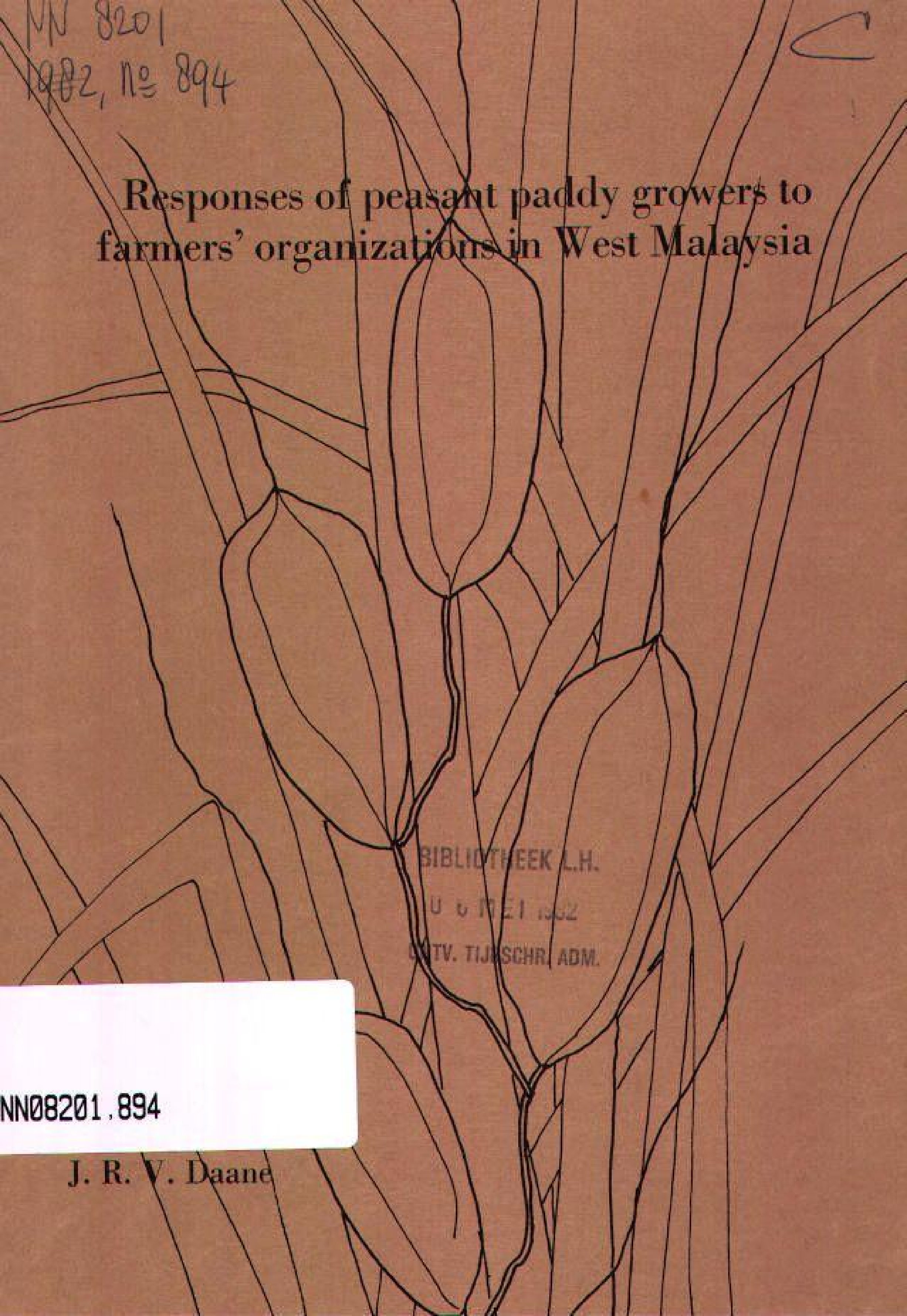
Responses of peasant paddy growers to farmers' organizations in West Malaysia



J. R. V. Daane

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STELLINGEN

1 De zwakke rol van de Maleisische Farmers' Organizations als belangenbehartigende organisaties van de boeren is niet alleen te wijten aan de paternalistische controle uitgeoefend door de overheid, maar ook aan het "loosely structured" karakter van de plattelandssamenleving, dat maakt dat boeren zich moeilijk kunnen organiseren ter realisering van gezamenlijke doeleinden, die een langdurige en volledige inzet vereisen.

Dit proefschrift.

2 In West-Maleisië maken de bedrijven met het kleinste oppervlak bebouwde sawah niet minder efficiënt gebruik van de nieuwe technische mogelijkheden in de rijstteelt dan de grotere bedrijven.

Dit proefschrift.

3 In tegenstelling tot het algemeen belang gehecht aan toegankelijkheid van dienstverlenende instellingen in de landbouw blijkt, dat in West-Maleisië de boer zonder toegang tot overheidskrediet en landbouwvoorlichting geen significant slechtere mogelijkheden heeft tot adoptie van de nieuwe rijstteelttechnieken dan zijn beroepsgenoot die wel toegang heeft tot deze diensten.

Dit proefschrift.

4 Degenen die de "groene revolutie" verwijten de inkomensongelijkheid vergroot te hebben, hebben daarbij onvoldoende getoetst of zonder deze technologische veranderingen de inkomensverdeling niet nog meer zou zijn verslechterd. Ook hebben zij onvoldoende aandacht besteed aan de vraag of niet, ondanks de toegenomen inkomensongelijkheid, het reële inkomen van de kleinste boeren aanzienlijk is verbeterd door toepassing van de nieuwe technieken.

G.T. Castillo (1975), Diversity in unity: The social component of changes in rice farming in Asia. In: International Rice Research Institute. Changes in rice farming in selected areas of Asia. Los Baños, Philippines, blz. 353 en 354.
M. Kikuchi en Y. Hayami (1980), Changes in community institution and income distribution in Indonesian and Philippine villages, Paper presented at the joint Workshop of Agro-Economic Survey and International Rice Institute, 25-27 August 1980.
IRRI, Los Baños, Philippines.

5 Bij de ontwikkeling en introductie van nieuwe technische mogelijkheden in de rijstteelt dient meer rekening gehouden te worden met de sociale en organisatorische beperkingen, die een optimaal gebruik van deze mogelijkheden en een billijke verdeling van de voor- en nadelen van hun toepassing in de weg staan. Het landbouwkundig onderzoek dient tevens gecombineerd te worden met het uitwerken en toetsen van methoden ter vermindering van deze sociale en organisatorische beperkingen.

6 Bij de oprichting van "coöperaties" en "boerenorganisaties" als onderdeel van overheidsbeleid in ontwikkelingslanden wordt veelal te weinig aandacht besteed aan de economische en sociale voorwaarden waaraan voldaan moet zijn om deze organisaties uit te laten groeien boven het niveau van gesubsidieerde semi-overheidsinstellingen.

O.a. dit proefschrift. Zie ook: B.F. Galjart (1976), Peasant mobilization and solidarity. Van Gorcum, Assen.

7 Het paradigma van de marxistische sociologie dat landheren als dominante klasse en pachters als afhankelijke klasse ziet, is lang niet altijd een adequate weergave van de werkelijkheid.

O.a. dit proefschrift. Zie bijvoorbeeld ook: K. Horii (1972). The land tenure system of Malay padi farmers: A case study of Kampong Sungei Bujor in the State of Kedah, *Developing Economies*, Vol.10, No.1.

8 Omdat in sociologisch onderzoek steekproeven meestal dienen om verbanden tussen variabelen te toetsen, is het ongewenst dat er bij het onderwijs in de steekproeftechniek aan sociologiestudenten en in de daarbij gebruikte handboeken eenzijdig van uitgegaan wordt, dat steekproeven tot doel hebben om percentages, gemiddelden en hun spreiding te schatten. Dit is des te meer ongewenst, omdat de meest nauwkeurige schatting van een percentage of gemiddelde een soort steekproef vereist (gestratificeerd met ongelijke steekproeffracties in de strata) die niet geschikt is voor het toetsen van verbanden tussen variabelen.

Zie bijvoorbeeld S.H. Justesen en A.C. van Eijnsbergen, Steekproeftechniek. Collegedictaat TS7. Vakgroep Wiskunde, Landbouwhogeschool, Wageningen. Zie ook: F. Yates (1960), Sampling methods for censuses and surveys. Griffin, London.

9 De Nederlandse ontwikkelingshulp en het toegepast niet-westers sociaalwetenschappelijk onderzoek van de Nederlandse universiteiten zouden elkaar wederzijds kunnen versterken, indien onderzoekers zowel voor als tijdens de uitvoering van een project de gelegenheid zouden krijgen tot experimenteel onderzoek ter toetsing van de effectiviteit van diverse alternatieve wijzen om het project uit te voeren. Dit vergt, dat bij het opzetten en uitvoeren van test-projecten (pilot projects) rekening wordt gehouden met de eisen die dit onderzoek stelt.

10 Dat de toeneming van het aantal commissies dat moet adviseren of meebeslissen over de honorering van subsidieaanvragen voor onderzoeksprojecten zou leiden tot een efficiënter gebruik van de in Nederland beschikbare middelen, moet betwijfeld worden, vooral omdat de steeds langere duur van de procedure de kans doet toenemen dat, alvorens een aangevraagd onderzoek is goedgekeurd, een soortgelijk onderzoek reeds elders wordt uitgevoerd.

11 Een deel van de middelen die de overheid ter beschikking stelt voor onderzoek naar de mogelijkheden van energiebesparing, zou besteed moeten worden aan de ontwikkeling van een goedkoop en betrouwbaar systeem voor het meten van warmteafgifte aan individuele wooneenheden in flatgebouwen met gemeenschappelijke centraleverwarmingsinstallaties.

12 De in Nederlandse bioscopen veel voorkomende pauze halverwege de vertoning van een film is uit artistiek oogpunt ongewenst en heeft -in tegenstelling tot wat de bioscoopexploitanten hun publiek willen doen geloven- niets te maken met de "lengte van de hoofdfilm", maar veeleer met de commerciële neiging de verkopen van ijs en dranken te handhaven, nu door het wegvallen van de vroeger gebruikelijk voorprogramma's een pauze eigenlijk overbodig is geworden.

J.R.V. Daane
Responses of peasant paddy growers to Farmers' Organizations in West Malaysia.
Wageningen, 12 mei 1982

Responses of peasant paddy growers to farmers' organizations in West Malaysia

Promotor: dr. R. A. J. van Lier
oud-hoogleraar in de empirische sociologie en
sociografie der niet-westerse gebieden

J. R. V. Daane

Responses of peasant paddy growers to farmers' organizations in West Malaysia

Proefschrift

ter verkrijging van de graad van
doctor in de landbouwwetenschappen,
op gezag van de rector magnificus,
dr. C. C. Oosterlee,
hoogleraar in de veeteeltwetenschap,
in het openbaar te verdedigen
op woensdag 12 mei 1982
des namiddags te vier uur in de aula
van de Landbouwhogeschool te Wageningen

For Marjon

CONTENTS

PREFACE AND ACKNOWLEDGEMENT

This study reports the findings of my investigations undertaken within the framework of a research project entitled "Rural institutions and rural development in West Malaysia". The project was a joint research effort of the Department of Rural Sociology of the Tropics and Subtropics of the Agricultural University of Wageningen and the Faculty of Economics and Administration of the University of Malaya. The other research workers who co-operated in this project were Dr. G. Kalshoven of the Agricultural University and Dr. L.J. Fredericks of the University of Malaya. Earlier reports relating to this research project were a number of mimeographed fieldwork papers (Kalshoven 1978, Daane 1978, Kalshoven and Daane 1979) and a printed bulletin (Fredericks, Kalshoven and Daane 1980).

The research project concentrated on the role of Farmers' Organizations in two paddy producing areas in West Malaysia. Each of the research workers covered a separate aspect. These included government policies with regard to Farmers' Organizations (Fredericks), the functioning of Farmers' Organizations within the complex of government agencies that were concerned with paddy production (Kalshoven), and the response of the peasants to the Farmers' Organizations (Daane). The data for this thesis were collected in Malaysia during fifteen months of fieldwork in the period October 1977 to April 1979. The data were analysed and the thesis written in Wageningen.

The study was made possible by research grants from the Agricultural University of Wageningen and the Netherlands Foundation for the Advancement of Tropical Research (WOTRO). The Malaysian agencies which supported the study were the Socio-Economic Research and General Planning Unit, The Ministry of Agriculture, the Farmers' Organization Authority and the Muda Agricultural Development Authority. This study could not have been undertaken without their co-operation and assistance.

In carrying out this study and writing the thesis I relied on the support and help of various persons whom I would like to thank here. First, on the non-academic side, my wife Marjon who by her presence and enthusiasm, during our stay abroad, was a constant stimulation and in addition assisted greatly with the documentation and the administration of the research findings and so many other tasks. Secondly the peasants and the personnel of the Farmers' Organizations who provided the necessary information with great patience. My interpreter Shuib Mahmood was of invaluable help during the first months of the fieldwork.

On the academic side I wish to thank my colleagues and friends Dr. L.J. Fredericks who gave useful advice and stimulating criticism and Dr. G. Kalshoven who invited me to participate in the research project and gave me invaluable support both in the field and during the writing of this thesis. Without his interest in my work this thesis would have been even

more difficult to complete. I wish to thank Prof.Dr. R.A.J. van Lier who encouraged me to do a Ph.D. study, showed great personal interest and supervised this thesis in a most considerate way. The observations on paddy agronomy reported in this thesis have benefitted from the stimulating criticism of Dr.Ir. H. ten Have. Prof.Dr.Ir. H.A. Luning also gave useful comments on agro-economic aspects of paddy production. Mr. M. Keuls and Drs. J. Weima helped me rectify a number of shortcomings in the statistical methods of data analysis. The computer analysis would have been even more difficult without the advice and help of Mr. J.W. te Kloeze. I also would like to thank my collegueas at the Department of Rural Sociology of the Tropics and Subtropics for their comments during various discussions on this research project.

The eventual form of this thesis has benefitted from the efforts of three women whom I would like to thank here. Mrs. S.A. Kerkhoven-Hodges has corrected my more serious gramatical and idiomatic mistakes. Mrs. J. Kalshoven-van Lier designed the cover. Finally, I thank Mrs. J.S. Keij-van Agtmaal for her careful typing of the manuscript and various corrections.

Kota Bharu, Malaysia
Februari 1982

SUMMARY

The subject of this study is the response of Malay paddy growing peasants to the efforts of the Malaysian government to organize them in so called Farmers' Organizations. In Peninsular Malaysia, paddy production is geographically concentrated on a number of coastal plains where paddy is the major - and for most peasants the only - crop, and the main source of household income. As the farms are small and productivity is low, these areas form islands of poverty in a country which is relatively affluent in comparison to its Southeast Asian neighbours.

In the 1960s and 1970s, the Malaysian government introduced a number of measures to improve the income of paddy smallholders and to become independant of rice imports. These measures involved large subsidies to the peasants. Funds for these subsidies were obtained from the more advanced sectors of the economy, such as the plantation and mining sectors. These public subsidies should be considered in the light of the government's efforts to eradicate poverty and to reduce the income differences between the predominantly rural Malays who are the indigenous population and the predominantly urban immigrant Chinese. Practically all paddy smallholders are Malays.

The most important development in the paddy sector was the construction of large scale drainage and irrigation schemes in the coastal paddy areas, in order to enable the production of two paddy crops per year (double cropping). As an additional measure steps were taken to help the peasants obtain the full benefits of these facilities by establishing Farmers' Organizations (FOs) which they could join voluntarily. These FOs were to provide farm support services, such as supplying seed of new paddy varieties, chemical inputs, credit and extension advice and the buying up of the paddy. Other tasks of the FOs were to promote the co-ordination of paddy production activities of the peasants and to strengthen the peasants' position as a producers group vis-à-vis other economic interests.

The main reason for assigning these tasks to a newly created organization rather to than the existing rural co-operative societies was that the latter operated on a very small scale and lacked the ability to manage these complex tasks. Many rural co-operative societies were completely inactive. FOs operated on a larger scale and the management was in the hands of government officers seconded to the FO. The activities of the FOs also benefitted from larger subsidies than the co-operatives were given. This meant that FOs, despite their formal structure as voluntary associations administered by a board and assembly representing the members, were very dependent on and strongly influenced by the government.

The main objective of this study was to identify the sociological factors which influenced the response of paddy growing peasants to the establishment of FOs. Three aspects of this response were studied:

1. the affiliation of peasants to FOs;
2. the members' contributions to the development of FOs;
3. the utilization of FO services and the adoption of improved paddy cultivation practices.

A second objective was to compare the peasants' response to FOs in the Krian and Muda irrigation schemes. These schemes represented the two different types of government intervention in paddy production in Malaysia. In the Muda scheme there was a project authority, the Muda Agricultural Development Authority (MADA), which was responsible for the FOs, the other organizations providing farm support services and operating the irrigation system. This provided a favourable opportunity to co-ordinate the various farm support services at FO level. In the Krian irrigation scheme there was no project authority and the various services were provided by separate agencies. This made local co-ordination difficult. The FOs in Krian were supervised by the state office of the Farmers' Organization Authority (FOA), a federal agency. This office supervised all the FOs in the state Perak, the FOs in the Krian scheme being only a small section.

Due to the exploratory character of the study, only one FO could be studied in Krian and one in Muda. It appeared that in both research areas the FOs were in fact field offices established to perform service functions under the control and supervision of FOA (in Krian) and MADA (in Muda). In both areas, they concentrated mainly on the provision to their members of short term production credit and inputs. In providing credit, the FOs acted as agents of the Agricultural Bank. The credit activities were confined to the administrative routine of processing loan applications and disbursing inputs and cash. Other farm support services were of minor importance. Although initially loan repayment records had been high, the recovery of the loans had become increasingly difficult in both areas. Despite the fact that the organizational set-up in Muda offered better opportunities than in Krian to link credit supply to for instance agricultural extension activities, this however was not capitilized on in actual practice.

It appeared that the main comparative advantage of the organizational set-up in the Muda area compared to that in Krian was that the MADA project authority covered a much smaller area than the state office of the FOA, this facilitated the communication between FO personnel and their supervisors. The latter could also provide more support for the field staff. This made it easier to undertake non-routine activities that required frequent consultation with the supervisors. These activities were only undertaken by the FO in Muda, which ran a chicken farm and a mini-supermarket in a nearby town. However, these activities were of minor importance when compared to the routine task of credit supply. Therefore, the difference in performance between the Krian and Muda FO was not as large as might have been expected.

In order to recruit members, FO personnel in both Krian and Muda contacted peasants who were already in close contact with various government agencies

and helped other peasants in their dealings with these agencies. The task of canvassing for members was left to these local contacts. Only a section of the potential membership was invited by them. A large proportion of the non-invited peasants regarded access to FO membership as a priviledge controlled by the contact person. Only the more educated of the non-invited peasants joined the FO on their own initiative if they considered this to be in their interest.

According to both members and non-members the most important and often only motive for joining the FO was to get cheap credit. However, the low interest rate only outweighed the costs of obtaining FO credit for peasants who needed large amounts of inputs. Those who operated a small paddy farm could obtain their inputs more conveniently from private shops. Thus, the operators of large paddy farms were over-represented in the FOs. In both Krian and Muda the FOs had appealed to about half of the potential membership.

Members of an FO must accept some responsibility and make contributions in time and money by attending and participating in meetings and buying capital shares, if the FO is to develop into a *farmers* organization. These member-contributions were generally low in both the FOs studied. One of the reasons was that the individual's access to the benefits of FO membership was not directly dependent on these contributions. Secondly, the benefits remained rather limited and might not have been a sufficient incentive. A third cause of low member-contributions was the loosely structured character of the local society. This made it difficult to develop the permanent commitment required for these contributions. Finally, a fourth cause was the government's emphasis on a quick increase in the number of FOs and its neglect of the need to build up commitment of the members to the FO. This has created a tendency of government agencies to act on behalf of the peasants rather than help the peasants to act for themselves and has also contributed to the general tendency of peasants to lean on the government rather than stand on their own two feet.

