume responsibility for husbandry. The nuclei, however, manages a number of cattle as “parent stock” in addition to providing livestock directly to farmers. This is undertaken to enable it to continually provide high yielding breeds to the small dairy farmers.

The farmers are chosen following consultations among the core enterprise, rural leaders, local livestock agents, and the local government. According to the
technical guidelines, the selection is based on whether the farmer has joined the
KUD or not, in addition to the following criteria, namely:

1. Owns adequate land
2. Owns a relatively good barn
3. Access to adequate supply of water
4. Willingness to follow the guidelines laid down by the nucleus in raising their
cows
5. Willingness to return the cow received in case of inability to continue with
the program.

The participants have to take care of their livestock on their own, and only
under special circumstances can they be replaced by their family members, their
children or wives. To facilitate their job, the farmers are encouraged to form
groups, each consisting of ten farmers headed by one person chosen by the
members. They can then take turns in looking after their cattle.

In reality, however, the selection of the participants is not strictly based on
these criteria. The farmers selected are mainly those who live around the nuclei
regardless of whether they satisfy the criteria or not.

The nuclei and the dairy farmers enter into a contract stipulating the loan to
be received by the smallholders. This contract specifies, *inter alia*, the obligations
of each party, the amount of credit delivered, and the method of repayment.

It has long been the policy of the Indonesian government to promote farmers' cooperatives in the country. Under the NES scheme, farmers' cooperatives are
assigned an intermediary role between the smallholders and the nuclei. They
are expected to evolve eventually into an agent delivering all production inputs
and other supporting facilities. In the mean time, however, servicing units take
charge of these activities and will do so until the cooperative have the capacity
to do so.

A supposedly mutually beneficial contract is signed between the cooperative
and the nuclei. The nuclei help the cooperative to improve its management
capability while the cooperative looks after the loan, and to make sure that the
smallholders abide by the agreement that they have signed. In the long run, the
cooperative is expected to take over the role of the service unit, and becomes an
active participant in the NES scheme.

*The Responsibilities of Parties Involved*

As explained above, there are three parties involved in the dairy NES scheme,
namely, the smallholders (dairy farmers), the cooperative, and the nuclei, each
with its own responsibilities.

The role of the cooperatives are as follows:

1. Selecting prospective participants.
2. Facilitating smooth cooperation between the smallholders and the nuclei.

3. Providing extension services.

The role of the nuclei in the scheme range from the provision of various inputs to the marketing of the farmers' produce.

The nuclei provide the cows needed by the farmers to start off their business. So far 20,000 heads of cows (planned) have been imported for this purpose. Of these, 14,800 heads (24 per cent) were delivered to the farmers on credit, 3,800 heads (19 per cent) were kept and managed by the nucleus, and 1,400 heads were kept as reserve in case of death or infertility.

Other services provided by the nuclei are the provision of cattle feed. The nuclei provide both concentrated feed and complete feed. These are provided by the Cattle Feed Unit which is part of the Service Unit. It also provides other inputs, such as vaccination, and milk cans.

The nuclei also provide technical services, such as artificial insemination (AI), infertility examinations, and other health examinations. Training in production techniques and farm management is also provided. Marketing of milk produce, and other products such as male calves, culled females and others is carried out by the nuclei as well. The requisite facilities are built at each supporting unit.

The interaction between the participating parties under Dairy-NES scheme is shown in Figure 4.1.

Rubber Contract Farming

When the pioneer smallholder tree-crop development project in North Sumatra met with very enthusiastic smallholder response, the government — with the full support of the World Bank — launched a new scheme utilizing the technical and managerial expertise of the state-owned plantations to promote smallholder development.

A formula which would enable the state-owned plantations and smallholders to cooperate in a symbiotic relationship was designed, and aptly named the Nucleus Estate and Smallholders concept.

At the operational level, the state-owned plantations are assigned as contracting managers to coordinate the development of physical infrastructure in the new regions designated as NES sites, and to construct housing for the smallholders who have to relocate to the projects. The establishment of the stands itself is undertaken by the household labour of the would-be participants themselves, who are paid daily wages and expected to acquire knowledge on the intricacies of rubber cultivation during the long gestation period. The plantations also establish their own stands in similar fashion and set up central processing facilities.

The smallholders are provided credit at twelve per cent interest, which is repayable over twenty one years, including six years of grace period. A flexible
Figure 4.1
Nucleus — Dairy Farmer Cooperation

<table>
<thead>
<tr>
<th>Cooperation</th>
<th>Production Support</th>
<th>Agribusiness Function</th>
<th>Marketing</th>
</tr>
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<td><strong>Core: PT NAA</strong></td>
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<tr>
<td>- PT Mantrust 55%</td>
<td>Direct to farmers:</td>
<td>Credit Packet</td>
<td>Feeding &amp; processing industry</td>
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<td>- GKS 2%</td>
<td>14,800 heads (74%)</td>
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<td>Domestic market &amp; export</td>
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<td>- L o 1 25%</td>
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<td>(1)</td>
<td>New credit for the farmer</td>
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<td>(2)</td>
<td>Processor (PT TAR)</td>
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<td>Cattle import</td>
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<td>From USA</td>
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<td>- 20,000 heads</td>
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<td>- Step 1:5,000 heads</td>
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<td>Indirect:</td>
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<td>- 3,800 heads (19%)</td>
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<td>for breeding</td>
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<td>- 1,400 heads (74%)</td>
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<td>Breeding &amp; Stock Farm</td>
<td>Fresh milk</td>
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<td>Cattle</td>
<td>Cattle</td>
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<td>Collection of milk</td>
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</table>

**Plasm:**
- Farmers — joint in the KUD (Cooperative)

Production:
- Fresh milk
- Young Cattle (female)
- Young Cattle (male)

Note: Core activities — (1) importing cattle, (2) feed factory, (3) breeding & stock farm, (4) milk marketing, (5) feeding & processing.
cost-recovery schedule is adopted, with smallholder repayments being made in kind. The nuclei ensure that the smallholders receive at least seventy per cent of the prevailing FOB prices.

There are two basic contracts, one between the government and the plantation group acting as a nuclei; while the other binds the individual smallholders and the nuclei. Of prime concern is the phase known as "post-conversion" period, whence the smallholder has retained full title, and control, over his stand. At conversion, the smallholder assumes full responsibility for his loan, which includes the cost of establishing his stand, and the construction of his dwelling. Land is provided free. The smallholders are expected to sell all their rubber to the nuclei, in order to maintain the economic viability of processing facilities set up specifically for their schemes. It also serves to minimize credit-recovery problems.

One of the major problems has been the difficulties in coordinating the activities of different agencies. Even though a Presidential Decision laying down operational guidelines was issued in 1986 over and above the earlier regulations, coordinating problems still exist. Less than 70,000 households had been settled on all types of NES schemes by 1987, way below the targetted figure.

**The Rubber-NES System**

The NES system is a government effort to develop small holdings in new areas. Several Government Estates (PTP'S) are selected and appointed as nuclei. These nucleus are responsible for the opening up of new areas and establishing new stands in these areas. These newly developed areas are subsequently later on transferred to the smallholders. Besides establishing new stands, the nucleus act as an agent of development as well, by transferring rubber cultivation technology and providing inputs for the processing and marketing of smallholders' produce.

The system was initiated in 1977 with the establishment of NES I in East Aceh and Tebenan, South Sumatra. During the third Pelita, the NES system developed 128,451 hectares of smallholdings and 79,924 hectares of nucleus stands involving 64,457 households comprising both transmigrants and local farmers.

Currently there are three types of NES, namely, local, special, and subsidized NES. There are no significant differences between these three except in terms of the participants of each. The latter two involved the opening up of new areas and are targeted mainly towards transmigrants. The first type caters to farm households in the vicinity of existing plantations.

**The Role of The Smallholders**

The main objective of the scheme is to increase the income of smallholders through the establishment and ownership of viable rubber stands. Participants are selected based on the type of project. In the case of local NES, farm house-.
holds in the vicinity of the nuclei's plantations are selected; for the special NES the participants are transmigrants; and for the subsidized scheme, the participants are both locals and transmigrants.

All costs incurred in land-clearing, planting and cultivation becomes the responsibility of the farmers. They are expected to be able to start repayment in the eight year and complete repayment by the twentieth year. During the first three years, farmers are trained on all technicalities of rubber cultivation. The fourth year is the conversion period, when the farmers assume ownership of their stands.

The rate of interest charged is 10.5 per cent in real term; however, part of it is borne by the government. Interest in the first and second years is totally borne by the government. In the third year, six per cent is charged to the farmers and the remaining 4.5 per cent is borne by the government. From the fourth year on the interest is borne fully by the farmers.

*The Marketing of Produce*

The farmers are formed into groups. These groups are in turn organised into Unit Usaha Perkebunan (UUP), which plays a role similar to the KUD, i.e. in providing production facilities and marketing of members' produce. It is anticipated that this UUP will grow to become a KUD in that area, meeting all requirements of the immediate community.

The interaction between the participating parties under NES scheme is illustrated in Figure 4.2.

---

**Figure 4.2**

Supply of Input, Rubber Production, Processing and Credit Repayment

![Diagram](source)

Source: Directorate General of Estate Crops, Ministry of Agriculture.

Note: ___________ commodity flow ___________ flow of fund

__ __ __ flow of factors _______________ flow of document
The farmers deliver their produce to the UUP for delivery to the nuclei. At the same time the UUP reports the transaction to the Lending Bank. The nuclei pay through the Bank after discounting all processing costs. The Bank then automatically deducts credit repayment, and pays the remaining sum to the UUP which then conveys it to the farmers through the farmer groups.

The scheme is expected to help the farmers in marketing their produce by procuring better prices as a result of more efficient marketing. The role of the middlemen is thus eliminated as the nucleus buy all farmers' produce at pre-determined prices. The marketing channel for the farmers' produce under this scheme can be seen in Figure 4.3. The marketing channel for non-NES produce is shown in Figure 4.4 as comparison.

Comparing the two figures, it is clear that the marketing chain under the NES scheme is shorter than the one outside the NES scheme. The produce can reach the final market, either domestic or foreign, in two steps under the former scheme, while in the latter case it requires several additional steps. In short, the marketing system outside the NES scheme is complicated and the chain is long; as a consequence, the share received by the farmers is much smaller.

Figure 4.3
The Marketing Channel of Rubber under the NES Scheme

Source: Primary Data
AN ANALYSIS OF THE IMPACTS OF THE CONTRACT FARMING SCHEME.

Dairy

Participation in the dairy contract farming scheme guarantees the farmers a minimum income of Rp. 1,000 per head per day as a result of the imposition of a guaranteed minimum price of Rp. 250 per litre of milk with a minimum fat content of three per cent. The farmers are protected against various risks, including the death of their cattle irrespective of the causes, infertility, and actual production falling below planned levels. The marketing of produce is guaranteed, since the nuclei are in a position to buy whatever quantities the farmers manage to produce.

In addition to all the above benefits, the participating farmers benefit through the ready availability of other supporting facilities. The nuclei provide all inputs and facilities required by the farmers for proper husbandry.

However, the scheme does not help the farmers too much in terms of improving their income. In reality, the income of the participant farmers is not significantly higher than those who do not participate. This is because the non-participants can earn extra income through part-time off-farm activities which the scheme participants could not because raising cows is labour-intensive and generally takes up all their time.
Comparison between the Dairy NES and Non-NES Systems

Credit

Non-NES

Until the end of 1988, credit channelled to farmers both through cooperatives or PUSP Credit amounted to 35,000 heads valued at Rp. 25 billion. At the time of the study, nearly 50 per cent of the loans were in arrears.

NES

Until December 1988, the Dairy NES had just reached 1,000 farmers in Semarang and Boyolali with a total credit of 5,720 milch cows, below the initial target.

According to the Dairy NES plans, each credit package is valued at Rp. 2,325,000. This consists of: (1) one cow aged 22-24 months (5 months pregnant) priced at Rp. 2,000,000; (2) feed for the first three months valued at Rp. 180,000; (3) the construction of barn floors costed at Rp. 60,000; (4) supporting facilities such as milk cans, hand water pump valued at Rp. 85,000.

But the actual value of each Dairy NES credit package is much higher as shown below:

1. Milch Cows (one head, with the same quality) Rp. 2,500,000
2. Feed (during pre-productive period, 2 months):
   - Silage  60 days x 20 kg x Rp. 30  Rp. 36,000
   - Molasses 60 days x 5 kg x Rp. 260  Rp. 78,000
   - Concentrate 60 days x 1 kg x Rp. 110  Rp. 6,600
3. Medicine Rp. 10,000
4. Tools:
   - milk can Rp. 46,000
   - others  Rp. 35,000
5. Barn Construction Rp. 50,000

Total Rp. 2,762,600

According to the agreement each credit package consists of 6 cows. Hence at delivery time, the smallholder gets 6 heads at once.

When this study was conducted, the farmers had acquired their cows for three months. The farmers, however, still did not know the value of their credit, how much they had to repay and the method of payment. On the other hand, feed was continuously being supplied.
In addition to the above credit, the smallholders are levied a land rent of as high as Rp. 500,000 to Rp. 540,000 per annum. This rent is distributed among 20 farmers (one group) thus working out to Rp. 25,000 to Rp. 27,000 per farmer per year. Most farmers contend that they have paid this monies.

Credit repayment is made through monthly deductions on smallholders’ production. Although production level was anticipated at 18 litres/head/day, in reality, at the time this survey was conducted, production level barely reached 7 litres/head/day. Repayment is made both in kind, i.e. in the form of calves priced at Rp. 120,000/head (it is expected that within a 7 year period each cow will bear 5 calves) and in cash. Cash repayment amounts to Rp. 5,875/farmer/week consisting of (a) payment for diesel fuel for lighting (Rp. 800); (b) vaccination payment (Rp. 1,200); (c) towel (Rp. 900); (d) treat medication (Rp. 1,475) and (e) medicine for unhealthy cows (Rp. 1,500).

*Milk Production*

Non-NES

In 1985, the level of milk production by non-NES farmers in West Java declined due to a reduction in cattle population and productivity; in 1986, however, the production level increased steadily until the end of Pelita IV (see Table 4.4). Average productivity is about 10-15 litres of milk per head per day.

NES

Fresh Milk

All daily fresh milk production is delivered directly to the Nuclei, in this case PT. To support its production capacity, PT.TAA bought milk from both participating and non-participating smallholders. Transaction with participating smallholders commenced at the end of 1987.