The board and the assembly of the FO who represented the members, left much of the responsibility for the operations of the FO to the staff. They also accepted that actions suggested by them could not be carried out without prior approval by the FO staff's superiors in FOA or MADA. Rather than administering the FO, the main function of the board and assembly was to communicate the wishes of the members to government agencies over which they had no control. These wishes received due consideration and often led to adaptations in the activites of these agencies.

In both Krian and Muda the efforts of the FOs to change paddy cultivation practices were confined to the provision of farm support services to individual members. There were no attempts to co-ordinate the paddy production activities of the members. The farm support services of the FOs studied had only reached a small section of the peasants in both research areas, primar-

ily those with larger farms, more education and more contacts with the world outside the village. However, this had not led to differential adoption of the new cultivation practices. The necessary inputs were also avaiable to non-members. They could be obtained from local shops, either on credit terms or for cash. Since the extension advice given was very general and hardly changed from season to season, non-members knew what the advice included. No statistically significant differences in the cultivation practices of members and non-members were found. Peasants had tried out the recommendations and retained those practices that were found useful, while rejecting those that were not. Since then, peasants had continually experimented with new practices imitating friends and relatives and selecting their own new paddy varieties. The actual practices of both members and non-members bore only a vague resemblance to the official recommendations.

The study recommends a number of improvements that could help the FOs to function more effectively. These include improvements in agricultural extension services and in the role of the FO in co-ordinating its members' paddy production activities. Apart from these paddy oriented measures other suitable FO activities should be investigated, e.g. in the small scale industries sector. Finally, the study indicates a number of problems that need to be solved before the responsibility for the FO can be transferred to the members.

1 THE RESEARCH PROBLEM

The main purpose of this study was to identify the sociological factors which influence the responses of paddy growing peasants to the efforts of the Malaysian government agencies, to get them to change the way they use their productive resources, by mobilizing and organizing them in so called Farmers' Organizations[1]. The study describes and analyses the government's policies and the process of intervention employed, as well as the peasants' perception of these activities and their reactions. In Malaysia, paddy is almost exclusively grown by Malay peasants. They are one of the lowest income groups and a target group of the government's efforts to eradicate poverty within the framework of the New Economic Policy (Third Malaysia Plan).

The present study focuses on paddy growing peasants concentrated geographically in a number of large coastal plains in Peninsular Malaysia, where traditionally the single cropping of paddy on small farms has been the main source of family income and the only agricultural activity of significance. More than half of the paddy growers in the country are in these areas. These peasants include those who work their own land (owner-operators), tenants, and those who are part owners and part tenants of their land (owner-tenants). On an average, the paddy farm area is very small, ranging from 0.25 to 3 ha (mean size 1.2 ha). Only 7% of the peasants operate farms of more than 3 ha (Selvadurai 1972).

Within a whole complex of measures, the Farmers' Organizations (FOs) are regarded by the policy makers as being important instruments in combating the widespread poverty in the traditional "paddy growing areas"[2]. To improve the paddy production in these areas, the government has established large scale drainage and irrigation schemes to allow the double cropping of paddy. New paddy cultivars suitable for double cropping and with improved nitrogen response and yield capacity have been introduced. The government has also stimulated agricultural extension activities to popularize the new paddy cultivation practices for which it provided the inputs and short term production credit. Finally, the government improved the marketing by constructing roads and guaranteeing a minimum price for paddy. Apart from these paddy oriented measures, there were some minor attempts to diversify the peasants' sources of income. These measures included the introduction of new agricultural activities on individual farms such as livestock improvement and poultry and vegetable farming on house plots. As a side activity the FOs introduced non-agricultural activities, which could be collectively undertaken by the peasants organized in the FOs. These activities included

the establishment of small workshops for the commercial production of bricks, furniture and school uniforms.

FOs were considered to be important instruments for the implementation of these various measures at the local level. The primary task of the FOs was to change the use of resources on individual farms, by promoting the use of new paddy cultivars and cultivation practices. In this respect, the FOs were assigned three important functions. Firstly, they were to provide the peasants with agricultural extension, new inputs for paddy production, short term production credit and marketing services. Secondly, FOs could function as an important communication link through which the various government agencies could channel information to and receive feedback from the peasants. Irrigation authorities, e.g., could inform peasants of water schedules and in return receive complaints about shortcomings in the system; in cases of paddy pests, an overview could be obtained quickly and measures circulated rapidly, enabling an efficient control of the pest. Thirdly, FOs could be used as stepping stones to co-operation among the peasants in the paddy production process. Double cropping of paddy requires that the production activities of peasants at the lowest unit levels in the irrigation system are synchronized as closely as possible. Pest control is another activity which is only successful if all peasants in a fairly large area co-operate. In short, FOs could contribute to harmonizing the activities of all parties involved in the paddy production process at the lowest level in the irrigation system, i.e. the peasants and the various government agencies involved in the operation of the system, the development and extension of new technology, provision of inputs and credit, marketing services, et cetera (Ahmad Sarji 1973, Afifuddin 1977a).

Apart from stimulating these changes in the use of the resources on *individual* farms, the FOs were also intended as a means by which the peasants could *collectively* improve their economic position. The FOs could undertake diversification projects in the workshop or small scale industries sector and strengthen the peasants' position as an interest group vis-à-vis other economic interests, particularly those of rice millers and paddy buyers-cum-moneylenders (Ahmad Sarji 1975, Afifuddin 1978).

In their formal structure, the FOs resemble co-operative associations. However, compared to the former co-operative societies in Malaysia, the FOs receive larger subsidies. A more important difference is that the government assigns to the FOs staff members who do the routine running of daily business in close consultation with the assembly and the board who represent the members. These staff members are closely supervised by the government agency to which they belong. This makes for a degree of dependence and government influence which hardly occurred in the former type of co-operatives (Fredericks 1975). Nevertheless, the FOs should not be considered as government agencies. Firstly, the associational structure guarantees a certain degree of control by the members. Secondly, unlike government agencies,

FOs do not serve the general public, but direct their attention exclusively to their members.

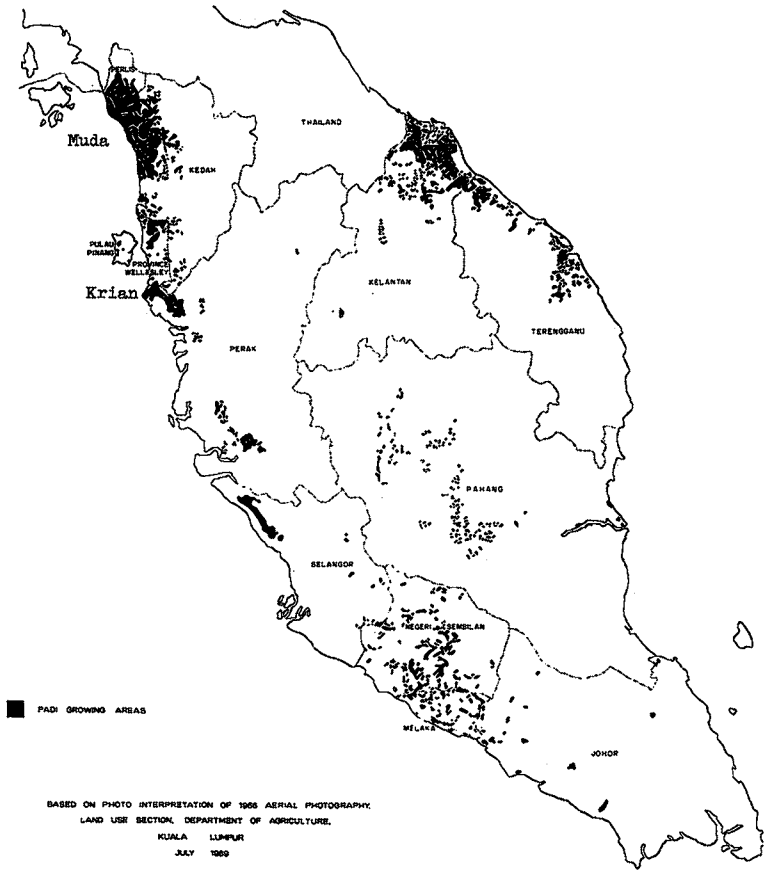
The study was carried out in two of the above-mentioned large scale irrigation schemes in Peninsular Malaysia, the Krian and Muda areas (see map 1). Both are coastal plains in the northwest of the country. Most of the measures discussed here were introduced in these areas in the period between the middle of the 1960s and the early 1970s, i.e., roughly between five to ten years before the fieldwork for this study was undertaken.

The purpose of locating the research activities in the Krian and Muda areas was that this provided an opportunity to compare the two different organizational methods of government intervention in paddy production in Malaysia. This comparison was the second objective of this study. Despite the fact that similar tasks were attributed to the FOs in Krian and Muda, the FOs in Krian functioned in a rather different organizational environment to those in Muda. In the latter area, the task of establishing and supervising FOs was given to a project authority, the Muda Agricultural Development Authority (MADA) which was also responsible for the operation and maintenance of the irrigation and drainage system, and all social and economic development activities in the area of the irrigation project. The MADA was thus responsible for the water schedules, extension advice, training, the supply of inputs and credit, and the control of pests. This provided a favourable opportunity to co-ordinate the various activities at project and FO level and to harmonize them with the activities of the peasants[3)].

In the Krian area on the other hand, there was no project authority and the various government activities in the irrigation project area were carried out by sub-units of separate agencies. The most important were the Department of Irrigation and Drainage (DID), responsible for the operation and maintenance of the drainage and irrigation system, the Department of Agriculture (DOA), responsible for the provision of agricultural extension advice, training, multiplication of seed of new paddy cultivars and pest control, and the Farmers' Organization Authority (FOA), responsible for the establishment and supervision of the FOs. The project level representatives of these various agencies were primarily responsible to their headquarters at state or federal level. Therefore, the possibilities of co-ordinating these activities at the project level were fewer than in the Muda area. A similar situation occurs with regard to the co-ordination of activities at FO level. Despite the formal recogniton that all services should be provided via the FOs and co-ordinated by FOA, this has proved very difficult in practice.

By doing research in both the Muda and Krian areas, it was possible to obtain some indication as to whether the more favourable opportunities for co-ordination at FO level in Muda were indeed being utilized and whether the peasants responded in a different way.

Map 1 Paddy growing areas in West Malaysia; location of the Krian and Muda irrigation schemes



In both Krian and Muda the FOs paid most attention to the provision of services to assist individual peasants in paddy production, particularly the provision of short term credit. The function of undertaking non-agricultural diversification projects and promoting the peasants' collective interests was particularly emphasized in Muda. It is interesting to note that, although both FOA (in Krian) and MADA (in Muda) recognized that FOs could play an important role in stimulating co-operation in the paddy production process, there were no attempts by the FOs to stimulate this form of cooperation[4]. At the time of this research, the FOs in both Krian and Muda had only encouraged the use of the new paddy technology by services directed at *individual* peasants. This is remarkable, since there are indications that, for several years, there had been almost no possibility of further improving the peasants' paddy incomes by this method, whereas if the peasants would co-operate in water distribution, synchronization of production activities and pest control, their income could improve.

For the analysis, the response of peasants to the FOs studied has been divided into three different classes of behaviour. The first type of behaviour is the act of affiliation or non-affiliation to the FO. The second type is the use of FO services such as short term production credit and agricultural extension advice. An interesting question in this respect is whether access to these services contributed to the adoption of new paddy cultivation techniques. The third class of behaviour concerns the making of contributions to the administration and organizational development of the FO. The latter involves a reallocation of resources from being used for individual purposes to being used for collective purposes. The complexity of the phenomena studied made it necessary to analyse separately each of these aspects of the peasants' response to the FOs.

The responses of peasants to FOs are primarily studied from an action theoretical point of view. The basic assumption underlying this methodological approach is that, if possible, peasants usually seize the opportunity to improve their individual living conditions, unless earlier attempts have failed so consistently that they no longer believe that this is possible (Röling 1970). This assumption should not be read as meaning that peasants try to use their resources to the utmost by rationally calculating expected costs, returns and risks, as if they were completely independent economic actors. Firstly, much of the literature on peasant societies shows that the less productive resources a peasant has at his disposal, i.e. the less secure his livelihood is, the more he depends on a network of social relationships with moneylenders, relatives, friends or neighbours. Because these relationships help to secure his livelihood he will take the effect of his actions on these relationships into account when he has to make decisions (see the literature on *moral economy*, e.g. Scott 1976). Secondly, even if peasants could act independently of others, it should be noted that what constitutes "maximum returns" is to some extent a matter of social defini-

tion and depends on the results obtained by a reference category of peasants with similar resources at their disposal. Thirdly, peasants are seldom able to predict the various consequences of a new economic activity, but start each new activity as a trial, usually on a small scale. When peasants appear to have allocated their resources in a rational way, this is due to a learning process of trial and error.

As seen from this theoretical point of view, the individual peasant's actual response to the FO is primarily dependent on his appreciation of how the various possible responses affect his interests, on his access to resources, on the expected sanctions of society, particularly when these affect the security of his livelihood, et cetera. The response of peasants also depends on how they view their relationship to the government agencies and the behaviour which they expect from them. Finally since, as will be explained in chapter 7, the FO requires some responses that do not directly serve the peasant's individual interest - particularly responses involving a transfer of resources from individual to collective use - his actual response also depends on the motivations required for a transfer of resources in the collective interest.

This methodological perspective focuses the analysis on the *considerations* of peasants in reaching a decision concerning a particular response and on the occurrence of certain *motivations* that appear to be a precondition for a particular type of response. This is not, however, a purely voluntaristic approach. It is a premise of this research, that the nature and outcome of decision-making processes and the occurrence of such motivations are very much influenced by the social and economic context in which the peasant lives and works and on each individual peasant's degree of dependence on this context.

In this chapter I will not present more concrete theoretical viewpoints and hypotheses concerning the variables influencing the peasants' motivations and decisions, and thereby, their responses to FOs. This would misrepresent the nature of this study which is primarily *explorative*. At the start of this study very little was known about the sociological factors influencing the affiliation of peasants to the FOs, the use of FO services or the making of contributions. In Malaysia, there had been only one sociological study which provided some information on one of these aspects of the peasants' response, but this was carried out in another area (Harun 1976). With so little information available, for each of the various aspects of the peasants' response, one could think of a great many explanatory variables which could be derived from the various theoretical frameworks. *A priori* acceptance of hypotheses concerning these variables would have made this study too rigid. In fact, the selection of useful theoretical viewpoints and derived hypotheses concerning the variables explaining a particular aspect or the peasants' response could only take place after thorough exploratory fieldwork. For this reason, it was decided to present these theo-

retical viewpoints and derived hypotheses in conjunction with the findings of explorative fieldwork in chapters 6, 7 and 8. Each of these chapters concentrates on a particular aspect of the peasants' response to the FOs and presents the relevant hypotheses and theoretical viewpoints as they were developed or selected in the course of explorative fieldwork.

The targets of this study can now be summarized as follows:

1. To describe how peasants responded to the FOs in terms of affiliating themselves, making use of the input supply, credit and extension services and contributing to the FO in the collective interest.
2. To analyse the motivations and considerations that determined the peasants' responses (or the absence of a response) and how these motivations and considerations were affected by the social and economic conditions of each individual peasant and of the peasants collectively.
3. To determine what contribution the present services of the FOs, i.e. the provision of credit and agricultural extension advice, make to the application of new paddy cultivation techniques.
4. To assess whether a better opportunity for co-ordinating the activities of the various government agencies intervening in paddy production at project level leads to a more integrated provision of services to the peasants and stimulates affiliation to the FO, the use of FO services and the making of contributions to the FO.

The subject of peasant responses to FOs on large scale irrigation projects for the double cropping of paddy was chosen, because little was known about these responses and their causes. A better appreciation of the causes of particular responses could help to improve the effectiveness of FOs as a means of socio-economic development. Some of the problems that have led to the present low level of the member-contributions, or the underutilization of FO services, could then be anticipated.

Insight into the problems which occur when government agencies try to mobilize peasants into co-operative institutions is particularly important because at a certain stage in a development process these institutions and the co-operation appear to be a necessary condition in order to overcome bottlenecks which cannot be solved by individual peasants. In an illustrative example, it has already been stated above that it requires co-operation to obtain the full benefits of the new paddy technology. In other fields of economic activity, not necessarily related to paddy production, co-operation in FOs might also be an important means of increasing the pace of development: e.g., the various non-agricultural diversification projects in Muda FOs could not have been undertaken by individual peasants or small groups.

A better insight into the factors which influence the responses of peasants to FOs is not only relevant in the Malaysian context of the fieldwork. Malaysia is only one among the various Southeast Asian countries trying to increase paddy production and reduce poverty among paddy growing peasants. These countries include not only traditional importers of rice, such as

Indonesia, but also exporters, such as Thailand, who want to maintain their exports despite increases in internal rice consumption. In the absence of land reform measures such as collectivisation, the governments of these countries try to achieve their ends by directing their efforts at a mass of small or very small peasants who are only weakly organized to defend their collective economic and political interests, if they are organized at all. In their efforts to increase paddy production and peasant incomes, various Southeast Asian governments have introduced organizations which, in some respects, resemble the Malaysian FOs. It can be expected, therefore, that in various other countries situations and problems occur which are similar to those observed in this Malaysian study. Although a comparison of the responses of paddy growing peasants to such organizations in various Southeast Asian countries (and possibly other countries as well) is not the aim of this study, it is hoped that studies such as this will enable a comparison and serve as a source of information to those involved in research related to comparable problems in other countries. Some of the solutions attempted in Malaysia might prove useful in a wider context, whereas some of the shortcomings of the Malaysian approach might be prevented.

Outline of this thesis

Chapter 2 deals with the design of the field study and the methods of data collection used. Chapter 3 contains a description of the federal policies concerning the development of paddy farming and FOs. It also discusses the macro socio-political and economic context from which these policies evolved. Chapter 4 starts with an overview of the history of paddy farming in the geographical context of the research areas. This is followed by a description of the differences between Krian and Muda in the organizational setting of the FOs within the framework of the various government agencies involved in the process of stimulating socio-economic development in the two areas. The chapter ends with an analysis of the activities of two selected FOs and the role of the members in these organizations. Chapter 5 deals with the micro social and economic context in which the interaction process between intervening government agencies and the paddy growing peasants occurs. The chapter starts with an analysis of the social structure at village level, and its effect on co-operative activities. The second part of the chapter deals with the role of paddy production in the complex of economic activities undertaken by the peasants, the social aspects of the mobilization of resources, and the position of shopkeepers-cum-paddy buyers in the rural economy.

The chapters 6, 7 and 8 deal with the various factors influencing the affiliation of peasants to the FO, the members' contributions to the development of the FO, and the use of FO services respectively. Each of these chapters presents and tests a number of hypotheses concerning these factors as they were identified in explorative fieldwork and further developed on

the basis of particular theoretical frameworks. These chapters also pay attention to the differences between the responses of peasants to the Krian and Muda FO studied. An attempt is made to assess whether these differences can be attributed to the more favourable opportunities for co-ordinating the FO's services in the Muda FO. Chapter 8 also contains an analysis of the impact of the FO services on the application of the new paddy technology.

Chapter 9 contains a discussion of the major implications of the research findings and points to some fundamental problems that should be solved by both peasants and policy makers before a number of suggested improvements in the operation of FOs could be attempted. Within the framework of the larger research project of which this study is a part, the various improvements suggested here have already been communicated to Malaysian government authorities in a number of fieldwork reports and a seminar at the Socio-Economic Research and General Planning Unit of the Prime Minister's Department. Some of these recommendations have contributed to a reallocation of government resources to solve some of the problems identified.