On average, PT. TAA acquired 23,656 litres of milk per day from the plasm. Supply from the plasm totalled 13,732,000 litres in 1988 or 39.7% of the total 34,599,000 litres acquired by PT. TAA in 1988, the rest being supplied by farmers outside the scheme. This was 11 per cent higher than its share of supply in 1987. In other words, the procurement from non-participants has declined.

According to the participating farmers, their daily production is around 4-15 litres. However in 1988, daily production was 7 litres/head according to PT. TAA, as opposed to 18 litres outlined in the NES proposal.

The FH type from USA can produce up to a maximum of 8,100 litres which is higher compared to the FH type form New Zealand (maximum production of 4,500 litres) and West-Europe (maximum production of 5,000 litres). In this NES Dairy System, the Nuclei expects that average minimum production per lactation is 5,400 litres (or year 1: 5,400; year 2: 5,670; year 3: 6,570; year 4: 6,600; year
5: 6,660; year 6: 6,660 and year 7: 6480 litres). With the lactation period assumed at 305 days, this would imply a production of 18 litres per day on average.

Milk Products

The volume of transaction is about 234,667 kg per month for milk powder and 149,083 kg per month for milk fat. In 1987 about 2,748,000 kg of milk powder and 1,160,000 milk fat were sold.

Feed

Non-NES

In West Java, feed for milch cows consists of grass, rice husks, and concentrate. Grass forms the largest part of milk feed, followed by rice husks, while concentrate forms the smallest portion. In addition, in order to maintain the health of their herd, medicines are also administered. Although grass forms the largest portion compared to the other two types of foods (husks and concentrate), its value is less than the others. The average value of grass and medicine per head is Rp. 3,507 per day.

Husks and medicine can be obtained from cooperative/KUD which can be picked up once a month together with their income from selling milk. The cost of feed used by farmers is deducted from the sale of milk.

In East Java, the feeding system also varies; one way is the traditional system by using husks and green leaves, the other way is the semi-traditional system by using green leaves and concentrate. The cost of feeding ranges between Rp. 3 to Rp. 4 millions per head per year.

NES

Feed for the NES Dairy System is directly supplied by the Nuclei. There are three deliveries each day: morning, noon, and afternoon. This feed consists of 20 kg of silage, 5 kg of molasses and 1 kg of concentrate per day for six heads. Sometimes the smallholders are asked by the nuclei to deliver additional food in the form of grass.

Prices on NES

Fresh Milk

Fresh milk from participating smallholders, in February 1988, was priced at Rp. 325 by PT. NAA, while PT. TAA as a partner of PT. NAA in processing the plasm’s milk charged it at Rp. 400. The price charged by PT. TAA followed the free market price. The general price trend showed an increase from Rp. 375
during the December 1986 to April 1987 period to Rp. 400 during the November 1987 to February 1988 period. Currently the price is fluctuating at around Rp. 400. There is a Rp. 75 difference between the price PT. TAA paid to participants and non-participants. The price in the free market is Rp. 400 which means that the price at the farm gate is lower at Rp. 285.

Milk Products

PT. TAA produces milk powder and milk fat in processing fresh milk. The price of milk powder in December 1988 was about Rp. 4,100/Kg. This price has increased quite significantly from Rp. 2,800/Kg between July 1985 and 10 October 1986, to Rp. 3,300 between November 1986 and August 1987 and to Rp. 3,900 in September 1987.

The price of milk fat has remained relatively stable at Rp. 5,900/Kg.

Milk Marketing

Non-NES

Farmer

In West Java, marketing is handled by the cooperative/KUD and almost all milk products can be absorbed by the market. After collecting milk, the farmers store it at the collecting post. Every farmer has a card recording the amount of milk and bonuses received at the collection post. Bonuses are given to farmers who produce better quality produce. The payment is not received when the milk is stored. Once a month the following deductions are calculated from the total value of the milk stored: three per cent for medicine, three per cent for health fund, Rp. 10 per litre for saving, Rp. 1 per litre for village collection, and 3 litre per cattle per day for credit repayment.

In East Java, almost all the milk produced by the farmers is sold to the KUD. Only a small amount of milk is sold directly to consumers (2 per cent). It is interesting to note that prices received by farmers from the KUD and consumers are different. For example, when farmers sell their milk to KUD they receive Rp. 315-350 per litre, while if they sell their produce to consumers directly they earn Rp. 500-600 per litre.

Milk Collection Post/Intermediate Traders

In West Java, the cooperative collects milk through the collection post; in addition quality testing is done at this post before the market transaction. Here, storage is designed merely as a milk collection post, because all transactions are done by the KUD.
In East Java, the role of intermediate traders, in the area where KUD exists, is not very important. However, in the remote areas, which are far away from the KUD, all milk produced by farmers is sold to local traders (collection traders), who then sell it to the KUD. The price paid by local traders is about Rp. 250 to Rp. 275 per litre, while the price received by local traders is about Rp. 330 to Rp. 350 per litre, implying a marketing margin of about Rp. 75 per litre.

Cooperative

In West Java, the cooperative markets fresh milk to the GKSI Treatment Center and to the Milk Processing Industry. The price is based on buying and selling agreement of fresh milk between the GKSI and the Milk Processing Industry. The selling price of milk charged by the KUD on the Milk Processing Industry in 1988 was Rp. 410.60 per litre. KUD plays a very important role in the marketing system of farmers milk, not only in the form of marketing services but also in the form of both technical and managerial extension.

The payment to farmers is made every two weeks, that is, after the KUD receives the monies from The Milk Processing Industry.

In East Java, KUD pays an important role in the milk marketing system, especially in the rural areas. KUD provides not only service to the farmers but also extension service on the method of milk collection and testing. Frequently, KUD also tests the quality of milk. All milk, after being tested, is sent to the milk processing industry. The price received by KUD for quality Fat and SNF is about Rp. 390 to Rp. 410 per kilogram (1 litre = 1,028 kg). The farmers receive regular payments from KUD every 10 days, exactly after KUD receives monies from PT FSI Nestle.

In addition to its marketing function, the KUD also distribute production input, provides the source of market information and disseminates technology. KUD buys inputs such as milk cans, filters, concentrate in large quantities, and sells them on credit to farmers at a relatively low price. Payment for these inputs is debited from the value of the milk delivered.

GKSI Milk Treatment Centre

In West Java, the GKSI Milk Treatment Centre buys milk from the KUD and then sells it to the IPS in the form of fresh milk (after special treatment is done). In the Milk Treatment Centre, GKSI also pasteurizes milk, which can than be sold at a price of Rp 1050 per litre.

Milk Processing Industry

PT. Ultra Jaya Milk Industry and Company, the milk processing industry in West Java gives a bonus of up to Rp 5.12 for each 0.1 per cent increase in milk fat content, and Rp. 3.1 for each 0.1 per cent increase in solid non-fat (minimum
fat content standard is 72.9 per cent and SNF 7.9 per cent). The bonus is intended to induce the farmer to enhance the quality of their milk. However, in fact, it is unclear whether the farmers receive the bonus or not, because all selling activity is handled by the KUD.

The IPS does not have to incur any purchasing cost, because milk is delivered by the cooperative/KUD to the factory gate.

In East Java, PT Nestle buys all its milk at the factory gate in Pasuruan without having to pay for transportation cost. PT Nestle receives fresh milk not only from all the KUDs in East Java but also from Central and West Java.

To maintain the quality of milk, the IPS applies the bonus and penalty system. Based on this system, IPS gives a bonus to the farmers whenever the quality of milk is superior, while produce of inferior quality is paid less.