A note on terminology

Some final notes have to be made here on a number of aspects of presentation. Firstly, I have sometimes included Malay terms in the text (in italics), when there was no simple English translation or, in some cases, to provide some *couleur locale*. However, this use has been kept to a minimum since this book is partly intended for an audience which is not familiar with the Malay language. Malay terms occurring frequently have been explained in a glossary. Secondly, I have used the metric rather than local or British impirial measures. This makes the book more accessible and is in accordance with international usage. Malaysian readers will be familiar with these measures since the country is in the process of adopting the metric system. Thirdly, I followed Grist's (1975) suggestions for the standardization of rice terminology. The term *paddy* is used to refer to both the crop and to rice in the husk after threshing. Thus paddy is used as an equivalent to the Malaysian word *padi*, or the Indonesian *gabah*. The term *rice* is used to refer to kernels obtained after husking and milling of paddy. The Malaysian equivalents for rice are *beras* or *nasi*, depending on whether the rice is uncooked or cooked, respectively.

Finally, it should be noted that, when I consistently refer to the peasant as *he*, this is only for convenience of presentation. In fact, a small percentage of the peasants are women, usually widows who have continued paddy farming after the death of their husbands.

period than the Kemubu project which had only started five years prior to the beginning of the fieldwork for this study. The Krian area seemed to be the irrigation scheme without a project authority that most evenly matched the Muda area in terms of size and socio-economic, physical and ecological conditions. Some differences should, however, be stressed. Although Krian is the largest of the irrigation projects without an autonomous project authority, it is still only a quarter of the size of the Muda area; it is covered by 5 FOs compared to 27 in Muda. Physical and ecological conditions for paddy production in Krian were also not as favourable as in Muda.

Selection of sub-areas

Because of the explorative character of this study and the limited resources and time available for research, it was impossible to include all the FOs in Krian and Muda, or even a fairly large sample of them. For this reason, it was decided to limit the study to an in-depth analysis of one FO-area in Krian and two FO-areas in Muda. A number of important conditions which could have influenced the peasants' responses were matched as nearly as possible in the FO-areas selected. To make up for the fact that physical and ecological conditions in Krian were not as favourable as in Muda, the Gunong Semanggol FO-area (see map 2) which was most suitable for paddy production was selected. The Muda FO-areas which most matched the Krian FO-area selected were the Pendang and Jitra areas (see map 3). Like the Gunong Semanggol area, these are areas on the inland fringe of the irrigation scheme in which some paddy growing peasants also had a small plot of rubber trees. However, in all these FO areas, 90% of the peasants considered paddy as their most important source of income. In all three areas, urban employment opportunities were limited because each of the areas was about 20 km from the nearest urban centre.

The qualitative fieldwork for this study was carried out in two neighbouring villages in the Pendang area (Kampong Guar Kepayang and Kampong Banggol Besi) and one village in the Gunong Semanggol area (Kampong Kubu Gajah). The villages selected were roughly within 3-6 km from the FO office and formed the centre of a Small Agricultural Unit (SAU), a sub-unit of the FO. Contacts were also established with key informants (village chiefs, board members of the FO, SAU chiefs) in other villages in the area to check whether the insights obtained in the research villages were generally applicable.

The Pendang area rather than the Jitra area was chosen as basis for the qualitative fieldwork in Muda, because the FO in Pendang was established only three years before the start of the fieldwork for this study, so that it was possible to obtain information about the early process of mobilization. Later on, however, it was decided to shift the focus of the study to the Jitra area. The reason was that the FO in Jitra, like the one in Gunong Semanggol, had been in operation for a fairly long period (± 10 years).

2 *METHODS OF DATA COLLECTION AND ANALYSIS*

The exploratory character of this study has had a number of consequences on the design of the research and the methods of data collection used. Firstly, the geographical scope of the study has been confined to a few FO-areas only, i.e. areas each covered by one FO. Secondly, the method used was to gradually increase the standardization in data collection, after an initial emphasis had been put on qualitative methods. This procedure was aimed at formulating hypotheses and refining concepts and variables. A sample survey was only done towards the end of the fieldwork period. It is believed that it would not have been possible to fully understand the survey data and to judge their validity without the insights obtained from the prolonged qualitative fieldwork. On the other hand, survey data are valuable in order to be able to test these insights on a wider scale. The two methods can be profitably combined (Coward 1978).

This chapter describes the selection of the research locations and the methods of data collection employed during various stages of the fieldwork. A final section contains some remarks about the statistical techniques used in the analysis of the data and the interpretation of the results.

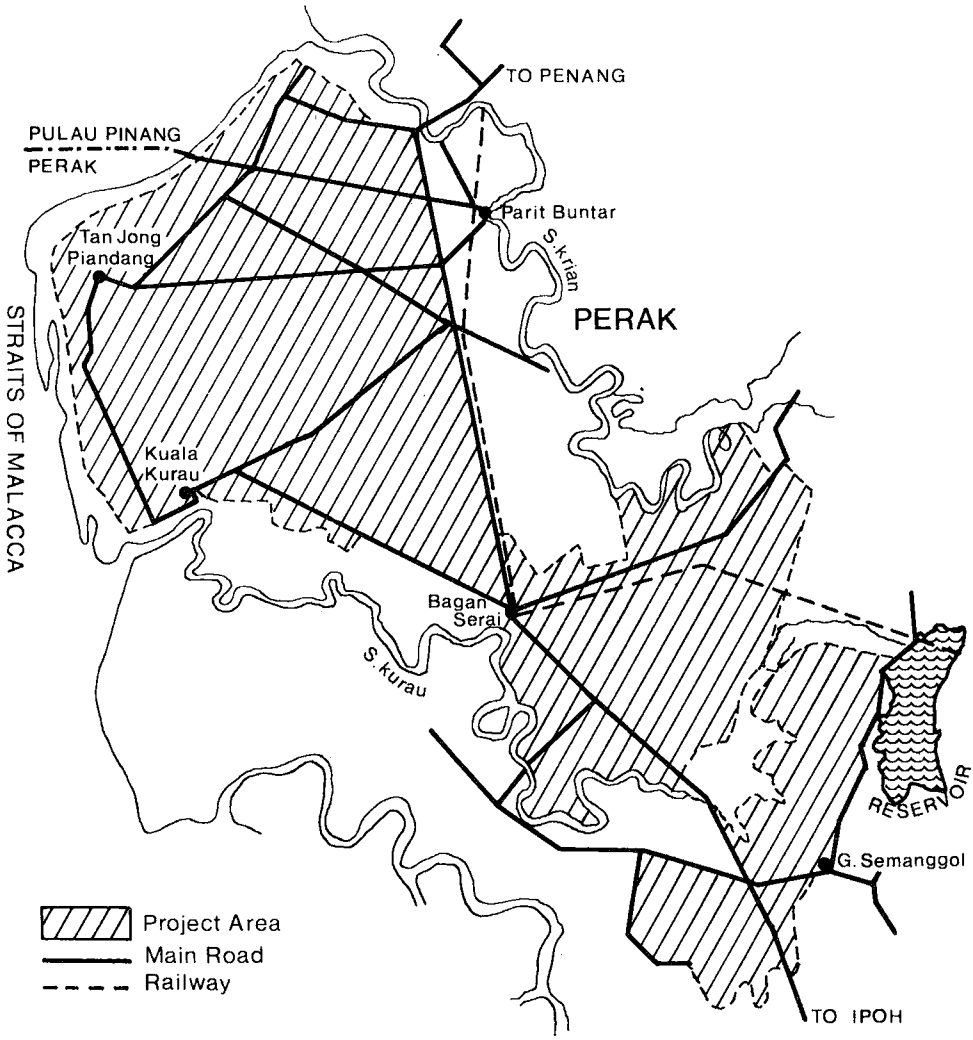
2.1 THE SELECTION OF THE RESEARCH LOCATIONS

Selection of the Krian and Muda schemes

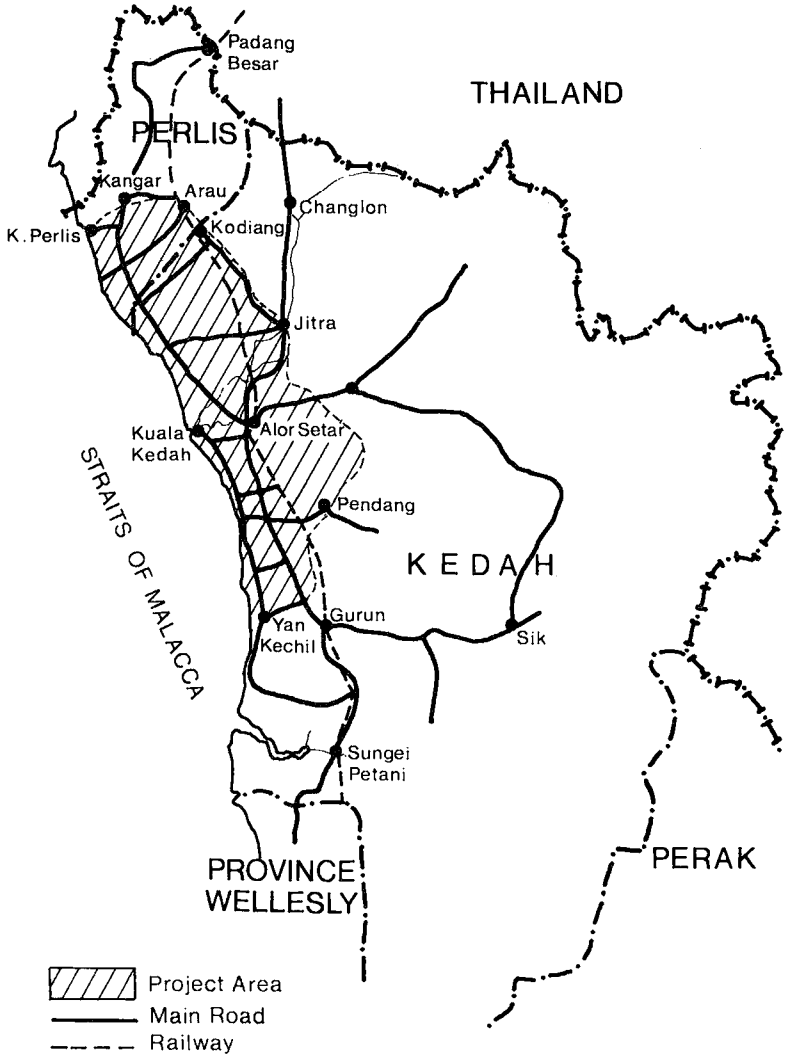
As indicated in the previous chapter, the major reason for choosing the Krian and Muda areas as locations for the study was that these areas represented the two different types of organized government intervention in paddy areas in Malaysia. One of these types, intervention by an autonomous project authority, was only found on two irrigation projects on the peninsula, namely in the Muda and Kemubu areas. The other large scale irrigation projects in the country were operated by organizational sub-units of various government agencies. These sub-units were only loosely co-ordinated at the project level. It was intended to compare the effects of these two organizational forms in terms of the extent of co-ordination of various specialized activities at FO level and the response of the peasants. For this reason, non-organizational differences between the two selected areas which might have affected this co-ordination (e.g. the size of the irrigation project) and the peasants' response (e.g. the socio-economic conditions and physical and ecological suitability of the environment for paddy production) had to be kept to a minimum.

The Muda area was selected as an example of the first type of organized government intervention. The project had been in operation for a longer

Map 2 The Krian irrigation scheme area



Map 3 The Muda irrigation scheme area



The age of the FO was thought to be an important factor influencing the responses of peasants. In this respect, the FO in Jitra was better matched to the Krian FO than the FO in Pendang[1)]. This shift of territorial focus within the Muda area was preceded by a number of field visits to various parts of the Jitra area, interviews with FO staff in Jitra and with key informants in 10 villages. On the basis of this information, it was concluded that the Jitra area formed a suitable environment to test the insights obtained in the village studies in Muda. Because most of the quantitative material was obtained in Jitra, I have decided to focus the analysis in this thesis primarily on a comparison of the Gunong Semanggol and Jitra FOs. However, in specific instances, I refer to qualitative material obtained in the Pendang village studies when this provides a deeper insight into particular processes.

2.2 THE QUALITATIVE FIELDWORK

The qualitative fieldwork in Muda was carried out from December 1977 to May 1978, that in Krian from August 1978 to December 1978. During these periods my wife and I lived in the research villages where we shared the house with a Malay peasant family. The locations chosen provided a good opportunity to study the role of the local FO leader, who was either the house-owner himself (in Muda) or the next-door neighbour (in Krian).

During the first few weeks of the fieldwork in each area, I made frequent visits to the FO office. In each of the offices I received the full co-operation of the staff. Several long interviews were held with each of the staff members, concerning their social background and aspirations, their specialised activities and the distribution of tasks, their attitude towards their work and towards the peasants, their view of the peasant's thinking, their contacts with peasants, visits to the villages, et cetera. On a few occasions I also accompanied officers on field trips, usually to pay a visit to a FO leader for minor administrative chores such as announcing meetings and signing forms. The rest of the time was spent on collecting and analysing monthly and annual reports concerning the various activities of the FO (on standardized forms), plans for activities, annual budget plans, financial and audit reports, files with written instructions from MADA or FOA and the minutes of board and assembly meetings. New aspects raised during this analysis could be immediately discussed with the staff members concerned. My presence also provided a good opportunity to observe the activities of the officers and their interactions with peasants who came to the office. Information on the FO in Jitra was obtained in a similar way at intervals in January, March and April 1979.

During the rest of the fieldwork period in each area, I paid irregular visits to the FO office to maintain contacts with the officers, to obtain further information and to hear the officers' version of certain events that

the peasants had brought to my notice. I also attended board meetings and a number of meetings at SAU level in various locations throughout the FO-area. These meetings were recorded and analysed in order to get an impression of the role of the members in the FO.

Although during the first weeks after settling in the village I concentrated on the FO office, I also established contacts with peasants in the neighbourhood and started to select key informants, i.e. peasants who were willing and able to provide useful information. After finishing the initial phase of data collection in the FO office, the fieldwork concentrated on the peasants and their response to the FO. Main issues were:

1. How do peasants view their interests in relation to the FO?
2. How do these views relate to their social and economic position as determined by the resources at their disposal and the networks of relationships that they maintain?
3. How do these factors influence their affiliation and contributions to the FO and the use of FO services?
4. If the FO services are used, does this stimulate the use of new paddy cultivation techniques?

In order to answer these questions a general insight was necessary into the social structure of the village, various forms of co-operation and mutual help or, conversely, factions formed around opposed interests, the social relationships that play a role in the distribution and mobilization of resources such as land, labour and capital (credit). The latter include relationships with persons and institutions outside the peasant community, such as paddy buyers-cum-shopkeepers and government agencies. Another subject of interest was the spread of new paddy cultivation techniques and the problems involved in their adoption.

These insights were obtained by a combination of observation and interviewing. The social events in the village, the paddy growing activities in the field, the interactions of peasants with shopkeepers and government officers were observed. Further information on the observed phenomena was obtained from interviews and this stimulated new observations, et cetera.

I tried from the start to interview the peasants without the aid of an interpreter and after 4 months field work was able to pursue my investigations unaccompanied. However, in the beginning I was always accompanied by an assistant who could take over when my Malay failed or when I could not understand the local dialect. The assistant was an unmarried 25 year old man, who lived in a nearby village and took care of his parents' paddy farm. He had attended secondary school for 5 years and spoke English well.

It appeared easy to make contacts with the peasants; they were familiar with the phenomenon "field researcher" and many of them sought contact with me. When the purpose of an interview was carefully explained, co-operation never proved a problem. The key informants with whom I established personal contacts and who were frequently asked for new explanations and information,

apparently never grew tired of their role. A factor which contributed to their readiness to co-operate with the research, was that some peasants saw this as an opportunity to communicate their criticism of government agencies to higher levels in the administration.

Initially, the interviews were completely unstructured, but in the course of time standardized open-ended questions were developed for various subjects in the interviews. The list of questions was presented to a sample of peasants. The proper way of putting these questions had more or less evolved from the preceding interviews and was further improved on the basis of new interview experience. In a still later stage, when the categories of answers which could be expected had become clear, the interviews were further standardized by including pre-coded answers. Thus, the questionnaire to be used in the survey gradually "evolved" from the interviews with roughly 60 peasants in each area by a process of continuous adaptation.

However, during these interviews much more information was obtained than that included in the questionnaire which formed only part of the interview. Both before and after the presentation of the questionnaire, the interview had an unstructured character. Also, when peasants raised certain topics during the standardized part of the interview, I probed deeper into the matter and only continued with the questionnaire at a later stage. Furthermore, completely unstructured interviews with key informants continued throughout the period of the village studies.

2.3 THE SAMPLE SURVEY

After completing the anthropological fieldwork in the Krian and Muda areas, it was decided to hold a sample survey among the paddy growing peasants in the Gunong Semanggol and Jitra areas. The reasons for concentrating on the Jitra rather than the Pendang FO area have been explained in section 2.1 above. The purpose of the sample survey was both to test the hypotheses generated by the preceding fieldwork and to assess whether the insights obtained had a wider validity outside the villages studied by anthropological methods. In the Gunong Semanggol area, the survey was held in the period January-February 1979, in the Jitra area in February-March 1979. In both areas the survey followed immediately after the harvest of the preceding main season crop had been completed.

Since it was found that, in paddy farming, the household was the unit of production, the sampling unit in the survey was the Malay paddy farming household or, more precisely, the man or woman in each household who actually took most of the decisions concerning the paddy farm. In most cases these were men. Women only figured as such if they were widows, or if their husband was unable to take care of the paddy farm.

The questionnaire

The questionnaire used in the survey was the one that evolved from the village studies as described. It was put in the local dialect rather than standard *Bahasa Malaysia*, which the peasants regard as bookish. It took an average 1½ hours to complete the questionnaire.

The main topics covered by the questionnaire were the following:[2)]

1. Age, sex, education level and place of birth of the respondent;
2. Size and composition of the household, kinship structure, availability of male and female household labour, employment of dependent and independent children;
3. Land tenure, role of social relationships in the mobilization of land, rentals and other conditions of tenure, soil characteristics, quality of on-farm irrigation and drainage;
4. Methods of mobilizing labour for paddy production;
5. Methods of obtaining production and consumer credit, relationships with paddy buyers-cum-shopkeepers or institutional credit sources, obligations to shopkeepers, particularly concerning the sale of paddy;
6. Techniques of paddy production: selection of varieties, mechanization, use of chemical inputs, co-operative pest control and water management, et cetera;
7. Costs and returns of paddy production;
8. Non-paddy economic activities, costs, returns and income;
9. Ownership of capital goods (tractor, rice mill, water pump, taxi, bicycle, motorbike, cattle, durable consumer goods and value of the house);
10. Contacts with persons and institutions outside the peasant community, including agricultural extension officers, access to mass media;
11. Involvement in social life in the village, co-operative activities, village organizations and committees;
12. Income aspirations and attitudes towards paddy farming;
13. Decision-making about affiliation to the FO, expectations of the FO, acceptance of norms concerning the members rights and obligations, contributions to the FO, social control among members, active mental involvement in the affairs of the FO, method of obtaining information about the FO, relationship with FO leaders.

Obviously, only some of the questions concerning the last topic could be asked of non-members.

Samples required

The technique used to obtain the samples in the Gunong Semanggol and Jitra areas was rather complicated. One reason was that there were no reliable sampling frames of the population of the Malay paddy farming households in the selected FO-areas. Another reason was that testing of specific hy-

potheses required different kinds of samples. In each FO-area, the following samples were required:

1. A simple random sample of the total population of paddy growing households in the FO-area;
2. A ditto sample of the FO members;
3. A sample of FO leaders;
4. A stratified random sample with equal numbers in each of the 6 sub-categories formed by the FO members and non-members in the 3 farm size categories as follows:

	paddy area		
	<1.0 ha	1.0-1.5 ha	>1.5 ha
FO members	sub-category 1	sub-category 2	sub-category 3
non-members	sub-category 4	sub-category 5	sub-category 6

The need for these various samples is explained as follows. Most of the hypotheses concerned relationships between pairs of variables as these occurred in the population of Malay paddy growing households in each of the two selected FO-areas, or in the population of FO members in these areas. In all these cases, the first or second of the above-mentioned samples were used as a basis for the calculation of correlation coefficients and tests of significance. The third sample served to enable a comparison of FO leaders with the ordinary members of the FO in the second sample. The fourth sample was used in specific instances only. The primary result of the stratification with equal numbers in the strata is an over-representation of the FO members with small farms (<1.0 ha) and non-members with large farms (>1.5 ha). This was necessary in order to disentangle the possible independent effects of farm size and FO membership on the use of new techniques, e.g. the expenditure on fertilizer per ha. It was expected that this would not have been easy in a simple random sample, since the village studies had shown that farm size and FO membership were highly correlated. The fourth sample also provided an opportunity to test the effect of particular variables on affiliation to the FO in each farm size category separately.