**NES**

Under the NES system the marketing of the product in the form of milk and calves is handled directly by the nuclei, PT. Nandi Amerta Agung (PT. NAA).

The milk collected by PT. NAA is then delivered to PT. TAA, the partner of the nuclei, to be processed further. The market chain is short which allows participating smallholders to receive better returns than non-participants would.

**Costs, Revenue and Expenditure**

**Non-NES**

Costs of dairying

The costs incurred by farmers consist of fixed costs and variable costs. Fixed costs consist of land rent, taxes, interest on loan, and the depreciation of barn and other facilities. The variable costs consist of expenses for food, medicine, lighting, labour, and irrigation.

1. Fixed costs (Rp/Annum)
   - Land rent Rp. 37,000
   - Tax Rp. 6,729
   - Interest on loan Rp. 68,596
   - Facilities Rp. 304,852
   \[ \text{Rp. 417,177} \]

2. Variable costs (Rp/Annum)
   - Food Rp. 2,410,997
   - Medicines Rp. 739,527
   - Lighting Rp. 36,164
   - Labour Rp. 1,448,916
   \[ \text{Rp. 4,635,604} \]

**TOTAL** Rp. 6,052,781
Revenue

The earnings of farmers are derived from selling their milk produce. The average milk production per farmer per year is 23,183 litres valued at about Rp. 8,278,560 per year. Costs and earnings from dairying per litre of milk and marketing margins of dairy industry in West Java are depicted in Table 4.5 and Table 4.6.

Table 4.5
Dairy Farming Input-Output in West Java, 1988

<table>
<thead>
<tr>
<th>Description</th>
<th>Expenditure Rp./year</th>
<th>Revenue Rp./Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue from Dairying</td>
<td></td>
<td>8,284,173</td>
</tr>
<tr>
<td>Cost of Production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- land rent</td>
<td>Rp. 37,000</td>
<td></td>
</tr>
<tr>
<td>- tax</td>
<td>Rp. 6,729</td>
<td></td>
</tr>
<tr>
<td>- interest on credit</td>
<td>Rp. 68,596</td>
<td></td>
</tr>
<tr>
<td>- equipment</td>
<td>Rp. 304,852</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- feed</td>
<td>Rp. 2,410,997</td>
<td></td>
</tr>
<tr>
<td>- farm medical supplies</td>
<td>Rp. 739,527</td>
<td></td>
</tr>
<tr>
<td>- electricity</td>
<td>Rp. 36,164</td>
<td></td>
</tr>
<tr>
<td>- labour</td>
<td>Rp. 1,448,916</td>
<td></td>
</tr>
<tr>
<td>Total Expenditures</td>
<td></td>
<td>5,052,781</td>
</tr>
<tr>
<td>Profit</td>
<td></td>
<td>3,231,392</td>
</tr>
<tr>
<td>Revenue from other activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- farming, non-dairy</td>
<td>Rp. 254,444</td>
<td></td>
</tr>
<tr>
<td>- retailing</td>
<td>Rp. 336,667</td>
<td></td>
</tr>
<tr>
<td>- off-farm employment</td>
<td>Rp. 123,333</td>
<td></td>
</tr>
<tr>
<td>- others</td>
<td>Rp. 194,667</td>
<td></td>
</tr>
<tr>
<td>Total revenue</td>
<td></td>
<td>909,111</td>
</tr>
<tr>
<td>Household Expenditures</td>
<td></td>
<td>1,977,400</td>
</tr>
<tr>
<td>Total revenue</td>
<td></td>
<td>9,193,284</td>
</tr>
<tr>
<td>Total expenditures</td>
<td></td>
<td>7,030,181</td>
</tr>
<tr>
<td>Annual Savings</td>
<td></td>
<td>2,163,103</td>
</tr>
</tbody>
</table>
### Table 4.6
Marketing Margins of Dairy Industry in West Java

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Cost Rp./litr</th>
<th>Price Rp./litr</th>
<th>Margin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Industry price</td>
<td></td>
<td>410.60</td>
<td>100.00</td>
</tr>
<tr>
<td>II.</td>
<td>Regular fees GKSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooperative Regular fees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Compulsory savings</td>
<td>2.00</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Service fee</td>
<td>2.00</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. GKI share</td>
<td>3.00</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Dairy Credit Repayment</td>
<td>12.00</td>
<td>2.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. TAA shares</td>
<td>10.00</td>
<td>2.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total fees</td>
<td>29.00</td>
<td>7.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Net Price</td>
<td>381.60</td>
<td>92.93</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>Operational Costs KUD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Processing</td>
<td>17.00</td>
<td>4.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Marketing</td>
<td>9.00</td>
<td>2.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Salaries</td>
<td>12.00</td>
<td>2.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Buildings</td>
<td>4.00</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Financial/administration</td>
<td>8.00</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Organization</td>
<td>7.60</td>
<td>1.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Sundry</td>
<td>2.00</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Depreciation</td>
<td>7.00</td>
<td>1.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Operational Costs</td>
<td>66.60</td>
<td>16.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Price received by farmers</td>
<td>315.00</td>
<td>76.72</td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>Production Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Feed</td>
<td>104.00</td>
<td>25.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Medicine &amp; Vitamins</td>
<td>31.90</td>
<td>7.77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Labour cost</td>
<td>62.50</td>
<td>15.22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Electricity (Utilities)</td>
<td>1.56</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Equipment</td>
<td>13.15</td>
<td>3.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Credit payment</td>
<td>69.56</td>
<td>16.94</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Production Cost</td>
<td>282.67</td>
<td>68.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Profit</td>
<td>32.33</td>
<td>7.88</td>
<td></td>
</tr>
</tbody>
</table>
In West Java, the average milk production is 23,183 litres per farmer per year, sold at Rp. 315 per litre on average to KUD. Each farmer earned about Rp. 8,284,173 from dairying in 1988 whilst income from other sources such as from the sale of rice and other crops as well as earnings from trading and other employment netted up to about Rp. 909,111 per year per farmer, bringing their total annual income to approximately Rp. 9,193,284. Their expenses amounted to Rp. 1,977,400 per year. The largest part of these expenses goes to food and education, with the rest going to clothing, housing, health and farming expenses.

In East Java, average milk production is 17,242 litres per farmer per year. With an average selling price of Rp. 340 per litre each farmer receives about Rp. 5,862,280 per year. Income from other sources comes up to Rp. 3,142,904 per year. This puts their average yearly income at roughly Rp. 9,005,184 per farmer.

Saving

In West Java, with incomes as high as Rp. 9,193,284 and expenses amounting to Rp. 7,030,181 per year, each household can save as much as Rp. 2,163,103 per year.

In East Java, with total income averaging Rp. 9,005,184 per year and total expenses Rp. 7,893,083 per year, each household can save about Rp. 1,112,101 per year.

NES

Costs

According to the information obtained from PT. TAA, it costs Rp. 159.6 to produce a kilogram of milk products from fresh milk. The detailed cost of production, however, is not available.

Revenue

Under the scheme the farmers are paid by the Nuclei as much as Rp. 500/head/day for non-producing cows and Rp. 1,000/head/day for producing cows. Each farmer owning a herd of 6 cows would get about Rp. 180,000 per month (or Rp. 6000 per cow per month. This salary is paid at the end of each week. In reality each smallholder receives Rp. 42,000 per week.