Sampling technique

Because no sampling frames were available it was not possible to simply draw a random sample of the population of Malay paddy farming households in the FO-area. Instead, a two-stage procedure was followed to arrive at a representative sample. The first stage consisted in the drawing of a simple random sample from all *ketua kampong* areas in the FO-area. These are administrative areas assigned to a village chief (*ketua kampong*) and the only clearly demarcated territorial sub-units. Other territorial sub-units, such

as villages or the Small Agricultural Units of the FO often did not have such clear boundaries. The variation in size (in terms of the number of households per *ketua kampong* area) and geographical spread of the *ketua kampong* areas sampled were both representative of the total population of these administrative sub-units in each of the selected FO-areas.

To construct a sampling frame for the second stage sample, all independent Malay paddy farming households living within the *ketua kampong* areas sampled were visited and listed. There were a few cases where two households were living under one roof. These were counted as separate households. In addition, each household was asked the following questions:

1. What is the acreage of your paddy land?
2. Does any of the members of the household belong to the FO?

These data were cross-checked with independently obtained information from SAU chiefs or village chiefs in the *ketua kampong* areas sampled and corrected in a few cases where this proved necessary. In Krian, a total of 608 Malay paddy farming households (FO members: 359) were listed, in Muda 440 (FO members: 196).

In order to arrive at the various kinds of second stage samples required for the testing of hypotheses, the households in the sampling frame were randomly assigned the numbers 1, 2, 3, et cetera, until all households had been assigned a random number. Then, the households in the sampling frame were divided over the 6 sub-categories indicated above. Within each sub-category the 30 households with the lowest random numbers were included in the sample. If an interview could not be held, as happened in 4 cases in Krian and 6 in Muda, the household with the lowest random number among the non-sampled cases in the same sub-category was interviewed as a substitute[3]. In Krian, a total of 177 peasants were interviewed, in Muda 185.

By this method, in each of the two FO-areas selected, the required second stage samples were obtained as follows:

1. It follows from the sampling method used that peasants were included in the sample in the order of the random numbers assigned to them until one of the sub-categories contained 30 households. In Krian, this point was reached after 114 random drawings, in Muda after 102. These households form the first type of sample required, i.e., a simple random sample of the total population of Malay paddy farming households in each of the FO-areas[4].
2. The second type of sample required was a random sample of the population of FO members in the FO area. In Krian, this sample could be obtained by taking all the 70 FO members in the simple random sample mentioned under 1. In the Muda FO area, however, this sample contained only 42 FO members which is not enough for contingency table analysis. A larger sample of FO members in Muda was obtained by taking all 30 members interviewed in the farm size category which comprised the largest number of FO members in the sampling frame. It was found that thirty one

percent of the members in this category had been interviewed. Then similar fractions of the other farm size categories were taken by adding members interviewed in the order of their random numbers. In this way one arrives at a stratified random sample with uniform sampling fractions, containing 60 households in total.

3. The third sample required was that of FO leaders. This was obtained by additional interviews with all members of the FO's board of directors. These were supplemented by interviews with the SAU chiefs and assembly members included in the sampling frames. Twenty FO leaders were interviewed in Krian and 18 in Muda.
4. The total number of peasants interviewed in each FO area (with the exception of the FO leaders added as indicated above) together form the fourth sample required. This stratified random sample actually consists of 6 separate simple random samples of about 30 housholds from each of the 6 sub-categories formed by FO members and non-members in the various farm size categories.

Implementation of the survey

The interviews for the survey were carried out by assistants. These were Malay secondary school graduates, living in the survey area who were waiting for the results of their MCE or higher secondary examinations. The students were subjected to a 5-day training. During the first three days they were made familiar with interview techniques in general and with the questionnaire and the background of each question in particular. A large part of the training was spent on exercises in which one of the students took the role of the interviewer and another that of the interviewee. When interviewers made mistakes during these training sessions, it was explained why this was a mistake and how it could be corrected. Correct handling of particular problems was also brought to the notice of the students and discussed in a larger group. The last aspect of the in-door training involved filling in the answers correctly. After three days a selection was made and only the best students were retained. The next two days were spent on trial interviews with peasants who had not been included in the sample. Students who passed this test were hired as interviewers. In the Gunong Semanggol area seven boys and one girl were selected. In the Jitra area, however, it was necessary to work with a larger group of interviewers (23, all boys). The reason for this relatively large group was that, due to delays in the completion of the Krian survey, there were only 3 weeks to train interviewers and complete the survey in the Jitra area before the start of the new paddy season. Although working with such a large group has certain disadvantages, these were largely compensated by the fact that about half of the interviewers had had previous experience.

The interviewers worked individually, travelled by bicycle or motorbike and conducted two interviews per day. The work was done either during the

day or in the evening, depending on the availability of the respondents. Completed forms were checked immediately and, if necessary, corrected with the aid of the interviewer or by re-visiting the respondent. Field checks were made to control the interviewers. One interviewer had to be removed from the job because there were indications that he rushed through the questionnaire. Generally, however, the interviewers worked with great dedication and diligence.

2.4 DATA PROCESSING AND USE OF STATISTICAL TECHNIQUES

The data processing, analysis and writing of the thesis took place at the Agricultural University of Wageningen. The survey data were coded by myself and then punched onto cards. Extensive checking revealed only very few coding and punching errors which were corrected. For the computer analysis, I used the standard Statistical Package for the Social Sciences SPSS (Nie *et al.* 1975).

As indicated above, most of the hypotheses concerned relationships between pairs of variables as these occurred in the population of Malay paddy farming households in each of the two selected FO-areas or in the population of FO members in these areas. As the results had to be statistically generalizable to these various populations, I used the samples mentioned under 1 and 2 above as a data base for the calculation of correlation coefficients and significance testing related to these hypotheses. Most of these tests concerned ordinal level variables. For the analysis of correlations among these variables, I used Kendall's tau c (τ_c). In a few specific cases of interval level variables, Pearson's r (r) was used in correlation analysis. In the output from SPSS the significance of these correlation coefficients is printed as if it concerned a one-tailed test of significance with the alternative in the direction of the sign of the calculated correlation coefficient. Thus, in cases of one-tailed tests where this sign is opposite to the expected sign, one should read the complement of the significance printed. All significance levels given in this text have already been corrected in this way.

The biased stratified random sample with about equal numbers in the strata was only used in a limited number of specific instances where the effect of farm size had to be eliminated before testing for particular differences between FO members and non-members. This sample enabled an efficient comparison of sub-category means and of one-way frequency distributions (percentages) of particular variables for separate sub-categories. In one or two cases, this sample was used for multiple regression analysis with dummy variables representing the stratification criteria: FO membership and farm size category. A final use made of this sample is to estimate population means: A weighted average of the sub-category means is an unbiased estimate of the mean of the whole population. This is not the most accurate

estimate that could be obtained on the basis of a stratified sample, since the sampling fractions in each sub-category were not proportional to the product of the size of the stratum in the population and the standard deviation of the variable in the stratum (Yates 1960). Nevertheless, since my stratified sample with equal numbers in each stratum contains considerably more respondents than the simple random sample in each FO-area, the means calculated on the basis of the former sample are believed to be more accurate than those calculated on the basis of the latter.

2.5 CONCLUDING REMARKS

Even though confined to a limited number of geographical sub-units within the Krian and Muda areas, the study allows ample scope for the primary objective of the research, i.e. the identification of sociological factors influencing the response of peasants to FOs. This objective was achieved both by exploration using anthropological methods and by testing hypotheses concerning the variables affecting this response on a sample of peasants in the selected FO-areas. Although, strictly speaking, the outcomes of these statistical analyses could only be generalized to the population of the peasants in the FO-areas concerned, it is however thought, that the conclusions have a wider validity and are fairly representative of the responses of peasants in other comparable FO-areas.

However, as this study compared only one FO in Krian with one in Muda, it does not allow general conclusions concerning the effect of the organizational form of government intervention on the responses by the peasants. Nevertheless, the insights obtained by comparing the two FOs as has been done in this explorative study, can be the first step in a verification study which would allow general conclusions to be made.

3 *GOVERNMENT POLICIES CONCERNING THE PADDY SECTOR AND FARMERS' ORGANIZATIONS*

This chapter discusses the national development policies which resulted in such measures as the formation of FOs and the promotion of other government activities, in the paddy growing areas of West Malaysia. In order to put these policies in perspective, the first part of the chapter discusses the socio-political composition of the country, which has led to the emphasis on rural and agricultural development so characteristic of the Malaysian development policy, since independence. The historical antecedents of FOs are also discussed. During the successive phases of development, various types of grass-roots institutions have been attempted as instruments for rural development. Each type had a period of expansion followed by one of decline when the policy emphasis was shifted to another type of organization. The policies concerning the formation of FOs are considered against the background of these earlier and partly abandoned attempts to establish intermediate organizational structures between the peasants and the government agencies charged with the implementation of government development policies.

3.1 THE SOCIO-POLITICAL AND ECONOMIC BACKGROUND OF RURAL DEVELOPMENT POLICIES

West Malaysia is characterized by a typically plural society. In 1975, the population, according to the Third Malaysia Plan estimate was 10.4 million; 53.1% were Malays, 35.5% Chinese, 10.6% Indians and 0.8% others. Apart from this ethnic differentiation, there is the more important distinction between the indigenous people, called *bumiputera*, and the non-indigenous people. Even though a large but unknown proportion of the Malays came as immigrants from various parts of the Indonesian archipelago in the 19th and early 20th century, all Malays are regarded as *bumiputera*. The Chinese, most of whom came as tin miners in the same period, and the Indians, most of whom came as plantation labourers in the early 20th century, are regarded as non-*bumiputera*. The privileged status of the *bumiputera* has been laid down in the constitution. One of the cornerstones of political stability in Malaysia is that the non *bumiputera* acknowledge the political dominance and privileged status of the Malays (Tennant 1975).

There are a number of politically significant differences between the Malays and the Chinese, as the major representatives of the *bumiputera* and non-*bumiputera* categories. Both ethnic communities are distinct cultural groups both guarding their own cultural inheritance. The fact that the Malays are Muslims, whereas the Chinese are Buddhists or Taoists means that

intimate social contacts between the two groups are limited. The Malays are predominant in the rural areas, where most of them make a living as rubber smallholders or small scale paddy growers. Most of the Chinese on the other hand live in the urban areas and find employment in the modern sector, either in small scale family businesses or as labourers, technicians or white collar workers in large enterprises. The Chinese in the rural areas are usually shopkeepers, traders, rice millers or truck drivers, seldom farmers. Thus, the Chinese dominate the modern sector of the economy as well as the marketing of the smallholders' agricultural surplus. The average income of the Chinese population is considerably higher than that of the Malays.

The demand among the Malays for higher incomes and a more equitable participation in the modern sector of the economy, especially the white collar jobs, has been one of the most important political issues in the last four decades, particularly since independence in 1957. The fact that this demand receives a strong emphasis in the development policies, is mainly a consequence of the special characteristics assumed by the political system in the social context outlined above.

Malaysia's parliamentary democracy is characterised by a relatively large number of political parties. If not by intent, then at least in practice most of these parties recruit their following from a single ethnic group. Nevertheless, extremist communal politicians have not had much chance in Malaysia. Since it was realized that open political confrontation between these parties could lead to intercommunal violence, the pragmatic political leaders of the most important ethnic groups have formed a coalition of parties whereby they agreed not to contest the same constituencies in an election. Instead they have divided the constituencies between them, and the agreed candidate carries the standard of the coalition. This Alliance coalition which was renamed the National Front in 1973, has been in power since independence. Important political issues are decided behind closed doors and without much open discussion. The outcome is always a compromise which each party leader in the coalition can present to his following as a fair and acceptable deal.

The dominant party in both the Alliance and the National Front is the United Malays National Organisation (UMNO). Its most important rival in contesting for the Malay vote is the more orthodox Pan-Malayan Islamic Party (PMIP). The latter party has always been in opposition with the exception of a short period of participation in the National Front (1972-77). Because of the crucial importance of the predominantly rural Malay vote to the position of UMNO, it is not surprising that this party puts great emphasis on rural and agricultural development. Other parties in the Alliance or National Front whose supporters do not live in the rural areas, cannot but accept this emphasis in development policies because they are aware that any other policy would be unacceptable to UMNO and threaten the National Front government and thereby national stability.

The need for this compromise was dramatically illustrated after the elections in 1969 which returned the Alliance with a considerably reduced majority. Apart from the PMIP, some opposition parties oriented to the Chinese vote won several seats in the federal parliament and one of them even captured a majority of the seats in the Penang state assembly. This trend threatened the political dominance by the Malays and with it the special attention given to their economic emancipation. Following the results of these elections there were inter-ethnic riots in Kuala Lumpur. The death toll was about two hundred.

A return to normal parliamentary democracy was only possible after the Alliance government extended its coalition to include some of the successful opposition parties in the newly formed National Front. The New Economic Policy (NEP) adopted by the National Front government became the guiding principle of national development policies. The NEP aims at national unity by stressing the following objectives:

1. eradication of poverty irrespective of race[1];
2. the restructuring of society so that the identification of race with economic function and geographical location is reduced and eventually eliminated.

These objectives were a confirmation of the earlier development policies. Both objectives are to be realized not by a redistribution of existing resources, but via rapid expansion of the economy in the plan period covered by the NEP (1970-90) and channeling the economic growth so that the poor benefit more. The first objective involves a number of special programmes and projects, for seven identified poverty groups. Among these are rubber smallholders, small scale paddy growers, fishermen and estate labourers. A large percentage of the households in these groups earn incomes below the poverty line, an income level which is just sufficient to provide for the basic requirements of food, clothing, housing and transport. In 1975, 44% of the Malaysian households were poor by this standard; 87% of the poor were in the rural areas. In West Malaysia 74% of the poor were Malays (Third Malaysia Plan).

Taking into account the above-mentioned facts, it is not surprising that, of the two Five Year Plans (1956-60 and 1961-65) and the three Malaysia Plans (1966-70, 1971-75, 1976-80) all, except the first Five Year Plan, have allocated more funds to the rural areas and agricultural development, than to any other sector. Chee (1974) estimates that public expenditure for rural development under the various development plans has ranged between 52.9% and 61.2% of the total non-security development expenditure. The total amount allocated to agricultural development alone has increased from $ 227.5 million for the period 1956-60 to $ 4,735.5 million in the Third Malaysia Plan (1976-80)[2].

Of the three sub-sectors within the agricultural sector, the estate sector, the traditional peasant sector (mainly consisting of rubber small-

holders and small scale paddy growers) and the land settlement schemes, the latter two have clearly received the most attention. The emphasis in the development of these sub-sectors, was on the construction of infrastructure (roads, bridges, irrigation and drainage facilities), the development of high yielding paddy varieties and rubber clones, the encouragement of diversification in crop and livestock production, the dissemination of new agricultural technologies through extension activities and the provision of credit and marketing services. It can be said that the main rural development policy goal, throughout the various plan periods, was to increase agricultural output and productivity. For this reason Fredericks considers the Malaysian rural development programme, in concept and practice, to be *agricultural* development more than *rural* development (Fredericks *et al.* 1980). There has been an unstated reluctance to undertake drastic measures of structural reform of the traditional peasant sector, which would disrupt the existing rural social system based on peasant family farms.

The large public expenditures on the smallholder and land settlement sectors - which include many subsidies to the peasants - are financed from other sectors of the economy. When compared to most other Southeast Asian countries, Malaysia is relatively affluent. It is the world's biggest exporter of natural rubber, tin and palm oil, and one of the biggest exporters of hard wood. It also produces enough petroleum and natural gas for domestic use and a small surplus for export. Besides this, there is a rapid industrial development. In the 1970s, the economy has shown a growth rate which in real terms amounted to between 7 or 8% of the gross domestic product per year. Simultaneously there was a surplus in the balance of payments. Another factor which made it possible for the government to spend large sums on the agricultural sector was that the inflation rate was very low, particularly in the period before the world recession of 1973. Although inflation jumped from 1.6% per year in 1971 to 17.4% in 1974, it was reduced to a tolerable rate of 4.5% per year in 1975. In 1977 the prices were 55% above the 1967 level.

3.2. DEVELOPMENT POLICIES RELATED TO SMALL SCALE PADDY PRODUCTION

As this study concerns FOs in paddy growing areas, more has to be said here about the specific policies concerning the development of the paddy sector. These policies closely reflect the general tendency of rural development policies as outlined above.

In 1975, the area planted with paddy was roughly 380,000 ha, or 15% of West Malaysia's total crop area. This is second to rubber which covers 64% of the total crop area. Practically all the paddy is wet paddy and, by 1975, 56% of the paddy area was double cropped. There are about 300,000 peasant households (roughly 35% of all peasant households in West Malaysia) involved in paddy production, nearly all of them (97%) Malays. As indicated in chap-

ter 1, more than half of these are concentrated in well defined areas, where paddy is grown virtually as a monocrop and is the main source of livelihood. Another feature which has already been referred to above is the smallness of the farms.

Due to small farm size, low productivity and limited opportunities for off-farm employment, the annual household income in the paddy sector is much lower than that in the modern urban sectors of the economy or in the land settlement schemes. An indication of this low income is that, in 1975, 77% of the paddy growing households earned incomes below the poverty line, whereas the percentage for the total population in West Malaysia was 44% (Third Malaysia Plan).

Because of the high incidence of poverty among paddy growers and because nearly all of them are Malays, the National Front government is under strong pressure to pay special attention to the improvement of the paddy growers' economic plight. The regional concentration of paddy growers in certain areas and states, serves only to increase this pressure on the government, since it has been observed that the opposition PMIP is particularly strong in predominantly Malay constituencies, whereas in the constituencies with a larger proportion of non-Malay voters there is a stronger tendency for the Malays to support UMNO (Tennant 1975). Probably this is because Malay voters in communally heterogeneous constituencies realize that a vote for the PMIP would increase the chances of Chinese opposition candidates, as it is very unlikely that the PMIP could win a majority in these constituencies. The electoral interest of the government in the paddy growing areas is illustrated by the fact that, during informal discussions with government officials, paddy was sometimes referred to as a "political crop".

Throughout the various plan periods, the government policies concerning the development of the paddy sector have aimed, in order of priority, to:

1. increase the incomes of paddy growers;
2. reduce the country's dependence on rice imports;
3. supply rice to consumers at a reasonable price.

The emphasis is on income support. The desire to be self-supporting in rice, which is the staple food of all ethnic groups in Malaysia, is based primarily on considerations of national security and not on economic considerations. The policy of keeping domestic paddy prices considerably above world market prices makes that, from a national economic point of view, it would be cheaper to import rice than to produce paddy domestically. Self-sufficiency saves foreign exchange, but this policy objective is attained at a relatively high domestic cost, both to the consumer and the government. Because any surplus production can only be exported at a considerable loss, the government takes care that domestic production does not exceed demand.

As indicated in chapter 1, one of the most important activities in the paddy sector in the 1960s and early 1970s was the construction of large scale drainage and irrigation schemes in traditional paddy growing areas

with the object of making the production of two paddy crops per year possible (double cropping). The construction of these physical facilities was accompanied or preceded by, the development and the dissemination of new medium or short term paddy cultivars, suitable for double cropping, agricultural extension activities to provide information on new paddy cultivation practices, the provision of inputs and short term production credit, and a price support programme. By expanding the double cropped area from 4% of the total paddy area in 1961 to 56% in 1975, the target, to be 80-90% self-supporting, was reached at the end of the Second Malaysia Plan (1975). The emphasis has since changed from expansion of the irrigated and double cropped area to the further improvement of newly constructed drainage and irrigation facilities and the related farm support services.

3.3 THE FUNCTIONS OF RURAL INSTITUTIONS IN RURAL DEVELOPMENT POLICIES

The organizational structures and activities through which the aforementioned services were channelled to the peasants in the Krian and Muda areas will be discussed in more detail in chapter 4. These organizational structures are the result of a general process of continuous expansion of the number of government and para-statal agencies, charged with rural development tasks and an increasing involvement of these various agencies in planning and implementation during the five plan periods. Parallel to this development, there have been continuous attempts to create grass-roots institutions which would facilitate access to the services of these agencies, as well as promote a closer link up of the activities of the agencies with local demands. Prior to the present emphasis on FOs, various other grass-roots institutions were emphasized at different stages in the development process.

In order to provide more insight into the intended status and functions of the FOs within the complex of government agencies involved in agricultural development, this final section will briefly review the historical developments in the policies concerning rural institutions in Malaysia. As indicated, these developments mark a process of various successive and partly abandoned attempts to establish intermediate organizational structures between the peasants and the government agencies charged with the implementation of development policies. The analysis in this chapter is, however, necessarily limited in scope. The full extent of the problems involved in these attempts will only gradually become clear when more information on the social structure of the peasantry and its effect on the peasants' response to the FOs has been provided in later chapters of this thesis.

For the analysis of historical dimensions in the policies concerning rural institutions, I have relied primarily on Fredericks who did a Ph.D. study on co-operative development in Malaysia and also published various articles on co-operative policy and the policies behind the formation of FOs (Fredericks 1973, 1974a, 1974b, 1974c 1975, Fredericks *et al.* 1980).

Co-operative societies

In the initial plan periods, it was thought that the construction of infrastructure would provide the impetus for a process of agricultural growth through "trickle down" effects. Although the government realized the need for institutions which could contribute to a more equitable distribution of the gains from this growth process, there were few government agencies involved in directly providing services to the rural population. The emphasis, in this period, was on self-help institutions which required relatively little government support. Rural co-operative societies were regarded as a suitable policy instrument for this purpose.

Co-operative societies had been introduced into Malaysia in 1922 when the British colonial government promulgated the Co-operative Societies Enactment. Most of the rural co-operatives established before World War II were credit co-operatives in the paddy sector. The mono-functional character reflected the policy makers' limited perception of the structure of the rural economy; it was thought that credit was "the key to the marketing system" (Fredericks *et al.* 1980). The role of the state in these co-operatives was limited to supervisory functions by the Department of Co-operatives. The pre-war co-operative policy of financial non-involvement by the state, meant that the survival of these co-operatives was often threatened by mis-fortunes such as bad harvests or a decline in prices for agricultural products (Fredericks 1973). The expansion of the co-operative movement in this period remained limited, when compared to the 1955-63 period described below.

However, in the post-war and early independence period it had become clear that the mono-functional primary co-operative societies stimulated by the colonial government were too limited in the scope of their activities to compete effectively with the multi-lateral marketing-merchandising-money-lending strategy of the rural middlemen. In their place, the government stimulated the development of rural co-operative societies with multi-purpose functions in the field of credit and input supply, marketing and retailing of consumer goods. Furthermore, the activities of existing pre-war mono-functional co-operatives were co-ordinated, in an attempt to base the development of the rural sector on a network of inter-linked self-help institutions (Fredericks 1975). Whereas the pre-war co-operative policy had been based on the principle of financial non-involvement of the colonial government, subsidies by the state were now permitted. Also the task of the Co-operative Department was changed from controlling co-operative societies to the promotion of rural development. This government support caused a substantial expansion of the rural co-operative movement in the period 1955-63. This "co-operativisation" was particularly notable in the fisheries and paddy sector. There were fewer co-operative rubber marketing societies. In the paddy sector, the provision of seasonal production credit and fertilizer distribution, rice milling and marketing, were the major tasks of the co-operatives.

Fredericks (1975) records that after 1963 the government's emphasis on co-operatives as instruments of rural development was reduced. As the major causes of this development he mentions:

1. Inter-personal conflicts in the cabinet resulting in the loss of the political leadership that had forced the pace of co-operative development during the period 1955-63.
2. The Co-operative Department, long used to performing supervising functions, lacked the management ability, training facilities and financial resources to perform the complex task of promoting rural development. This was reflected in the limited success and the small impact of the various co-operative schemes.
3. The hasty growth of the rural co-operatives which raised the problem of ideological commitment and identification of members with them. It is plausible that the member's perception of his co-operative was more that of a convenient, semi-government supplier of inputs to which little if any, loyalty was owed (Fredericks 1975, Fredericks *et al.* 1980).

As a reaction to the disillusionment with rural co-operatives as instruments for rural development based on the concept of self-help, the government increased its institutional involvement in the process of rural development by creating various government and para-statal agencies. At the same time, the government was forced to look for other grass-roots institutions which could serve as local contact points for the activities of these various agencies. The grass-roots institutions which now came in focus were the newly created Village Security and Development Committees and, in a later phase, the Farmers' Associations and Farmers' Organizations.

The Village Security and Development Committees

Prior to 1963 it had already become clear that the accomplishments of the rural co-operative societies could not satisfy sufficiently the rural Malays' demand for economic progress when, in the 1959 federal elections the Alliance was returned to power with a reduced majority of 51.8%, compared to 80% in 1955. In state elections in the same year, the Pan-Malayan Islamic Party secured a majority in the state assemblies of the economically backward East-coasts states Kelantan and Trengganu. This led to the creation of a special bureaucracy for the administration of rural development with rural development committees at national, state, district and village levels. At the head of this bureaucracy was the Ministry of Rural Development led by the Deputy Prime Minister. This bureaucratic structure which closely parallelled the one used to control the communist insurgency in the 1948-60 period, served to co-ordinate the development activities of the existing government departments at various levels and to make them more dynamic and oriented to development. In this process the Red Book system played an important role. Another purpose was to attune rural development

policies to local demands, by a combination of the "bottom-up" and "top-down" approach to planning (Chee 1974).

Village Security and Development Committees were an attempt to make up for the lack of traditional local government institutions. They were supposed to promote local initiatives in development planning and to serve as liaisons between villagers and the various (semi-)government agencies and departments, with rural development tasks. Apart from these functions, Village Security and Development Committees were also expected to be effective vehicles to encourage the rural population to contribute labour for development projects at village level through the institution of *"gotong royong"* communal labour. However, in actual practice, the Village Security and Development Committees did not have the financial and administrative resources to prepare and implement anything more than minor *gotong royong* projects, which is a far cry from the active role in village development expected of them. As noted by Chee (1974) and Afifuddin (1973, 1978), the concept of *gotong royong* as a voluntary free labour service is very much a thing of the past. Villagers now expect payment for their labour contributions to projects at village level that are wholely or partly financed from government funds, such as the building of a road or bridge. Furthermore, the technical complexity of even the simplest infrastructural facilities at village level requires specialized labourers rather than unschooled village labour. Given this lack of resources, Village Security and Development Committees confined their activities to formulating local requests for infrastructural facilities and passing these demands on to the authorities at subdistrict and district levels (see section 5.2).

The structure of development administration had a very stimulating impact on the government bureaucracy, but was much less effective in getting the peasants to participate in the planning and implementation of rural development (Van Dusseldorp 1971). Furthermore, it appeared that a lack of central directives to aid the selection of projects at district and state level resulted in a clogging up of the upward communication line with many more project requests than the state and national level planners were able to handle. Since the late 1960s the emphasis on the role of Village Security and Development Committees in rural development planning and implementation, has for this reason been discontinued.

Farmers' Associations and Farmers' Organizations

When the co-operative movement declined, another government created grassroot institution, the Farmers' Association, assumed increasing importance as a policy instrument to facilitate the co-ordinated provision of farm support services and to stimulate initiative and involvement in the planning and implementation of rural development at the local level. Farmers' Associations (FAs) were introduced in 1958 under the Department of Agriculture. The concept of FAs originated from Taiwan, where these organizations played

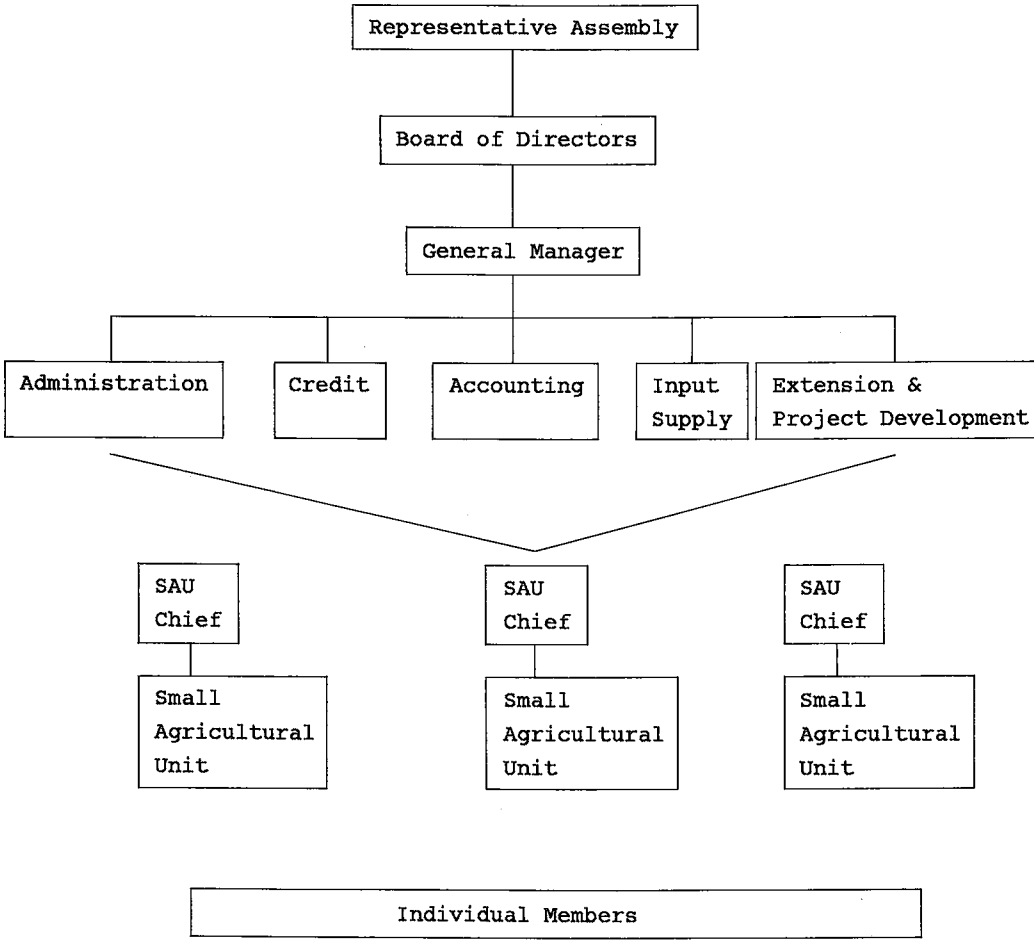
an important role in the integration of development efforts (Min-Hioh Kwoh 1964, De Lasson 1976). Originally, the FAs in Malaysia were to concentrate mainly on agricultural extension activities and function in a role complementary to the rural co-operatives (Ahmad Sarji 1977). However, with the passing of the Farmers' Associations Act in 1967, the FAs were transformed into organizations with multi-purpose functions in agricultural development. Apart from agricultural extension services the FAs under the 1967 act were also expected to provide their members with farm inputs, credit, mechanization, marketing, transportation, warehousing and processing services on an integrated basis. Other new tasks assigned to FAs involved the developing of rural leadership, the spirit of participation, self-help and self-reliance, and to increase employment of excess rural labour by undertaking agricultural-cum-business activities. Furthermore, the FAs were given the same privileges as the rural co-operatives, such as exemptions from profit tax and stamp duties.

The establishment of FAs was functionally linked to the area development strategy, which aimed at the concentration of development efforts in selected areas, with a high potential for sustained economic growth (Abdullah Ujang 1971). Normally, a FA covered an area of 2,000-4,000 ha containing 1,000-2,500 peasant households. Only a section of these households actually joined the FA. Individual FAs were affiliated to a State Farmers' Association and the latter to the National Farmers' Association.

The formal structure of a FA is represented in Figure 1. As it is very similar to that of the later FOs, I will describe it in some detail. At the lowest level in the FA, the ordinary members are organized in Small Agricultural Units (SAUs) based on a locality. SAUs hold a meeting at least once a year. During this meeting, staff members of the FA provide information about the state of affairs of the FA and new activities, while members are given the opportunity to ask questions and make recommendations for future action. Once in every two years, the SAU elects a SAU chief, an assistant SAU chief and a number of representatives to the FA representative assembly. At the same meeting, the SAU proposes candidates to sit on the board of directors of the FA.

The assembly meets at least once a year to discuss and approve the statement of profit and loss and the balance sheet of the previous year, the audit report, the activities for the coming year and the budget. This meeting also discusses the SAUs' recommendations and selects a number of them for further action. Once in two years, the assembly elects a new board of directors from the candidates proposed by the SAUs. The board meets when there is a need, usually not more than six times a year. Its eleven members elect a president and vice-president from among themselves. The tasks of the board are to design the FA's policy, formulate a plan of activities and budget and scrutinize membership applications.

Figure 1 Formal organizational structure of a Farmers' Association or Farmers' Organization



The actual management of the FA and the day-to-day operation of business is in the hands of a general manager and five or six officers all seconded from the Department of Agriculture. Following the Taiwanese example, the officers are each in charge of a "section" covering a specific field of activity. There are five of these sections: credit, input supply, administration, extension and project development, and accounting.

With the passing of the Farmers' Associations Act, the FAs were actually assigned functions which were largely identical to those of the co-operatives. In fact, in areas where co-operatives were still active, the FAs competed with the co-operatives. At the root of this development is the rivalry between the Department of Agriculture supporting the FAs and the Department of Co-operatives supporting the co-operative societies. Both departments were controlled by the Minister of Agriculture, who favoured the FAs (Fredericks 1975). The problems created by this rivalry were considerable. It created confusion among the peasants, bad feelings among members of co-operative societies about the larger subsidies and support given to the FAs, and insecurity about the future of the co-operatives (Ahmad Sarji 1977).

After some unsuccessful attempts to solve these problems by clearly delineating the areas of responsibility of the competing institutions, it was finally decided to create new institutions, called Farmers' Organizations (FOs), which served to co-ordinate and integrate the efforts of the FAs and agro-based co-operatives at the area level. For this purpose the Farmers' Organizations Act was passed in 1973. At the same time the FAs and agro-based co-operatives were removed from the control of respectively the Departments of Agriculture and Co-operatives and placed under the newly created Farmers' Organization Authority (FOA). Initially, the FOA was controlled by the Prime Minister's Department, but at present it is controlled by the Ministry of Agriculture. The FOA is a federal authority with offices at state level.

At the (FO) area level, the integration was planned in two steps. The initial step was a type of loose integration whereby the FA and the agro-based co-operatives in the area, affiliated themselves to the FO as "unit-members". Apart from these unit-members, the FOs also recruited individual peasants directly. The formal structure of FOs was an exact copy of - and in fact coincided with - that of the FAs discussed above, with the exception that the assembly of the FO does not only represent the FO members, but also contains representatives of the FA and the agro-based co-operatives that joined the FO as unit-members. The assembly elects 7 members of the board of directors, whereas 4 members are appointed by the Minister of Agriculture. The board is supposed to co-ordinate the activities of the various unit-members and to avoid overlapping and duplication of functions (Fredericks 1975). In executing this task, the board acts on the advice and guidelines provided by the FOA and is assisted by a general manager and five or six other officers seconded by the FOA. The latter also form the staff of the FA and

supervise the agro-based co-operative societies in the area covered by the FO.

Thus, in the initial phase of loose integration, the FAs and agro-based co-operatives were left intact and each kept its own identity, assets and liabilities. However, in areas where viable and active agro-based co-operatives existed, this loose integration could not solve all the problems caused by the existence of a dual institutional infrastructure. Both the FA and agro-based co-operatives and their respective board of directors and committees of management continued to have legal status, and the FO's board of directors did not have sufficient powers to carry out the task of co-ordination. As a consequence confusion among members remained and joint activities were sometimes frustrated by the attempts of unit-members to protect their own organizational interests. Another disadvantage of the loose integration policy was that the attention of the FOA staff and the resources of the unit-members were divided between three types of organizations :the FO, the FA and the agro-based co-operatives (Ahmad Sarji 1977).

In an attempt to solve these problems, in 1975 FOA adopted a policy whereby FAs were fully integrated with agro-based co-operatives to form FOs. This policy meant that the unit-members were asked to merge with the FO. This merger involved a complete transfer of the powers of the board of directors of the FA and committees of management of the agro-based co-operatives to the board of directors of the FO. Furthermore the assets and other property rights, responsibilities and liabilities, functions, activities and members of the FA and co-operatives were to be transfered to the FO (Ahmad Sarji 1977). This merger required the approval of two-thirds of the assembly of representatives of the FAs and three quarters of the registered members of the co-operatives (Fredericks *et al.* 1980). To facilitate the merger process, the FOA also decided to liquidate the agro-based co-operatives that were dormant and could not be revived again. Most of these were credit co-operatives whose resources had become tied up in unrepaid loans. In total these societies comprised more than half of the roughly 1,600 agro-based co-operatives in the country (Farmers' Organization Authority 1979).

By the end of 1979, 178 FOs had been formed; the long term objective is to establish 210 FOs throughout Malaysia. However, only 32 of these FOs had been formed by full integration. The achievement of full integration is not only hindered by the opposition of some viable agro-based co-operatives to the merger and curtailment of their decision-making powers, but also by the intricate legal and administrative procedures and problems involved in the integration process. It appears that part of the FOA's resources have become temporarily bogged down in a mass of paperwork related to the integration process, which distracts from development oriented allocations.

Under the Farmers' Organization Act 1973, the tasks that were given to the FOs were similar to those mentioned for the FAs. Members are expected to make financial contributions by buying capital shares in the FO, but most

of the present activities are financed by the FOA with grants from the government. Apart from the assistance in the form of man-power seconded by the FOA to run the daily business of the FOs, various other forms of assistence were given, such as subsidies for the acquisition of tractors, lorries and pick-up vans, for the rehabilitation of rice mills. Further, each FO was provided with office buildings and stores which were to serve as location of a Farmers' Development Centre.

The Farmers' Development Centres are an effort of the FOA to make the FO an important instrument for the co-ordination or integration of the various services provided to the peasants by the many government and para-statal agencies, with rural and agricultural development tasks. This co-ordinating task was assigned to the FOA under the Farmers' Organization Authority Act 1973. However, in actual practice this co-ordination has proved difficult to achieve, since the fieldstaff of the various rural development agencies maintain line responsibilities to their mother organizations and no executive powers over them are vested in the FOA (Fredericks 1975). Another problem is that the FO staff is unsufficiently trained for this effort (Fredericks *et al.* 1980).

When the FAs and agro-based co-operatives were placed under the FOA in 1973, an exception was made for those located in the Muda area. In 1970, these had already been removed from the control of the Department of Agriculture and placed under the newly created Muda Agricultural Development Authority. When FOA was established this arrangement was not changed (Fredericks 1975). MADA has not pursued integration policies similar to those of the FOA. Instead of attempting to co-ordinate the activities of the FAs and agro-based co-operative societies by the formation of FOs at area level, MADA has taken up this task and co-ordinates these activities at the project (regional) level. FOs were only established in those areas of the Muda scheme where, in 1973, no FA had yet been formed. These FOs came under MADA; the FOA is not involved in the development of the Muda area.