If cash repayment of Rp. 5,875 is deducted from this earning of Rp. 42,000, it would still leave the smallholders with Rp. 36,125 per week or Rp. 144,500 per month.

But participation in the NES leaves the smallholders with no time for other part-time jobs which would otherwise fetch extra income for them.
Expenditure

Based on information obtained from the respondents comprising smallholders, KUD managers, the village heads, and Local Government Officials, the farmers in the region spend Rp. 5,000 to Rp. 7,500 per day or Rp. 150,000 to Rp. 225,000 per month.

Labour Force

**Non-NES**

In West Java, the labour force consists mainly of family labour. The larger the herd size, the larger the amount of labour required. Since the availability of family labour is limited outside labour is often hired. Such labour are paid about Rp. 1,000 per cow per day.

In East Java, labour used consists of both family labour and hired labour. Dairying skills are acquired through training, guidance (extension), or sharing assignment. One or two labourers are generally hired to clean the barn and collect grass at a wage of Rp. 1,000-1,500/day.

**NES**

Under the NES system there is a rule that scheme participants have to handle their own livestock, hence almost all the work are done by the farmers themselves. Only under special circumstances are they replaced by their family members (such as wife or child).

Every sub-service unit which consists of 10 farmers and 60 cows forms one group headed by a person chosen by the smallholders. This group then divides the work into three shifts. Hence, the farmers currently on duty have to handle the job of other members of his group including overseeing the cows and handling feed shipment and delivery of other members.

Technical Aspects

**Non-NES**

In West Java, the cattle health service is administered by the cooperatives in two ways: active and passive. Active service is given according to pre-arranged schedule without prior notice from the farmer. This active service is given, e.g. in handling delivery. Passive service is given following report from the farmer.

The most common disease is mastitis, abscess and arthritis. The cost of health and artificial insemination is discounted every day from the value of milk delivered to the nucleus, which may reach up to as much as 3 per cent of total delivery. This is done continually whether the farmer asks for health service or not.
In East Java, cattle health is controlled by the Livestock Agency and the local KUD. For health maintenance, Rp. 5 to Rp. 7 is retained from every litre of milk delivered to the KUD. The owner reports to the Livestock Agency through the KUD when the cows are in the mating period in order to administer artificial insemination. The KUD staff then do some preliminary checkings; if the cow is found to be physically fit, artificial insemination is administered. Besides the Rp. 5 to Rp. 7 discounted per litre for health control and artificial insemination, the farmers still have to incur an additional cost ranging between Rp. 400,000-500,000 per year to pay for the vaccinators and inseminators who visit their farms.

Fresh milk is generally collected twice a day, at 4.00am in the morning and around 3.00pm in the afternoon, depending on the distance between the farmer's house and the collection sites and IPS. Milking is still done manually, and collected into plastic containers. The milk is then stored in aluminium tubes, each with a storing capacity of 10-15 litres. These milk cans help maintain the quality of the fresh milk until it gets to the KUD.

**NES**

Under this NES system, health control and births are handled directly by the Nuclei. The participating farmers have the right to report directly to the supervisor (where the smallholders are registered) or through the head of his group in case of illness, death, or the birth of calves.

The condition of smallholders' livestock is under constant surveillance by the nuclei, and because the location of the service unit is not too far away, monitoring and handling of special cases can be done fairly quickly.

**Rubber**

The participating farmers produce latex and cup lump of relatively good quality; on the other hand, non-participants only produce cup lump which is frequently adulterated with other materials, such as clay, sand, or wood, due to the absence of adequate quality control.

The marketing for farmers' produce is guaranteed by the nuclei. It is always ready to buy the farmers' produce at determined prices. These price levels benefit the farmers as they are higher than what they would otherwise have received from the middlemen, as in the case of non-participating farmers.

**Comparison of Rubber-NES and Non-NES Smallholders**

As a consequence of higher yields, superior quality, and better prices, the income level of the participating farmers is higher than those of non-participants. Table 4.7 shows the differences in performance between participating and non-participating farmers.
Table 4.7
A Comparison of Rubber NES and Non-NES Smallholders

<table>
<thead>
<tr>
<th>Item</th>
<th>NES</th>
<th>Non-NES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Production (kg drc/ha/annum)</td>
<td>1,204</td>
<td>1,611</td>
</tr>
<tr>
<td>2. Net income (Rp./annum)</td>
<td>2,551,200</td>
<td>2,269,800</td>
</tr>
<tr>
<td>3. Size of holding (ha)</td>
<td>2.0</td>
<td>2.47</td>
</tr>
</tbody>
</table>

Source: Primary Data

The above table shows that the productivity level of non-NES farmers is higher than those of NES farmers. However, the non-NES stands are currently fully mature, hence their productivity is expected to level down soon. The NES stands, on the other hand, are in the early years and have yet to reach maturity. Their productivity is expected to increase in the coming years, with expected peak production level much higher than those of non-NES stands at a comparative age, due to better seedlings, maintenance, and other related factors. Consequently, the net income of NES participants will get higher as the trees mature in the coming years.

In line with the main objective of the rubber contract farming scheme to improve the well-being of smallholders, the system has raised the income levels of the participating farmers and enhanced their technical knowhow in cultivating their stands. The revenues and expenditures of the participants and non-participants are outlined below.

Non-NES Revenue and Expenditures

In general, the main source of income for both NES and non-NES farmers are from the sale of rubber produce, and through other farming activities. However, incomes for farmers under the NES and UPP in Labuhan Batu Regency are derived only from rubber.

Table 4.8 describes average production, and total revenue for both NES and non-NES farmer. The low average productivity of 1,204 kg/ha/year reported for NES farmers as compared to 1,611 kg/ha/year in the case of non-NES farmers is because NES rubber stands are on the average younger than the non-NES stands. The seven-year old NES plantation is only in its second year of production. Nevertheless, there are significant improvements of both NES and UPP farmers' income.
Table 4.8
Production and Revenue of Rubber Farmers in Labuhan Batu, North Sumatera, 1988

<table>
<thead>
<tr>
<th>Type of Farm</th>
<th>Farm size (Ha)</th>
<th>Production (Kg/Ha/year)</th>
<th>Revenue (Rp.) by Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rubber</td>
</tr>
<tr>
<td>NES</td>
<td>2.00</td>
<td>1,204</td>
<td>Rp. 3,251,870</td>
</tr>
<tr>
<td>Non-NES</td>
<td>2.47</td>
<td>1,611</td>
<td>Rp. 2,797,143</td>
</tr>
</tbody>
</table>

Source: Primary Data

The major difference in the production costs incurred by NES and non-NES farmers is the need for credit repayment by the NES farmers. The following provides a breakdown of the average Production Costs by non-NES farmers.

1. Fixed Costs (Rp./Year)
   - Tax                  Rp. 80,060
   - Equipment            Rp. 25,750
   Sub-Total              Rp. 105,810

2. Variable Costs (Rp./Year)
   - Fertilizer           Rp. 26,250
   - Labour               Rp. 335,857
   - Transportation       Rp. 59,425
   Sub-Total              Rp. 421,532
   TOTAL                  Rp. 527,342

It is important to mention here that average annual expenditure of farmers is about Rp. 2,446,831, which includes expenditure for food, housing, health care and education as well as charity. When crop production cost of Rp. 527,243 is added, total expenditure reaches Rp. 2,974,074 per year.