From here on, I will return to the use of the term FO as a general classifier referring to both Farmers' Associations, Farmers' Organizations and Farmers' Co-operatives. The latter term does not indicate a new form of organization, but is just another name which is sometimes used for what are officially Farmers' Organizations.

4 THE REGIONAL CONTEXT AND THE ORGANIZATIONAL FRAMEWORK FOR DEVELOPING THE PADDY PRODUCTION IN KRIAN AND MUDA

The Krian and Muda areas are distinct regional environments each posing specific problems for the implementation of government policies in the paddy sector. Apart from the historical, geographical and physical differences, the two areas are also characterized by a different distribution of development tasks over various organizations involved in the implementation of government policies. The first part of this chapter describes briefly the main geographical features of the two regions and their historical development as paddy growing areas. The possibilities of introducing new techniques for the cultivation of paddy are also discussed in relation to the physical characteristics of the Krian and Muda irrigation schemes. The micro-level social and economic framework of paddy production is dealt within detail in chapter 5. The second section of the chapter discusses how the various development tasks in each of the research areas are distributed over different organizations, including the FOs and also pays some attention to the co-ordination of the activities of these organizations. The final section concentrates on a more detailed analysis of the functioning of the selected FOs.

4.1 THE KRIAN AND MUDA AREAS

4.1.1 The Krian area

The Krian irrigation scheme is situated on the northwest coast of Perak on an alluvial plain. The area, covering 23,600 ha of paddy land stretches along the main road from Kuala Lumpur to Penang. Practically the whole irrigation scheme is within one administrative district, the Krian District with its centre in Parit Buntar (6,000 inhabitants). Except for a number of rubber and oil palm estates, which cover a third of the cultivated area, agricultural land in the Krian District is used primarily for paddy production (67% of the land used for smallholder agriculture).

The district is one of the most densely populated areas in the country. Of the total population of the district (154,000 according to the 1970 Census) the majority (65%) are Malays. Of these, more than 80% are primarily dependent on small scale paddy production. The rest of the population are Chinese (22%) and Indians (13%). The Chinese section of the population are mainly employed in the commercial sector and the Indians are primarily estate labourers. The non-Malays, almost without exception, are not engaged in the production of paddy.

The district is predominantly rural. The largest population concentrations in the area are four commercial centres, each with a population of 6,000-9,000 people. These centres perform commercial functions in the retail and paddy sector and house a number of government services. There is no industry of significance in the area. The nearest large cities are Penang (i.e. the Georgetown-Butterworth area), 100 km to the north, and Taiping 25 km to the southeast of the area. The former is the major port of the country and a rapidly expanding industrial centre. Taiping was formerly an important tin mining centre. These cities are too far away to allow the combination of permanent urban employment with part time paddy farming. Therefore, paddy growing peasants can only exploit non-agricultural employment opportunities by temporary migration in slack periods of the paddy cycle. In villages on the coast with access to the sea, paddy growing peasants occasionally augment their income by fishing.

Towards the middle of the 19th centry, the area was still mainly a marshy jungle. After some earlier unsuccessful attempts, the area was first settled in the period between 1870-1910 simultaneous to the construction of a drainage and irrigation system by the newly established British colonial administration (Hill 1977). The scheme, which was completed in 1906 is the oldest in Malaysia. The British hoped that the area would become the granary of Perak, an important tin mining state, and encouraged the settlement of paddy growing peasants from Kedah, Province Wellesley and Patani. After 1890, large numbers of Banjarese immigrated to Krian from the Banjarmasin area of southern Borneo. Settlers were awarded titles if they cleared the jungle and cultivated land for two or three years (Kratoska 1975). Migrants settled along streams and canals thus giving Krian villages a linear settlement pattern which is still evident.

Hill (*op.cit.*) describes a number of reasons why the original irrigation and drainage scheme was not as successful as had been hoped. Inadequate drainage, extensive damage by paddy pests due to lack of simultaneous planting, cholera and lack of clean drinking water were problems which occasionally precipitated an exodus of settlers and halted development both before and after the completion of the scheme. Although the area has always been oriented to the production of a marketable surplus, the exports from the area have remained far below the level required to feed the state (Hill *op.cit.*).

Conditions of paddy production

The climate in the Krian area is equatorial with monsoonal influences. The annual rainfall is 2,300 mm and fairly evenly distributed throughout the year with peaks in April and October and drier periods in February and June-July (Kementerian Pertanian 1977). Variation in day-length, temperature regime and solar radiation during the year, is very limited.

Soils are mainly riverine clays in Krian Darat (inland) and marine clays in Krian Laut (on the coast). With the exception of an area of 4,800 ha of organic clay muck soils which have acidity problems resulting in low yields, the soils in the scheme are Class I paddy land, but poorly drained. Most of these soils are soft soils on which tractors and pedestrian power tillers cannot be used (Kementerian Pertanian 1977). In the Gunong Semanggol area, however, the load carrying capacity is sufficient to enable the use of pedestrian power tillers.

The original irrigation system consisted of a set of drains and canals which were fed from a reservoir at Bukit Merah. The storage capacity of this reservoir was subsequently expanded in the 1930s and 1960s. Since the early 1970s a pumphouse in the Krian river supplies additional water to the main canal. A tidal barrage prevents saline water from being pushed up the river by the tide. Due to these constructions which were partly financed by a loan from the World Bank, double cropping could be introduced in the Gunong Semanggol area in 1967 and subsequently be extended to the whole Krian area (23,600 ha) in the following years. However, in an average season 15% of the area remains uncultivated, mainly elevated areas that do not receive enough water (Kementerian Pertanian 1977).

The present system consists of a main canal, secondary canals at right angles to the main canal and drains parallel to the secondary canals which discharge the water into larger drains or small rivers and ultimately into the ocean. Water enters the secondary canals through an offtake, enters the paddy fields through gaps in the bund, flows to the drain and is blocked by the exit gate separating the drain from the larger drain. Both offtakes and exit gates are controlled by the irrigation authorities, but they do not control the flow and distribution of the water between the secondary canals and drains. Tertiary canals are rare.

Despite the improvements in the irrigation system, important problems remain. Firstly, the Krian plain is 29 km wide and only slopes from 4 m above sea level at the reservoir to 0.75 m at the coast, resulting in slow movement of irrigation water and poor drainage. The irrigation problems are aggravated by the inadequate command height of the secondary canals. Drainage problems are, however, more important. A complicating factor is that the discharge of water into the sea is limited by the frequency of high and low tides (Krian Integrated Development Study 1975).

A further shortcoming of the system is the absence of facilities for on-farm water control. In most parts of Krian the bunds separating the paddy fields are a mixture of weeds and mud and do not hold back water. When drainage exit gates are closed and offtakes opened, the water flows to the least elevated section of the irrigation unit and then slowly backs up to flood more elevated areas. The paddy fields in the irrigation unit are therefore inundated rather than irrigated, causing several problems because the areas are poorly levelled so that water depths are not uniform and frequent-

ly too deep. In order to get 5-10 cm water on the more elevated fields, less elevated fields often have to be flooded to 30 or 35 cm (Sternberg 1977).

However, even in areas such as the Gunong Semanggol area, where fields are separated by earth bunds, on-farm water control is difficult to achieve. The area between a distributary and a drain has become subdivided among many operators, so that most of them depend on their field neighbours for their water supply and for the drainage of excess water. An intricate system of co-operation among the peasants in an irrigation unit would be necessary in order to achieve some measure of water control. Such co-operation presupposes a compromise of interests and the curtailment of individual decision-making power which is difficult to achieve under the prevailing social conditions (see chapter 5). Despite the more favourable conditions for water control in the Gunong Semanggol area, drainage problems and water depths of 30 cm or more are no exception.

A final problem in the Krian area is the lack of access roads to the paddy fields. Often cycle paths, paved with cement slabs following the bunds of secondary canals or drains, are the only access routes, making transport expensive and slow.

The soil conditions and the various shortcomings of the irrigation and drainage system outlined above have had a number of important consequences for paddy cultivation practices in the area and for the possibility of changing these practices. Firstly, the slow movement of irrigation water causes considerable delays and variation in the arrival of water on the fields. Even peasants who obtain water from the same offtake receive their water at different dates, depending on the distance of their plot from the secondary canal and the actions of their field neighbours. Time lags of 10 days are quite usual and a major cause of unsynchronized sowing dates within the area (Sternberg 1977).

Secondly, the soft soils hinder the mechanization of land preparation. Today, the traditional time consuming method of land preparation is still practiced. This method consists of manually slashing weeds below the water level with a kind of scythe (*tajak*). Weeds are then ammassed in clumps, allowed to decompose slightly and, finally, raked to the bunds (*melungguk*). The method is now often combined with the application of herbicides such as 2.4-D Butyl Ester to facilitate the heavy work. Water-buffaloes were not used in this traditional method of land preparation. Even though the possibilities for mechanization are more favourable in the Gunong Semanggol area than in the rest of Krian, in 1978 the use of power tillers was restricted to 53% of the total paddy area operated by the survey respondents in my random sample. Many peasants used power tillers during alternate seasons only, to prevent the soil from becoming too soft. Almost half of those who did use a power tiller only rotovated once. Heavier machinery, such as combines, could not be used in Krian at all, so that all harvesting had to be done by hand. With the labour available at present, this required a certain staggering of harvest activities.

Thirdly, the drainage problems and deep water conditions mean that peasants have to take measures to avoid their seedlings being flooded, e.g. by using taller paddy cultivars, double transplanting and keeping seedlings in the nursery for as long as 40-50 days. Krian peasants first sow sprouted seed on a so called "floating nursery" (*semaian rakit*) formed by a long and narrow strip of dry cut grass which is located in a shallow area of the field and covered with a thin layer of mud slightly above the water level. When there is a danger of the seedlings being submerged, cut grass is put underneath the seed bed to raise it a few centimeters above the water level. After 7-10 days small tufts of seedlings are broken off and placed in the field nursery (*meredeh*), where they remain until they are finally transplanted (*menanam*) to the paddy field[1)]. This practice of double transplanting makes the seedlings grow to an extraordinary height by postponing the start of tillering (Ten Have 1976). The use of the practice in Krian is considered as an innovation introduced by the Banjarese settlers (Jackson 1972). It was also observed on South Sumatra and in the Mekong Delta, but is unusual in controlled drainage and irrigation schemes (Ten Have 1976).

The recently adopted tall Mat Candu cultivar which is used by most peasants because it is well adapted to the deep water conditions, is not suitable for double cropping. Although it is not photosensitive it takes too long to mature (± 155 days). The combination of the long growing period, the slow arrival and draining of irrigation water, slow methods of land preparation and staggering of the harvest operations means that the double cropping regime scheduled by the irrigation authorities cannot be realized. In fact, in recent years only three crops could be grown in a two-year period. The practice is continuous rather than double cropping and means that the cropping cycle cannot be fully adjusted to the rainfall regime.

Finally, the deep water conditions and lack of on-farm water control have important consequences for the effectiveness of fertilizers. It has been reported that application of urea in a water layer of 10-20 cm can result in N-losses of 20-50% (Ten Have 1976). Because it is impossible to drain excess water at the time of fertilizer application, it is quite normal in Krian that urea is applied when the water level is as high as or even higher than this. It is not unusual that fertilizers flow over to neighbouring fields or into drains during heavy rains. However, it is difficult to assess the actual influence of deep water conditions on the marginal return of 1 kg N. In Malaysia these marginal returns have only been determined for officially recommended cultivars, usually under relatively favourable water management conditions on research plots and in combination with cultivation practices which are much more sophisticated than those of the peasants. These data do not say very much about the N-response of non-recommended cultivars under farm conditions.

Weed-growth, diseases and paddy pests were not major problems in the Krian area, although some damage occurs. The high water levels in the paddy

fields effectively checked weed-growth. The most serious disease was blast (*Piricularia oryzae*). Major insect pests were stem borer of two species (*Chilo polychrysa* and *Tryporyza incertulas*), locally called *ulat batang*, and brown plant hopper (*Nilaparvata lugens*), called *benah perang*. No detailed data were available on yield losses due to diseases and pests, but both peasants and local FO staff reported serious damage as being the exception. Paddy field rats (*Rattus rattus argentiventer*), however, occasionally caused serious damage to the paddy crops (Sternberg 1977).

Under these conditions, average paddy yields in Krian were about 2.9 ton/ha in the main season 1976/77 and 3.0 ton/ha in the following off-season (Kementerian Pertanian 1977).

At the time of research, a new project to improve the existing irrigation and drainage infrastructure was about to start. This so called Krian/Sungei Manik project which was still in the pilot phase was to provide for a measure of on-farm water control and to make the paddy fields more accessible, by widening bunds, and constructing farm roads for small lorries. At the same time a project co-ordinator would be appointed to strengthen the farm support services and co-ordinate the various government agencies (Kementerian Pertanian 1977).

4.1.2 The Muda area

The Muda scheme is situated in the states of Kedah and Perlis. The irrigation scheme area is a 20 km wide alluvial plain which stretches for 65 km along the Straits of Malacca from the Gunong Jerai (Kedah Peak) in the south to Kangar (9,000 inhabitants), the capital of Perlis, in the north. Inland, the area is bordered by the foothills of the Central Range. Alor Setar (66,000 inhabitants), the capital of Kedah lies at the centre of the scheme. The main road from Penang via Alor Setar to the Thai border runs from south to north through the scheme area. The total project area is 126,000 ha of which 96,000 ha (76%) is planted with paddy. This is a quarter of the total paddy area in the country.

The Muda scheme area houses a population of 551,000 people, 82% of whom live in the rural areas. The rural population is composed of 96% Malays. Apart from local Malays these include migrants from Java, Sumatra, Borneo (Banjarese), Kelantan, Perak, Patani and Southern Thailand. A large majority of the Malays are primarily dependent on small scale paddy production. The urban population consists of 45% Malays, 44% Chinese and 11% Indians and others. Most of the urban Malays (80%) are employed in the government sector, while the Chinese are predominant in commerce and retail business (Afifuddin 1978).

The economy of the area is dominated by paddy. The only urban areas apart from Alor Setar and Kangar are eight minor townships (2,000-5,000 inhabitants), among them Jitra and Pendang. These centres have expanded under the influence of double cropping, but are still primarily administrative and

commercial centres. Major manufacturing industries have not established themselves and are only found in Penang, 100 km to the south of the scheme area (Afifuddin n.d.). Therefore, non-paddy employment opportunities in the area are limited. Peasants who want to seek urban employment have to leave agriculture and migrate to Penang or Kuala Lumpur. In fact, 26% of Penang's industrial labour originates from the Muda region (Afifuddin 1978).

According to Hill (1977) the Kedah plain has only recently developed into an important paddy growing centre. There is evidence that paddy was grown incidentally in the plain, as early as the 16th century. In those days the plain was at the periphery of the state of Kedah, which had its centre about 30 km to the south of the plain in the Merbok estuary, on the southern flank of Gunong Jerai. This state concentrated on international trade in tin, timber and pepper, but did not export much paddy. During the 17th century the trade via this port declined and the state found a new economic base in peasant paddy production and shifted its centre to the plain (Alor Setar), but the state remained of small account as a paddy producer until the following century (Hill *op. cit.*).

Towards the end of the 18th century, the paddy growing was greatly stimulated by the growth of a market for rice on Penang, after the British gained possession of the island and Province Wellesley. These opportunities attracted many peasants from different geographical origins, as indicated above and contributed to the heterogeneity of the peasant society in the Muda area. This development was temporarily halted in the 1820s and 1830s when Kedah was invaded from Thailand and a large part of the population fled to Province Wellesley, but by the 1860s the state was well on the way to recovery (Hill *op. cit.*).

In the 1880s paddy production which had, until then, mainly focused on the banks of the Kedah river and the area north of Alor Setar was further stimulated by the construction of drainage canals opening up vast areas of previously swampy jungle in the central, southern and northwestern part of the plain. These projects were undertaken with royal permission by private individuals at their own expense, on condition that they were able to sell a strip of land on either side of the drain at a predetermined uniform rate. These drains were unconnected and useless for irrigation so that paddy production remained fully dependent on inundation by rain-water and by the overflow from the rivers. Land was sold off in relatively large lots of 5-6 ha, which could produce a big surplus. Afifuddin (1978) estimated that even on smaller farms the surplus amounted to two thirds of the total production in those days. At the beginning of the 20th century the production of the single annual crop was commercialised to a considerable degree and trade was almost exclusively in the hands of Chinese. Migrants settled along the drains resulting in a linear settlement pattern, which contrasted with the clustered settlement pattern of the established paddy growing villages on the Kedah river (Hill *op. cit.*).

In the course of the 20th century the Muda area was firmly established as the major paddy producing area of the Peninsula. The drainage system was still further improved and, later, supplementary main season irrigation was introduced by the construction of headworks on several small rivers to serve the northern half of the plain. In the 1920s the last remaining marshes (20,000 ha) were developed for paddy production and now the area looks like an immense paddy field occasionally broken by belts and clusters of trees in which the villages are hidden.

Conditions of paddy production

The climate in the Muda area is equatorial (5° 30 N Latitude) and influenced by the southwest monsoon during May-October and the northeast monsoon during November-March. About 88% of the total annual rainfall of 2,200 mm occurs in the period May-November, the traditional paddy growing season. During December-April there is insufficient rainfall to grow a second paddy crop without supplementary irrigation. Much of the precipitation occurs as high intensity storms of short duration. Dry spells of up to 10 and 30 days can occur in the wet and dry seasons respectively.

The soils of 75% of the project area are heavy, poorly drained slightly acidic, silty clays. These soils are ideal for the production of paddy but, according to a World Bank evaluation report, preclude any alternative crops (Muda Irrigation Project 1975). Organic and acid-sulphate soils occur on about 15,000 ha, in natural depressions with no free drainage. Although these soils are used for paddy production yields are lower than in the rest of the project area (Muda Irrigation Project 1975). The soils have sufficient carrying capacity for the use of heavy tractors and combines.

The existing irrigation and drainage facilities as described above were considerably extended in the 1960s to enable the double cropping of paddy. The major physical structures included: the construction of dams in the Muda and Pedu rivers, a tunnel connecting the reservoirs, a headworks and main canal system, improvement of the existing and construction of new secondary canals, drainage construction and ancillary works. No on-farm development was included. These constructions, which were partly financed by a loan from the World Bank, were mainly intended to provide supplementary irrigation in the off-season; the main season crop would still be primarily dependent on rainfall and uncontrolled river flows. In an average year only 23% of the project's water requirements are met from controlled outflows from the reservoirs. The scarcity of water resources means that the more elevated patches in an irrigation block sometimes fall dry when there is a long dry spell. Double cropping started in 1970 in the northern part of the plain and was extended to the whole area in the following years (1970-74). In 1974 97% of the area was planted with a second crop. Simultaneously, a network of farm roads was constructed in the area so that most villages are now accessible to pick up vans and small lorries.

Schematically, the irrigation system can be compared to that in Krian, but the canals and drains are further apart, the distance between the off-take and the end of an irrigation unit being usually 1-1.5 km. Under the present conditions of field-to-field flooding, controlled and timely water distribution is difficult to achieve despite the existence of earth bunds which effectively hold back the water. The very gradual slope of the plain, soil conditions and inadequate drainage facilities mean that drainage is slow. Normally, however, water depths are lower than in Krian (10-15 cm compared to 30 cm).

Despite comparable problems in the irrigation and drainage system, the conditions in Muda for paddy production and double cropping appear to be more favourable than in Krian. Since soils are accessible to relatively heavy machinery, mechanization has not proved a problem. The traditional slow method of land preparation using buffalo-drawn ploughs (*tenggala*) has been rapidly replaced by mechanized rotovation with pedestrian power tillers or 4-wheel tractors. This was accompanied by a decrease in the number of buffaloes (Ouchi *et al.* 1977, Kuchiba *et al.* 1979b). In the random sample, in the Jitra FO-area, 99% of the survey respondents had fully mechanized land preparation. Only 18% still used a water-buffalo to level the land after mechanized rotovation. As the soils were not soft, as in Krian, practically all peasants rotovated twice. Combine harvesters were used by 49% of the peasants to harvest all or part of their crop. The harvest was mechanized on 40% of the paddy acreage operated by the survey respondents.