Farmers' income includes rubber farming revenue, livestock revenue, and salary from employment in other institutions:

- Rubber farming        Rp. 2,797,143
- Salary from employment Rp. 111,428
- Livestock farming     Rp. 334,286
With a total income of Rp. 3,380,000 and total expenditure of Rp. 2,974,074 each farmer can save about Rp. 405,926 per annum.

The NES Smallholder Revenue and Expenditure

As mentioned before, the project participants have to repay their credit which are being debited weekly from their sale receipts.

The expenses of NES participants can be summarized as follows:

1. **Fixed costs (Rp./year)**
   - Tax Rp. 82,717
   - Interest on loan Rp. 46,500
   - Equipment Rp. 25,000
   
   **Sub-Total** Rp. 154,217

2. **Variable Costs (Rp./year)**
   - Fertilizer Rp. 57,600
   - Loan repayment Rp. 338,848
   - Transportation Rp. 150,000
   
   **Sub-Total** Rp. 546,448

   **Total (1 + 2)** Rp. 700,665

The NES farmers spend around Rp. 1,889,000 for items such as food, clothing, health, education and others. Details of their expenditure is shown below:

- Food Rp. 1,132,380
- Clothing Rp. 509,820
- Health Rp. 91,160
- Education Rp. 122,240
- Charity Rp. 33,400

Total expenses for NES farmers totalled Rp. 2,589,665.

Income for NES farmers comes from rubber only. There is no additional income from other sources because all their time and effort are allocated to their holdings. The average income they get from rubber is Rp. 3,251,870 per annum.

With a total income of Rp. 3,251,870.00 and total expenditure of Rp. 2,589,665.00, NES farmers are able to save about Rp. 662,205 per annum. It can be seen that NES farmers are able to save more than non-NES farmers. One
of the reasons for this differential is because NES farmers receive higher prices in addition to the relatively lower expenses.

The scheme has also promoted regional development. So far it has provided employment opportunities for members of 573,191 households. The scheme has induced large plantations, both government and private, to accelerate their activities which in turn increases the absorption of labour by these enterprises, due to the very labour-intensive nature of these plantations. For example, tapping which forms the main activity, absorbs around seventy four per cent of total labour employed. At the smallholder level, the household members carry out all the activities themselves, only in rare cases do they have to hire additional labour.

Issues Facing the Schemes

Several problems have surfaced during implementation of the dairy scheme. First of all, there have been some discrepancies between actual implementation in the field and the procedures laid down in the implementation and technical guidelines regarding both farmer selection and the role of the existing KUD. According to the guidelines, the selection is based on whether or not the farmer had joined the KUD, and the farmer had to have some prior experience in managing milch cows. In reality, however, some of the chosen farmers were non-KUD members and some had no experience at all in dairy farming.

The other problem is credit recovery. At the time this study was conducted, nearly fifty per cent of the loans were in arrears. This is due to the actual production level falling far below the expected levels. The credit repayment schedule is based on the expected production level of eighteen litres per head per day, in reality, the actual production level has only reached seven litres per head per day. Credit payment is discounted directly from the farmers' produce; and the price paid by the nucleus is current market price. However, there is a difference between the price paid to participants and to non-participants.

When this study was conducted, the farmers had been owning their cows for three months. At that time, however, they were still ignorant of the magnitude of their credit. Some were not even aware of the repayment schedule and requisite procedures. This reveals the lack of direct contact between the nucleus and the farmers, and inadequacy of the extension services provided by the nucleus.

The credit repayment is exacerbated by the fact that some farmers have to pay as much as Rp. 500,000 to Rp. 540,000 per annum as land rent. This cost is shared among each of the twenty farmers in the group, which means that each farmer has to bear between Rp. 25,000 to Rp. 27,000 per year. Most farmers contend that they have paid this amount.

Besides the farmers also have to incur an additional cost of between Rp. 400,000 to Rp. 500,000 per year for vaccinators and inseminators visiting their
farms. This is in addition to what they pay to the nucleus (Rp. 5-Rp. 7/per litre) for health control and artificial insemination services.

Notwithstanding all the benefits iterated above, the rubber scheme is confronted with several issues. Rapid acceleration of the tree crops planting programs for rubber in the last two Repelitas, has led to serious implementation problems. A substantial area of smallholder plantings are below prescribed standards. The available data indicate that only thirty seven per cent of the planted rubber meet the required standards. Some fifty per cent of the rubber area are graded to be very poorly managed.

Smallholders' tree crops plantings have been classified into four categories (A, B, C and D) in accordance with stand conditions. Category A plantings are of satisfactory standard with regard to tree growth and density and have been adequately maintained. Moving from Category B to C to D, the quality of the tree stand progressively worsens due to poor tree density, growth and homogeneity. The conditions of smallholders' stands is shown in Table 4.9.

As can be seen in Table 4.9, of the 153,541 hectares with stands of one year old and above, only 42.5 per cent are considered to be in category A, while 17.1, 13.4 and 27.0 per cent fall respectively into categories B, C, and D.

<table>
<thead>
<tr>
<th>Age of planting (yr)</th>
<th>Planted area (ha)</th>
<th>Categories (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>NES/PIR/TRANS Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>9,220</td>
<td>49.92</td>
</tr>
<tr>
<td>6</td>
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<tr>
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* Estimated percentages.
Village cooperatives in the region are expected to play a big role in the provision of various services to the farmers. However, most of the time the services needed by the farmers are not available. Consequently, farmers appear reluctant to participate in the cooperatives.

Lack of coordination among those institutions involved in the selection of participants has led to problems such as the selection of unsuitable participants while the lack of continuous guidance after being accepted into the program has resulted in a low rate of technology transfer to the smallholders. Consequently, the production levels are not as high as were initially expected. Marketing is frequently not implemented according to the directives proposed in the project manual. Hence, the smallholders are placed at a disadvantage. The end result is that they often do not hesitate to sell their produce to the middlemen rather than selling to the nucleus.

Another disturbing feature is that the participants almost have no control over the establishment costs of stands they receive. The high cost of these stands will cause them to remain indebted to the nucleus for a considerable period. The contract is drawn up by the private enterprise acting as the core or by the responsible government agency, with very little participation of the smallholders.

CONCLUSIONS

Indonesia, in an attempt to maintain its development momentum in the face of falling export revenues, has formulated policies to encourage core satellite schemes. Although foreigners are still prohibited by law to own or rent land, the series of deregulatory packages launched during the last two years have created a climate much more conducive to private agrobusiness investment.

Similarly, despite the fact that the national debate on the relative merits of private versus public ownership of large agrobusinesses continues unabated, a number of private core satellite schemes have already commenced operation. The government is actively encouraging private participation in the second-phase development of publicly financed resettlement schemes. While the public estates served as nuclei in rubber, the dairy scheme is privately owned and managed, with only token participation by the National Association of Dairy Cooperatives.

In the dairy project, all participants were locally recruited, whereas rubber scheme settlers comprise the majority of households staying in the scheme area. The turnover rate appears to be very low, given the binding contractual terms. Although most of the participants were drawn from the formerly resource-poor groups, their elevated incomes have now granted them a higher status than non-participating households in the vicinity.

Since both projects have yet to reach maturity, the issue of profitability remains unresolved. It is obvious, however, that through the creation of employment opportunities, incomes of participants have risen visibly, and have
impacted favourably upon household consumption patterns. Productivities and incomes for participants in both projects are much higher than non-participants who still depend on traditional varieties and breeds.