The shallower water allows the use of shorter cultivars and quicker transplanting, than was the case in Krian, usually within 25-35 days. Double transplanting and the use of floating nurseries is exceptional and occurs only in certain low lying areas of the plain, but not in the Jitra FO area. Normally, peasants follow the traditional practice which is to prepare wet seed beds in the field and transplanting only once. The cultivars used have a shorter growing period than those used in Krian, (± 135 days), which makes them more suitable for double cropping.

Another important consequence of the less unfavourable water depths as compared to Krian, is that fertilizer is probably more effective. However, conditions are still far from optimal: It is estimated that average yields can be increased by 30% with proper tertiary and quaternary facilities. No fertilizer trials have been carried out with the cultivars that are now being used, since these have not been officially recommended (see chapter 8). Trials in the project area with Bahagia (the Malaysian version of the IRRI variety IR 5) showed that if 70 kg N per ha is applied the response was between 7-10 kg of paddy per kg applied N, for the off-season, and 8-14 kg of paddy per kg applied N, for the main season (Samy *et al.* 1971). In cash terms this means a marginal return of at least 3 or 4:1. The lower response in the off-season is in line with results obtained in the Philipinnes and Thailand (Muda Irrigation Project 1975).

Concerning weed-growth and the occurrence of paddy pests or diseases, conditions in the Muda scheme are similar to those in Krian.

Under these conditions average paddy yields in the Muda area (for the 1970-76 period) were about 3.8 ton/ha for the main season and 4.1 ton/ha for the off-season (Jegatheesan 1977).

A problem similar to that in Krian is also found here, namely it has proved difficult to complete the crop season within 6 months, despite the fact that cultivars with a shorter growing period are used and that land preparation is almost wholly mechanized. One of the reasons is that peasants stagger harvest activities to prevent labour shortages. An equally important reason is the slow distribution of irrigation water for the off-season crop. It has been reported that it takes 31 days for the water to flow from the offtake to the drainage end of the irrigation units. Late planting of the off-season crop causes various problems. Firstly, it causes the harvest to coincide with the wetter period. Secondly, when the following main season starts later than intended, the crop season gets progressively more out of time with the rainfall regime, so that more supplementary irrigation water has to be supplied for the main season crop than is warranted. Due to these problems, in early 1978 the water in the reservoirs had reached alarmingly low levels and MADA had to announce that it could not supply irrigation water for an off-season crop.

In order to overcome these problems, MADA is presently preparing for the so called Muda II project which will provide better irrigation and drainage facilities by constructing tertiary and quaternary canals and drains. It is intended that after the construction phase, peasants with fields in one irrigation unit will be organized in Irrigation Service Units (ISUs) and sub-units to enable the co-ordinated implementation of farming activities and more efficient water use. These ISUs and sub-units will serve as basic units to the FOs together with the existing SAUs. The plan also foresees in the improvement of the accessibility of farms and a strengthening of farm support services, particularly the extension of water management.

4.2 THE ORGANIZATIONAL FRAMEWORK OF GOVERNMENT ACTIVITIES IN PADDY PRODUCTION IN KRIAN AND MUDA

Attention has already been drawn to the differences in the organization of the co-ordination of the various farm support services at the project and area level in Krian and Muda. In Krian, despite the formal recognition of the co-ordinating task assigned to the FOA in the field of agricultural development at federal, state and area level, the FOA does not perform this task. In actual practice, at the project level in the Krian area, there is only a loose co-ordination of the various activities of the Department of Irrigation and Drainage (DID), the Department of Agriculture (DOA), and the Farmers' Organization Authority (FOA), which are the most important agencies

involved. For each of these agencies the responsibilities to their state and federal level headquarters, are more important than their mutual responsibilities at project level. Moreover, this co-ordination has not been achieved under the aegis of the FOA, but by regular meetings of district government officials chaired by the District Officer of the Krian District. In the Muda area, on the other hand, the various tasks which, in Krian, are performed by the DID, DOA and FOA are all assigned to the Muda Agricultural Development Authority (MADA), which was formed in 1970 and has its headquarters at Telok Chengai near Alor Setar.

An analysis follows, of the distribution of responsibilities for the various development activities and farm support services, over different organizations in the two irrigation projects studied. An assessment will be made of the role the FOs play in the provision of these services and in the co-ordination of the activities of the various government agencies at the FO-area level, within these two organizational frameworks. The analysis in this section is partly based on my own observations of the FOs studied, partly on the results of a parallel study by Kalshoven covering a larger number of FOs in the research areas. These results were reported in an earlier publication (Fredericks *et al.* 1980).

Operation and maintenance of the drainage and irrigation system

In Krian, the operation and maintenance of the drainage and irrigation system is the task of the Department of Irrigation and Drainage, one of the oldest technical departments serving agriculture in Malaysia. The DID has a project level head office in Parit Buntar, the administrative centre of the Krian District. This office is directly responsible to the Department's headquarters in Ipoh, the capital of the State Perak in which the Krian project is situated. The DID prepares a schedule with the dates on which each irrigation unit will be irrigated and drained, the dates when peasants are expected to sow and transplant the paddy, and the beginning and end of the harvesting period. These dates vary for each irrigation unit. The schedule for the whole irrigation project is presented at a meeting of district government officials, including representatives of the Department of Agriculture and the FOA. After approval by the meeting, the schedule is communicated to the peasants through the administrative channels i.e. via the sub-district officers (*penghulu*) and village chiefs (Fredericks *et al.* 1980). As already indicated, it has proved very difficult to adhere to these schedules.

In Muda, the operation and maintenance of the drainage and irrigation system is the responsibility of the Engineering Division of the Muda Agricultural Development Authority. Although the senior officers in this division are seconded from the federal DID, the Engineering Division is largely independent of the regular DID structure and is mainly responsible to MADA (Muda Irrigation Project 1975). The Division prepares similar irrigation

schedules as described for Krian. After these are approved by MADA, they are communicated to the peasants by MADA's Agricultural Division via its network of FOs.

At the area level in both Krian and Muda, there is little consultation between the personnel of the FO and the officers of the DID or Engineering Division. Direct official contacts between the irrigation authorities and peasants are few and, occur only when irrigation inspectors attend a FO assembly meeting (Fredericks *et al.* 1980).

For the operation and maintenance tasks, the DID and Engineering Division employ a large number of regular labourers, at times extended with contract labour recruited from the peasants. The peasants do not provide labour inputs on a voluntary basis. The cost of maintenance ($ 51/ha for Krian and $ 56/ha for Muda) are borne mainly by the federal government. Peasants pay water rates, but these are not related to the quantity of water used, but are estimated in relation to the size of the land unit. In Krian this amount is $ 13/ha, whereas in Muda it is $ 21/ha. It is not known how many peasants actually pay these water rates.

Development of improved paddy varieties

The development of improved paddy varieties is not the task of any of the agencies which are directly involved in the development of the Krian and Muda areas at the project level. This task has long been the responsibility of the Ministry of Agriculture, but since 1969 it has been transferred to the newly created Malaysian Agricultural Research and Development Institute (MARDI), which also does research into other crops. The MARDI paddy production research activities are concentrated at the experimental station in Bumbong Lima in Province Wellesley, about 50 km from both the Muda and Krian areas.

The development of suitable paddy varieties for double cropping, only started after the Japanese occupation authorities, using imported *japonica* varieties, demonstrated in Province Wellesley the technical feasibility of double cropping and its economic benefits. Before the second world war there seemed to have been a conviction that natural conditions in Malaya favoured single cropping, with emphasis on *indica* cultivars (Rutherford 1966). From 1951, however, researchers in West Malaysia have been carrying out crosses between *japonica* and *indica* varieties to obtain new cultivars which are suitable for double cropping. The criteria for selection were: short growth duration and less photosensitivity, higher response to fertilizers, particularly nitrogen, stiff straw, good tillering capacity, high yield, resistance to pests and diseases and long or medium-long grains of good milling and eating quality (Bhati 1976). This has led to a series of releases of improved varieties, suitable for double cropping (mainly derived from crosses between modern cultivars and local varieties) starting in 1964 with the release of "Malinja", a cross between Pebifun, a Taiwan variety, and Siam 29,

a locally selected Thai variety. Subsequently released varieties, their parent material and characteristics are given in chapter 8.

Distribution of seed

In Krian, the distribution of seed of new paddy cultivars was the task of the Department of Agriculture. In the Muda area, this task was transferred from the DOA to the Agricultural Division of MADA in 1970. These agencies operate seed farms at Titi Serong and Telok Chengai respectively, where they multiply seed of improved varieties obtained from the MARDI research station at Bumbong Lima. The capacity of these seed farms is so limited that they provide only 5% of the total seed requirements in the project areas. In Krian, the seed is distributed via the area offices of the DOA, usually located in the office buildings of the FOs. In Muda, seed is distributed directly via the FOs.

The procedure in both areas has been to supply a small portion of pure seed to some peasants who were informal leaders in their community and who maintained various contacts with government agencies. These seeds were either provided free of charge, sold for cash, or exchanged for the peasant's own paddy on a 1:1 basis. Although any interested peasant could obtain pure seeds through this programme, most did not make use of it. In the Krian FO-area, 36% of the peasants in the survey had at some time obtained pure seed in this way. The corresponding figure for Muda was only 15%. These peasants then multiplied the seed and after the first season provided their neighbours, relatives and friends with it, usually on an exchange basis. Thus, most peasants obtained the new seed varieties from other peasants. In the Muda area, some 14 pilot projects in strategic locations which were used to popularize the new varieties also helped to multiply the seed. These pilot projects were operated by the Department of Agriculture in the period 1967-68, prior to the introduction of double cropping and the start of the FOs. In each of the 14 locations roughly one hundred peasants with contiguous plots were all persuaded to grow the new varieties (IR 8 and later IR 5) and promised compensation if there was a crop failure in the first season. The MADA officers considered that these pilot projects were very successful in convincing the peasants of the potential benefits to be obtained from growing the new varieties provided that they were managed (Afifuddin 1978).

Recommendation of new paddy cultivation practices

Following a long period of uncertainty, it was finally decided that extension work in the Krian area was the task of the Department of Agriculture (DOA) and not the FOs. The DOA is a State Department with headquarters at Ipoh. It has branch offices in all FO-areas in Krian, each staffed by an Agricultural Assistant and three or four Agricultural Technicians. As indicated the DOA staff is usually housed in the FO office. Agricultural ex-

tension activities are only one of the various tasks assigned to the DOA staff. An earlier publication on this subject states "much of the efforts of the extension personnel is spent on the collection of agricultural data for statistical purposes. This work, together with the tendency to perform routine jobs, predominates over extension work. Routine work for extension agents consists of licensing, investigations, inspections and data collection, all undertaken by the Agricultural Technician. Another time consuming task is the collection of paddy crop-cutting test data for statistical purposes" (Fredericks *et al.* 1980). For this reason it is not possible to estimate the real ratio of extension workers to peasants. The present nominal figure of 1:500-1,000 is clearly flattered.

The DOA provided technical information on paddy cultivation practices through demonstration pilot projects, on-farm trials and "one-day courses" (*kursus sehari*). The latter are held at village level and are attended by 50 to 60 peasants invited by the Agricultural Technicians' local contact persons. These courses are held irregularly and at intervals of more than 5 years. Quantitative data on the number of peasants involved in these activities was not available. Most advisory work appeared to be in response to requests from individual peasants for technical advice with regard to serious pest problems. This involved a limited number of farm visits. These various activities are carried out by the DOA staff independently of FO staff (Fredericks *et al.* 1980). The staff of the FO did not involve themselves in extension activities and considered that they were insufficiently trained to be able to provide useful advice.

In Muda, technical information regarding paddy cultivation practices was given through MADA and the FOs. Firstly, the Training Unit, a sub-branch of MADA's Agricultural Division, operating from the MADA headquarters in Telok Chengai organized a two-weeks residential "rice technology course" attended by farm youths, and the "local course" (*kursus tempatan*), a one-day course at village level comparable to that in Krian, but differing in that participants were invited via the local channels of the FO. The rice technology course reached between 200-300 youths annually; the local course covered about 40 villages per year, so that each Muda village was visited roughly once in 5 years (MADA 1976, Ho Nai Kin 1977). Secondly, besides these activities of the Training Unit there were demonstration pilot projects and on-farm trials conducted by another MADA-sub-branch. These on-farm trials involved about 20-30 peasants per season in the whole Muda area. Thirdly, each FO in the Muda area had one staff member with the exclusive task of giving extension information. However, in actual practice this FO officer allocated only a small portion of his time to the task of recommending improved paddy cultivation techniques. His activities in the field of agricultural extension were limited to the organization of occasional excursions by bus to "more advanced" areas, answering questions when peasants came and asked for advice and, finally, a very small number of farm visits. The latter

were mainly in connection with serious problems of pest or insect infestation.

There are several reasons for the FO extension officer's limited involvement in advancing new paddy cultivation practices. Firstly, "extension" in the Muda area has become more involved in providing information on the purpose and activities of the FO and much less with technical agricultural matters. Secondly, the FO extension worker is often called upon to assist the other FO staff members in their duties, mainly relating to the administration of credit and input supply functions (Fredericks *et al.* 1980).

Extension activities are not linked to the other FO activities, such as the supply of credit and inpits. The FO extension officer performs his task independently and withe little reference to the work done by the various sub-branches of MADA's Agricultural Division.

The extension workers in both Krian and Muda, are not motivated to undertake advisory work because they consider their normal college education has not provided them with the knowledge necessary to give peasants practical advice (Nayan 1975, Fredericks *et al.* 1980). These problems are aggravated by the obvious lack of useful recommendations. The officially recommended package of paddy cultivation practices in the Krian area was nearly the same as that in Muda (see chapter 8). Within each of the irrigation projects the recommendations were not differentiated according to sub-areas, with the exception of areas with acid sulphate soils. This blanket approach was unsuitable because of the wide variety of local agricultural conditions in both areas. Perceptive extension agents considered the standard recommendations to be inappropriate in these circumstances (Sternberg 1977). Another shortcoming of the standard package of recommendations is that, at the time of this research it had not been changed for several years, which is either because of inadequate paddy research by MARDI, or in poor communication between MARDI and extension workers and vice versa.

To avoid embarrasment in their contacts with peasants, arising from their lack of practical experience in paddy farming, extension workers in both areas concentrated on their non-extension tasks and, if they did give extension advice adapted the standard package more or less on their own initiative. They left out elements which they themselves regarded as unrealistic or which proved unacceptable to the peasants. On the other hand, they included advice given by locally more successful peasants (Sternberg 1977). Thus, the adaptations were to a great extent based on peasants' experiences.

MADA had recognized these problems and was working on locally adapted recommendation packages and improvement of the communication between MARDI researchers, subject matter specialists and extension workers at field level. (SARDEC 1975, Ho Nai Kin 1977). Under the afore-mentioned Muda II plan MADA intends to increase the number of extension workers attached to the FOs from one to two and to provide them with better support from more subject matter specialists (MADA 1980). In Krian, it is intended to strengthen the exten-

sion services on the line of the World Bank's Training and Visit System (Kementerian Pertanian 1977). The increase in the number of extension workers will, however, only solve some of the problems as long as the progress in research is restricted by the present shortages of trained staff at Bumbung Lima, as well as the academic orientation of the work at this MARDI station (Muda Irrigation Project 1975).

Provision of credit and chemical inputs

With the introduction of double cropping in the Krian and Muda areas it was thought necessary to strengthen the institutional credit sector. Co-operative credit had until then been the only institutional credit available. This type of credit had had little impact, as few credit co-operatives were viable, due to poor management, low membership and poor repayment records. The bulk of credit was provided by local shopkeepers, paddy buyers and rice millers.

The task of providing short term paddy production credit and related chemical inputs was given to the FOs both in Krian and Muda. The FOs do not operate at their own risk, but as agents appointed by the Agricultural Bank. The latter is a federal institution which was created by the government in 1969 for the purpose of providing loans to promote agricultural development. The Bank's main field of activity up till now has been the provision of loans to small scale paddy producers. The Bank appoints, for this purpose, Local Credit Centres (LCCs). Initially, FOs, co-operatives and private suppliers of inputs were registered as LCCs. However, in the latter half of the 1970s the private and co-operative LCCs were being phased out and, in most areas the FOs survived as the only LCC. By arrangement with FOA and MADA, the FOs were given the task of screening loan applications, disbursement and recovery after harvest. The FOs receive a 1.25% commission on the loans disbursed and repaid. This commissions is an important source of income for them.

The loans extended via the FOs were seasonal production loans. They took the form of a package consisting of the recommended amounts of urea, compound fertilizer and crop protection chemicals and a certain amount of cash per unit of land. The cash was intended to meet the costs of mechanized land preparation and, in some FOs, of wages for labour during transplanting. Although these elements formed a package, borrowers were free to accept only part of the package and leave out the other elements if they wished. Furthermore, any amount of fertilizer or chemicals could be obtained, as long as it was not more than the officially recommended amount per unit of land. The cash element, however, had to be taken up in fixed amounts per unit of land. Since 1973, the interest rate has been 4.25% per season, comparable to the rate charged by commercial banks to large borrowers. Most loans are granted without collateral.

Various problems are involved in the credit supply function of the FOs. Firstly, only members of the FO can apply for FO credit, i.e. a loan from the Agricultural Bank provided via the FO, as Local Credit Centre. Non-members are thereby excluded from the benefits of a cheap interest rate. In fact, the credit scheme only covers a section of the peasants and - as will be explained in greater detail in due course - shopkeepers continue to be an important source of production credit. Secondly, the application and subsequent processing of a loan involve a number of time consuming administrative formalities, including the filling in of the application form, credit contract, a detailed credit card, coupons (to be exchanged for inputs), a bill for cash items and an overall statement of the loan obtained. These formalities do not only irritate many peasants, but are also time-consuming for the FO officers, who have to do most of the administrative work.

In fact, the credit function of the FOs, and the related supply of chemical inputs is the most time-consuming activity of the FO staff. As noted by Kalshoven, almost all general managers of FOs in Krian and Muda declared that they had to confine themselves and their staff to duties related to the credit scheme and the recovery of loans, other activities being very limited. The FO officers in charge of the administration of the FO, project development and extension are mainly occupied assisting the officers in charge of credit and supply functions (Fredericks *et al.* 1980).

The time-consuming administration of the credit scheme does not only hinder the other activities of the FO, but also leaves no time for FO staff to supervise the utilization of the loans and guide to the borrowers (Ho Nai Kin 1976). FO general managers estimated that almost 70% of the staff's working hours were spent in the FO office. The field visits that were made, were not usually for the purpose of supervising the use of loans. These visits were mostly made in connection with loan recovery or to announce meetings and provide information to local FO leaders (Fredericks *et al.* 1980). Field visits were confined to FO leaders, ordinary members never received a visit.

A final problem of the FO credit scheme is loan recovery. In the early years of the credit scheme, the rate of repayment was about 95%, which is a commendable record. However, since 1976, in both the Krian and Muda areas there has been a sharp decline in repayment[2)]. The repayment records of the Gunong Semanggol and Jitra FOs illustrate this trend clearly (see Table 4.2 below). The fact that the FOs do not market the peasants' output, puts them in a poor position to recover loans. There appeared to be a general reluctance to take legal action against bad debtors and the only method used by FO officers in attempting to recover overdue loans, is said to be gentle persuasion. FO officers assume that loan recovery is the responsibility of the Agricultural Bank, whereas the Bank regards it as a duty of the FO. In practice, neithter undertakes any positive action (Fredericks *et al.* 1980). The reason for this reluctance is not clear, but it seems that government

officers fear that a more direct approach would have negative consequencies for the image of their agencies and perhaps even political repercussions. However, this fear might not be justified. Bona fide FO members blamed the FO staff and the Agricultural Bank for not taking action against bad debtors.