A striking contrast can be drawn between the manner in which the dairy and rubber participants are organized. The very strong involvement of the Ministry of Cooperatives in developing the dairy industry has led to the dairy cooperatives playing a prominent role in scheme management whereas the rubber smallholders seem to be getting along without the benefit of such formal cooperatives.

Rubber farms are on the whole poorly maintained and good husbandry generally lacking in NES-dairy schemes. It thus appears that neither the farming skills are being properly transferred to the participating households, nor are the proper attitudes being satisfactorily inculcated. A stronger case could be made for maintaining intensive management of the dairy operation.

In addition to general benefits and deficiencies mentioned above, some items specific to each program are itemized below.

1. The large amount of arrears renders it almost impossible to compare its cost efficiency with other smallholder development projects.
2. The shift to private entities in serving as nuclei warrants greater scrutiny into the relative distribution of benefits, as the nucleus is recipient of subsidized credit.
3. The participation of the smallholders in drafting the agreements to which they are supposed to adhere has been virtually non-existent.
4. Second generational problems, in view of the need for sustained smallholder development upon completion of the current production cycle, warrants further study.

**Policy Implications.** Both schemes clearly have positive impacts on the well-being of the participating farmers in terms of guaranteed minimum income and guaranteed market for their produce. However, several remaining issues, as itemized below, require further attention.

**Monitoring and Evaluation.** Conceptually both schemes should benefit every participant; in reality however, various drawbacks are being encountered in the field. Deviations from technical and implementation guidelines are very much in evidence. These can be attributed to the lack of close monitoring by the government during implementation. To minimize these deviations, routine evaluations should be conducted at each phase of the implementation process to ascertain that what is happening in the field is in accordance with the guidelines.

**Extension.** High arrears have been hampering both schemes, in part due to the reluctance of the farmers to repay their loans. Furthermore, they do not feel obliged to sell their produce to the nucleus. Hence, special efforts should be launched to induce the participants to pay their dues in time.
Deviations from guidelines alluded to above, in part are due to a dearth of competent staff in the field. Hence, prior to implementation of such programs, field staff need to be equipped with adequate knowledge about the program and other related subjects.

Liability. There is little legality in the current contractual agreement between the smallholders and nuclei. The agreement can not be enforced in any way by either party. Hence, the participants do not feel compelled to follow the agreements, but act for their own benefit as the situation warrants.

Future Expansion. The government finds the contract farming program very useful. It intends to expand the system to cover as many sectors as possible. This is reflected by the recent Ministry of Finance decree postulating that state owned enterprises utilize up to five per cent of their net profits to assist small scale entrepreneurs and cooperatives, particularly those in rural areas.

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CONCLUSIONS

An examination of a single agricultural marketing system, carried out in three countries in the same sub-region of the world, might reasonably be expected to reveal a narrow range of variation. This has not been the case. While contract farming (CF) and outgrower schemes (OGS) have some features in common in each country, the experiences of Thailand, Malaysia, and Indonesia, and the issues they raise, have varied considerably. This concluding chapter does not attempt to impose any artificial uniformity, but rather highlights these differences, and attempts to identify, where possible, some explanatory variables.

The most basic questions to ask about CF and OGS relate to their viability and effectiveness. Have they been able to establish and maintain themselves? Have they achieved their objectives? Have they provided significant benefits to farmers?

The answers to these questions are mixed: generally positive, with qualifications, for Malaysia and Indonesia; more negative for Thailand. The Malaysian schemes appear to be the most successful. They are long established (now in their second generation of participants) and have increased in size and number. The Indonesian schemes are slightly newer, but are also widespread and active.

Thailand’s experience is quite the opposite. Public outgrower schemes have not been attempted and efforts by private firms to introduce contract farming have failed in almost every case examined. In some cases, early successes in CF were not sustained as “agribusiness normalization” occurred: firms tried to attract growers with artificially favourable conditions, but later tightened them. The lack of interest in OGS seems to reflect a less interventionist attitude by the Thai government; while it has introduced policies that affect the agricultural sector in deliberate ways, it has generally not played a direct role in the sector. The policy measure which has affected CF most significantly is a requirement that banks must allocate 20 per cent of their loans to the rural sector, something more easily accomplished through contract farming than by direct loans to small farmers.
The failure of CF in Thailand is the outcome of highly competitive and often chaotic markets. Both firms and farmers have multiple potential business partners, products, and non-agricultural income sources. As a result, the essential precondition of quasi-monopsony is not met. Firms fear that farmers will apply inputs provided through contracts to non-contract crops and contract defaults are the rule rather than the exception. Furthermore, prices and demand for export commodities have fluctuated wildly, putting additional stress on firm-grower relations. The notable exception is broiler chickens, where "shifting costs" are high and the delicacy of the product makes vertical co-ordination essential.

The mechanism that Thai firms have developed to meet their supply needs is the quotaman or intermediary. Quotamen provide access to the produce of numerous small producers when it is needed, while avoiding the formal obligations of contracts. Firms diversify their sources of supply, relying on company production and quotamen in different regions to further hedge their risks.

As buyers, quotamen enjoy several advantages over firms: they often know the farmers and can make more accurate judgements about their creditworthiness; they do not have formal contractual relations with growers; and as informal sector entrepreneurs, their margins are not reduced by such things as tax payments. Farmers also have reasons to prefer the quotamen: more personalistic, patron-client relations which can carry non-economic benefits; and payment in cash rather than by cheque. Growers can survive in this rather chaotic market of fluctuating prices, shifting buyers and new products because they are highly diversified and because Thai exports have been able to capitalize on many short term opportunities. Farmers have invested revenue from "boom periods" in new crops or non-agricultural activities, including real estate speculation, and are thus able to survive quite well without the cushion of contracts. Contract farming has been the victim of Thailand's economic success.

The persistence of OGS in Indonesia appears to confirm this conclusion. Shareholders in the Indonesian schemes are extremely, often totally dependent on the schemes for their livelihood. Many OGS are located in remote areas where alternative buyers or income sources are few.

Resettlement has been an objective of the Indonesian and Malaysian schemes. While the Indonesian study does not devote explicit attention to this question, the Malaysian study does. By following the seven principles mentioned earlier in Lim and Dorall's chapter, the Malaysian authorities have been able to establish schemes that attracted a stable settler population and provided them with adequate incomes. Today, there are long queues to enter the schemes, and members have sufficient earnings to own a wide range of consumer durables. However, wide income disparities exist between settlers in the oil palm schemes and those in the rubber schemes and new forms of socio-economic differentiation are being found in the settler population. Indonesian schemes seem also to have produced
good livelihoods, though income measurements are complicated by the availability of off-scheme revenue for non-scheme farmers.

The positive performance of the Malaysian and Indonesian schemes must be qualified in several respects. The most significant impediment to the continuation or replication of the OGS is their high cost to the government. As Lim and Dorall have pointed out, 110,000 Felda residents are managed by 9,000 FELDA and government employees. For Malaysia, the costs are perhaps bearable; for Indonesia, a considerably poorer country and where oil revenues, the main source of government revenues, have declined, they are less so.

The schemes have also generated debts for their participants. These appear to have been more of a problem in Indonesia than Malaysia. While Indonesian farmers and the schemes themselves have large arrears, repayment rates on the Malaysian projects are very high due in large part to the tight management system imposed by FELDA under which monthly loan installments are debited from settlers’ incomes. Annual loan recovery, however, fluctuates widely according to the prevailing commodity prices. For the settlers, it takes a minimum of 15 years to repay the loans, by which time their crops would have to be replanted to maintain productivity.

There are also concerns that OGS limit the flexibility of supply response to price changes. Indonesia’s independent rubber smallholders had quite a bit of flexibility because they had multiple income sources and could shift resources from one to another as relative prices changed. Indonesian outgrowers have few such alternatives, particularly in remote resettlement areas, and have more fixed repayment costs. In Malaysia, these rigidities are mitigated somewhat by the use of hired immigrant labour, which can be laid off when prices are low.

The Malaysian study also raised some concerns about the selection criteria for outgrowers. The criticism that selection tends to favour prosperous rather than poor individuals was not borne out by the field survey. However, there is a marked bias toward the recruitment of settlers of Malay ethnic origin (rather than the poor former estate workers, many of whom are of Indian origin). The requirement that half of a scheme’s settlers must come from the state where the scheme is located also introduces a bias against the very poor, since there are few schemes and greater land hunger in the poorest states. Furthermore, landlessness, which used to be worth 20 points out of 100 in selecting applicants, is no longer given any weight.

The most controversial and sensitive of the issues debated in Malaysia is ownership. While Indonesian schemes offer outgrowers the possibility of owning the plot of land they work, once debts are repaid, Malaysia has experimented with a number of options. Since FELDA was established, it has tried several systems, none of which have been fully satisfactory to both FELDA and the settlers. The initial practice of having settlers live on and farm a small plot which would eventually become their own was apparently not conducive to good
farming practice in rubber. This was replaced by the block system, whereby occupants of an 80 ha. tract would collectively exercise ownership and responsibility. More recently, a wage/share system was introduced in which settlers receive a basic wage plus dividends from shares in the scheme as a whole. Settler protests led the government to announce a return to individual titles, but as of mid-1990, this had not been implemented.

This subject receives extended treatment in Lim and Dorall’s chapter; suffice it to note here that it is extremely difficult to reconcile the interests of all parties on such a sensitive issue. Not only is it necessary to meet the technical requirements of good farming practice and management (upon which the viability of the enterprise rests) but also the narrower interests of the parties concerned. For project authorities, these can include the maintenance of a large centralized bureaucracy and the careers and prestige that come with it. For farmers, land-ownership is a primordial aspiration, even if its achievement does not result in real independence or economic efficiency.

Conspicuously absent from all of these schemes are farmers’ organizations. One might think that farmers’ groups could alleviate some of the problems encountered — taking on some of the functions of the central project authority in the OGS and thus lowering their management costs; or providing some intermediary, information and discipline in the chaotic relationship between growers and firms in Thailand. This has not come to pass, for a variety of reasons.

In Malaysia, efforts to form growers’ associations have been formal and initiated by FELDA. Schemes are divided into blocks, each of which can nominate three representatives. But there are no secret ballots and the agency makes the final selection and can even reject all the nominees. It is not surprising that most settlers surveyed by Lim and Dorall felt that these associations were an instrument of FELDA, not their own. More then 80 per cent felt that FELDA was not preparing them to play a role in management. For the agency, a strong farmers’ organization reduces the legitimacy of its own role and might exacerbate unrest over ownership. For growers, ethnic differences and conflicts of interest between settlers and hired labour have undermined solidarity.

In Thailand, impediments to grower organization come from many sources. Firms prefer to avoid dealing with farmers’ groups, and in such competitive markets it is not difficult to find willing, unorganized suppliers. The government development bank provides credit to growers, precluding one of the principal potential roles of a cooperative, and agro-inputs are widely available from private traders. On the farmers’ side, previous poor performance by cooperatives in input supply is discouraging, and the diversified, part-time nature of Thai farming does not elicit much commitment to a farmers’ organization. Indonesian experience with cooperatives has been similarly disappointing, through the causes are not clear.

For the future, the policy issues to be addressed differ considerably by
country. For Thailand, experience indicates that the government’s hopes for CF as a central element in agricultural development is misplaced. The volatility, diversity and competitiveness of Thai markets are not conducive to CF. Many of the goods and services which CF provides, such as credit and inputs, can now be acquired easily elsewhere. However, some services are not being provided, either by CF or by open markets, and government could play a useful role in providing them. Most important among these are technical assistance and market information. In volatile markets, small farmers are at a disadvantage in negotiating with firms and quotamen when they do not have up to date information on market prices. Pricing information bulletins, perhaps via radio as is done in many countries, would be a valuable service.

In Malaysia, by contrast, OGS have “caught on”, although doubts still exist as to whether these group schemes are a superior mode of production compared to individual smallholdings, which have lower yields but also involve lower costs. They have played an important role in resettling people, providing them with income, and earning foreign exchange for the country. The level of income provided, the long queues for entry, and the continued competitiveness of Malaysian palm oil in world markets all attest to FELDA’s success. For Malaysia, the issues are broader and longer term.

First, to what extent can FELDA schemes become growth poles with broader rural development spinoffs than they have had to date? This problem has faced OGS in many countries and only now are project planners beginning to address it realistically. For example, a new project designed by the Commonwealth Development Corporation in Tanzania is trying to include a wider range of commodities than the principal crop, coffee (ie. dairy, fruit and vegetables); by building its infrastructure with multiple uses in mind; by including small scale manufacturing and repair; and by buying coffee from independent smallholders as well as those on the scheme. These measures are aimed at diversifying income sources, thus reducing risk; providing benefits and opportunities beyond the scheme; and spreading labour demand more evenly throughout the year. In the FELDA schemes, upstream and downstream activities might yet bring about wider employment and income multiplier effects but administrative and other constraints have first to be removed.

Similarly, the environmental effects of OGS are sure to generate increased concern, relying as these schemes do on monocropping. There is a dramatic contrast in the degree of ecological diversity between the tapping of rubber in a rainforest and the relatively sterile environment of a rubber plantation. Also disturbing are the growing scarcity of suitable land for large OGS and the adverse environmental effects of farming on marginal or hilly land.

Finally, the role of CF and OGS must be seen in a long run context. They are not ends in themselves, but means to achieve such goals as resettlement, poverty alleviation, productive efficiency and others.
During the past decade the experience of the agricultural countries of ASEAN in increasing agricultural production has contrasted with that of other regions for a variety of reasons, both institutional and technological. The ASEAN region has also experimented with a variety of systems for the organization of agricultural production and marketing, including open markets, integrated agricultural development projects and outgrower schemes.

In this book based on a two-year comparative research project, the experiences of Thailand, Malaysia and Indonesia with contract and outgrower farming schemes are analysed. The book will be useful to researchers and development practitioners with an interest in this widely-practiced but under-studied form of agricultural production.
It is clear from many case studies, in Asia and in other regions, that CF is not suited to all commodities or economic conditions. The Asian studies emphasize that the appropriateness of CF as a rural development strategy can change with a country's state of development. In Thailand's competitive markets, income diversification and booming export opportunities, combined with the availability of efficient informal institutions in the form of quotamen have rendered CF ineffective and largely unnecessary. In Malaysia, the second generation of outgrowers have little interest in continuing to farm small plots of land. Instead they prefer and can frequently obtain urban employment in manufacturing and services. As Malaysia industrializes, will there still be a need for OGS?

Ironically, in Thailand and Malaysia, contract farming and outgrower schemes are becoming victims of the very success of these two most rapidly growing economies. But their experience has provided important lessons for other countries and their passing, if it comes about, should not necessarily be resisted.