The FOs' role in supplying inputs was limited. It appeared that peasants only bought inputs from the FO when they could obtain them on FO credit; these were primarily fertilizers. Peasants who did not use FO credit or members who used fertilizers in excess of the amount extended by the FO usually bought these from local shops. However, the FOs have occasionally played a more important distributing role. In 1974 and 1975 the government subsidized urea in order to keep the price for paddy growers below $ 10 per bag of 20 kg which was below the market price. In this period, the FOs were the sole distributors and supplied both FO members and non-members.

Marketing

Since 1949, the government has operated the guaranteed minimum price (GMP) programme to support farm incomes and provide incentives for paddy production. The GMP is paid for all paddy delivered at the mill door provided that: the moisture content is not more than 13%, that it is fully matured, free of dirt, empty grains, husk, straw and other foreign matter. If the paddy does not meet these standards, or is delivered at a distance from the mill, the GMP may be adjusted, lowered by a system of standard deductions from the gross weight of the paddy delivered (Selvadurai 1972, Bhati 1976). From 1949 the GMP has remained around $ 265 per metric ton of paddy, which is higher than world market prices (Jegatheesan 1977, Mokhtar Tamin 1978). However, the actual floor price was much higher due to various subsidies in addition to the GMP price support. At the time of research, the floor price amounted to roughly $ 445 per metric ton. In 1980, these subsidies were again increased raising the floor price to roughly $ 580 per metric ton.

The GMP programma has been fairly successful on the whole. However, it has an important shortcoming because it does not provide for a grading system for paddy. The GMP programme is at present the responsibility of the National Padi and Rice Authority (NAPRA) created in 1971. The GMP is implemented by a number of measures. Firstly, the NAPRA buys paddy and for this purpose operates 17 storage complexes in the Muda area and 1 in Krian. Most of these, including the one in Krian, are also equipped with drying or milling facilities. Secondly, the government guarantees to buy rice from private millers at a price based on the GMP, provided millers certify that such rice had been milled from paddy purchased at the ruling GMP (Selvadurai 1972). Thirdly, the NAPRA effectively controls private paddy buyers through a licensing system which forces licencees to conform to the regulations of the GMP. Finally, the NAPRA manages the government's strategic stockpile and controls imports and exports of paddy and rice.

The peasants in the Muda and Krian areas sell their surplus paddy immediately after harvest, because they need the cash and lack drying and storage facilities. Despite the existence of NAPRA paddy buying centres, in both areas the bulk of the marketed surplus of paddy is still sold to local shopkeepers who often act as agents for private mills. The latter try to attract paddy by offering prices above those paid by the NAPRA. There are various reasons why peasants still continue to sell their paddy through these traditional channels. Firstly, the shopkeepers provide reliable and convenient transport services, whereas the NAPRA owns only a few big lorries which often cannot reach the farms. Secondly, despite the existence of the FO credit scheme and some minor sources of institutional credit, a large number of the peasants are still regularly in debt to the shopkeepers (particularly consumer credit). Therefore, they are obliged to sell paddy via them. However, as indicated in chapter 5, I found no indications of the malpractices sometimes mentioned in government reports with regard to marketing in the 1960s (e.g. Selvadurai 1972).

Normally, only a relatively small part of the marketable surplus in both Krian and Muda passes through the NAPRA. However, when the harvest coincides with a period of heavy rainfall, wet paddy that is rejected by private mills is delivered to the NAPRA drying complexes. The latter accept all paddy, even when the moisture content is higher than the 13% maximum level officially stipulated for the GMP. The NAPRA has to sell this paddy at a loss as the extra drying time is expensive. The handling of wet paddy may also be considered as an additional public subsidy to the peasants (Fredericks *et al.* 1980).

Some FOs in both Krian and Muda, have attempted, unsuccessfully, to market paddy. At SAU meetings the members often request that the FOs assume this function. The marketing experiments have not been continued, due to inadequate management capacity of the FOs (Fredericks *et al.* 1980). Peasants remarked that FO officers were not very eager to work long hours, often until late at night, as in required for paddy marketing.

4.3 FUNCTIONING OF THE SELECTED FARMERS' ORGANIZATIONS

This section gives a more detailed picture of the functioning of the selected Farmers' Organizations in Krian (Gunong Semanggol) and Muda (Jitra). These Farmers' Organization had been established as Farmers' Associations in 1968 and 1970 respectively[3)]. In 1976 a Farmers' Organization was established in Gunong Semanggol with which the Farmers' Association immediately merged. The MADA policy was to co-ordinate the activities of Farmers' Associations and co-operative societies at the regional (project) level rather than at the area level, therefore the Muda Farmers' Organization that was studied was officially still a Farmers' Association. However, I will refer to both organizations studied as Farmers' Organizations (FOs).

Co-ordination of FO activities with agro-based co-operatives

The Muda FO studied had no information about the activities of the co-operative societies in the area (two rice mill societies and one credit co-operative). The general manager of the Muda FO considered these societies to be inactive. It appeared, however, that the credit co-operative did function as LCC for the Agricultural Bank (see chapter 6) and actually extended loans although its activities were confined to two villages only. These activities were not co-ordinated with those of the FO. In actual fact, the FO and the co-operative were competitors in these villages and had each attracted a number of members. Dual membership was not unusual.

In the Krian FO, the policy of complete integration of co-operatives with the FOs that was so prominent at the federal level, was not pursued so vigorously. Although the board and officers of the Krian FO were supposed to supervise the co-operatives in their area and co-ordinate their activities with those of the FO, in practice this did not happen. There was very little or no contact between the co-operatives and the FO. This applies to both the co-operatives that had become unit-members of the FO and for those that had remained independent.

In the area of the Krian FO, of the eight co-operatives (two rice mills and six credit societies) only the two rice mills were unit-members of the FO, mainly in order to take advantage of the rice mill rehabilitation loans and subsidies provided by FOA. These eight co-operatives had been established in the 1950s and most had less than a hundred members and were in a deplorable state. The credit co-operatives were practically inactive with most of their capital tied up in unrepaid loans, some of these dating back to the early 1960s. Together, the six credit co-operatives only extended a very small number of loans annually, primarily for the construction of houses and other non-production purposes. They had not gone bankrupt because they had not used foreign capital and made no costs[4)].

At the time of the research the two rice mill co-operatives had been running at a loss for several years. One of these co-operatives, the smallest of the two, limited its activities to milling services. Peasants brought their paddy to the mill, had it milled and then took the rice home for private consumption. The other rice mill co-operative also undertook the marketing of paddy and rice. Both co-operatives had suffered severely since small privately owned rice mills had become fairly widespread. Many peasants who formerly had their rice for home consumption milled by the co-operative, now prefered the nearby private mill. The larger rice mill co-operative was financially in such a deplorable state that it had decided to merge fully with the FO, in order to prevent bankruptcy. At the time of research the actual merger had not yet been realized. The other rice mill co-operative, although a unit-member of the FO had never been approached with proposals to merge with the FO and, in fact, the chairman and secretary of the committee of management of this co-operative were completely unaware of the existence of the "full integration policy".

Size of membership and staffing

Table 4.1 gives comparative data on the two selected FOs and the areas covered by them. This data indicates that the Krian FO was relatively understaffed compared to the FO in Muda, in terms of the ratio of officers to area, members and number of SAUs.

Apart from the FOA or MADA staff seconded to the FO, both FOs employed a number of workers who were paid by them. Because the Muda FO undertook more projects than the FO in Krian, it employed 20 workers, some of them on a part time basis, whereas the Krian FO only employed 5 workers. In both FOs, these workers were FO members or members' children.

Almost all of the FO officers seconded by FOA or MADA were under 30 and usually had had less than 5 years experience. Only the general managers were slightly older (between 30 and 40) and had more than 10 years experience. Most officers were from a peasant background and had received a three year agricultural college education at Serdang or Bumbung Lima. Apart from occasional in-service training courses the officers had not received any training in business-management. This situation is similar to that in most other FOs in Krian and Muda (Fredericks *et al.* 1980).

The influence of supervising agencies

Until the start of the fieldwork for this study the operations of the selected Krian and Muda FOs had been supervised from the respective headquarters of the State Director FOA in Ipoh and the Agricultural Division of MADA in Telok Chengai[5)]. My observations on the support given to the selected FOs and the extent of control exercised by FOA and MADA, confirm the general picture for the Krian and Muda areas as a whole as reported by Kalshoven in an earlier publication on this research project (Fredericks *et al.* 1980). It is clear, that FOs were not independent organizations of a businesslike character, but were established to perform service functions controlled and supervised by FOA and MADA respectively. The main task of the general manager was administrative rather than managerial. In its role

Table 4.1 Some comparative figures on the selected FOs in Krian and Muda[1]

	paddy area covered	potential membership[2]	actual membership	number of SAUs	number of FOA/MADA staff
Krian	5,500 ha	4,200	2,100	28	8
Muda	2,400 ha	1,700	781	11	5

[1] Data refer to the situation on 1-1-1978

[2] The potential membership is the estimated number of paddy farming peasant households in the area

as supervising agency, MADA supported the FOs more than the FOA in Krian did. In the Muda FO, the general manager visited the MADA headquarters for formal and informal meetings with the supervising staff of the Agricultural Division, almost weekly. The latter also paid frequent visits to the FO office and sometimes attended board meetings.

In contrast, the general manager of the Krian FO visited the FOA headquarters in Ipoh only once a month. Return visits by supervising staff from headquarters were sometimes even less frequent. In interpreting this comparative data, one should note that the Muda FO was only 18 km from the MADA headquarters over a flat road, whereas the distance of the Krian FO to Ipoh was roughly 100 km, partly through hilly terrain, over a road congested with heavy traffic.

The differences in frequency of communication have some important consequences, not only because relatively inexperienced FO staff need the constant input of initiative and guidance provided by the agency that seconded them, but also because general managers have to obtain the prior approval of MADA or FOA for even a relatively small investment or expenditure, so that the FOs do not have the flexibility required for business activities, if they cannot frequently and easily contact supervisors to obtain approval. For these reasons, the supporting structure of the Muda FO appears to be a more motivating force than the administrative backing of the FO in Krian. In the latter FO, there is a relatively strong feeling that the supervisors do not appreciate sufficiently the problems faced by field personnel, and that it is better to keep to the administrative routine. It should be noted, however, that the relative advantage of the Muda FO in terms of support is primarily relevant to the execution of non-routine i.e. non-credit tasks. Since, as I will indicate below, in both FOs studied these tasks were relatively unimportant when compared to the credit tasks, the difference in performance between the Krian and Muda FO is not as large as might be expected.

Credit services

Both in the Krian and Muda FO studied, the major activity was the provision of short term paddy production credit and inputs as the Local Credit Centre for the Agricultural Bank. In conformation of the general picture in the FOs in Krian and Muda, the FO officers in charge of administration, accounting, and project development and extension were mainly occupied in assisting the officers in charge of the credit and input supply. In fact, the official distribution of tasks between officers was not adhered to in actual practice. In both FOs studied, each officer had been allocated a number of SAUs and was responsible for all matters related to the provision of credit and inputs in these SAUs. The lack of specialisation is also reflected in the fact that, when officers are transferred, they are seldom allocated the same specialisation again. It is also quite usual to send

officers to in-service training courses which do not concern their own "section", whereas the officer of the particular section concerned continues his or her work in the office. As reported for the FOs in Krian and Muda in general, the formalities of credit and input supply took up so much time, that it was not possible to provide guidance and supervision in the use of the loan. Screening of loan applications was left to the SAU chief concerned. Each applicant who was not in debt to the FO, qualified for a loan.

FO officers considered the major problems, of the credit and input supply programme, in both FOs to be the shortage of staff, transport facilities to deliver fertilizer to the members (1 van in Krian, 2 in Muda), and non-repayment of loans (see Table 4.2). In the Muda FO, for example there were 180 members (almost 25% of the total membership) with loans which were more than 2 years overdue. The non-repayment is seen as the most important problem. In this respect the officers agree with most of the members. However, as indicated above, the FOs and the Agricultural Bank have been reluctant to take steps against bad debtors. There had been one court case in the Krian FO, but without the expected effect on other bad debtors. The Muda FO had proposed that MADA sue a few bad debtors, but there had been no reply to this proposal when this study was completed.

Table 4.2 Agricultural Bank credit extended, number of borrowers and repayment in the selected FOs

season	Krian			Muda		
	total cred. extended (1000 $)	number of borrowers	repayment (%)	total cred. extended (1000 $)	number of borrowers	repayment (%)
1975/1	58	379	100	58	174	91
1975/2	134	546	100	148	346	91
1976/2	169	835	95	99	368	85
1976/2	456	1075	85	194	400	79
1977/1	450	913	69	-[1]	-[1]	-[1]
1977/2	-[2]	-[2]	-[2]	131	293	47
1978/1	240	850	n.a.[3]	-[4]	-[4]	-[4]
1978/2	-[2]	-[2]	-[2]	127	225	n.a.[3]

[1] No Agricultural Bank credit extended because of low repayment in previous season.

[2] In some years credit is only extended once due to the prevailing pattern in Krian of growing three crops in two years.

[3] n.a. = not available at the time of research.

[4] No credit extended because no irrigation water could be provided.

Apart from its role as LCC to the Agricultural Bank, the FO in Krian also extended some credit from its own funds, mainly for crop protection chemicals. In fact, each applicant who applied for a short term production loan was given two loans. One for fertilizer and cash credit from the Agricultural Bank and one for crop protection chemicals from the FO's own funds. In this way the FO could lend its funds at a reduced risk; if peasants only repaid part of the loan, the debt to the FO was cleared before the Agricultural Bank was repaid.

The Muda FO had used its own funds to extend seasonal production loans, e.g. to members who were too late in applying for credit from the Agricultural Bank. This practice was stopped, because only some of the loans were repaid.

Mechanization services

Apart from their credit activities, the FOs studied offered some other services to their members. One of these was the mechanization of land preparation and harvesting. The Krian FO had once owned eleven power tillers which were rented to SAU chiefs who in turn would lease them to the other peasants. These SAU chiefs had received a short course in operation and maintenance of these machines. At the time of this research these power tillers were quite old and the majority of them not operational and beyond repair. The FO in Muda did not own power tillers. Another activity supporting the mechanization of land preparation which was undertaken by both FOs was the sale of power tillers to members on an installment basis. However, both in Krian and Muda very few FO members made use of this opportunity. In ten years, the FO in Krian had only sold 4 power tillers, whereas a conservative estimate of the power tillers owned by peasants in the FO area would be at least a hundred. In the Muda FO, the picture is only slightly better with a total of 15 power tillers sold. In both FO areas, the majority of the power tillers were bought by hire purchase agreement from private dealers. It can be concluded, that the mechanization of land preparation has taken place without much influence from the FOs studied.

The Krian FO did not undertake harvest mechanization services. As mentioned, soil conditions in Krian were not suitable for the use of combines and other forms of mechanization were unknown. The Muda FO however, rented a small self-propelled 4-row harvester (20 hp diesel engine) to individual peasants, both FO members and non-members. This machine was owned by MADA and specially developed to operate on small plots in the Muda area[6)]. The FO had to repay 70% of the difference between income and operating costs to MADA. Operators had been trained by MADA's Training Unit

Before the introduction of the small MADA combines, the FOs did not play any role at all in the process of harvest mechanization. In the FO area under study, the introduction of the small machines did not change much in this respect. Official statistics concerning the FO showed that the MADA

combine had been inoperative for 87% of the available days in the first harvest season that it was available, and 56%, in the second season. Causes were mainly, rain and frequent breakdowns. Peasants had a number of complaints about the MADA combines and were not in favour of them. The most important problem was that the small combines could not finish more than 1-1.5 ha per day, compared to 4-5.5 ha by the large combines, hired from private businessmen. One FO leader pointed out that despite the lower cost price of the MADA combine ($ 57,000), the overhead costs per unit of land harvested were considerably higher than for the large combines (costing $ 150,000). He wanted MADA to buy large combines. Peasants also complained that the small machines were bogging down in low lying areas and then could not move out because tracks "balled up" and lost adhesion, causing heavy damage to the soil. Another problem mentioned was, that the small machine had to stop operating when the paddy was only slightly wet. Finally, peasants were dissatisfied about the coverage at the edges of the field and about the amount of grain which was dropped by the machine. These latter shortcomings had already become clear from field experiments with the small combine (Muda Irrigation Project 1975).

Recommendation of new paddy cultivation practices

The Krian FO stopped advising on new paddy cultivation techniques, because a recent policy change had allocated this task to the Department of Agriculture. The FO officer who had formerly been in charge of extension was not even aware of the details of the extension advice that was being given by the Agricultural Technicians of the DOA. All officers in the Krian FO said that they referred peasants, with questions about paddy cultivation practices, to the DOA. They knew very little about the activities of the DOA in their SAUs[7)].

In the Muda FO area, recommendation work related to paddy was the official task of the FO extension officer; the DOA was not involved and no contacts were maintained with this department. However, the extension officer spent most of his time on non-extension tasks, such as looking after some of the business activities of the FO and helping other FO officers with credit work. Field visits were confined to SAU chiefs and often concerned the recovery of loans or matters related to the administration of the FO rather than agricultural extension work. Paddy cultivation recommendations were occasionally passed on to the SAU chiefs and it was hoped that they would pass them on to their members.

Social services

A welfare fund, which paid a small sum to their members in the case of a death in the family, was operated by both FOs studied. The Muda FO also provided cash credit to reliable members in case of a sudden need for cash in an emergency. Another social activity undertaken by both FOs was partici-

pation in an annual field day (*hari ladang*) on which all the FOs supervised by the State FOA Perak or MADA took part in sports, Koran reading, and other contests. Finally, the Muda FO organized an annual bus trip to an FO in another part of the country for interested members. In the Krian FO only one trip had been made, organized by the women's section. Besides this there had been no other activities of this section.

Business activities

The Krian FO did not undertake any business activity of significance. Formerly it had done some wholesale business, supplying sugar, wheat flour and other commodities to local retail shops. This activity had been stopped because the scale was too small to make it profitable. The FO also had a license to market paddy, but this was farmed out to individual peasant entrepreneurs, who were not responsible to the FO.

In contrast, the Muda FO showed more business activity. This can be partly attributed to the stimulating impact of MADA, partly to the higher ratio of FO officers to members and partly to the entrepreneurial character of the general manager who had led the Muda FO for several years until his transfer a month before the survey. Since 1974, the Muda FO operated a successful chicken farm, selling broilers and eggs to the Alor Setar market (hospitals, schools). Recently, it had also started a village shop and mini-super-market, in Jitra town selling a wide range of consumer items. These latter activities still had to prove viable. The shop and supermarket did not sell on credit terms and did not appeal to the members. Other business activities included the sale of durable consumer goods (t.v.-sets, refrigerators, table fans, motorbikes) on an installment basis, primarily to a non-peasant clientele.

Agricultural diversification projects

Of the two FOs studied, only the one in Krian tried to stimulate an interest in other crops than paddy. Crop diversification was considered important by the FOA. The project concerned was a group farming experiment involving 10 members. The latter had been given 4 ha of a 50 ha plot of Government Reserve allocated to the FO under a Temporary Occupation License. At the time of this research only these 4 ha had been cleared. The remaining 46 ha were still covered by jungle. On the 4 ha the participants grew taro (*Colocasia spp.*). Plant material, mechanization services and credit were provided by the FOA and the project was guided by the project development officer of the FO. Participants were recruited by the chief of the SAU nearest to the plot. At the time of research, the project was growing its first crop and was experiencing various problems. It had turned out that the taro was neglected by the participants in periods of high labour demands for paddy. Further, the FO officer could not pay sufficient attention to the project during periods when credit administration took up all of his

time. A disease had damaged the crop and the participants had lost interest.

Apart from this group farming project, the Krian FO tried to stimulate the growing of other crops by individual members, but without success. The main problems encountered were the lack of available land, lack of interest among members and the difficulty of combining paddy production with other crops.

Financial viability

It is obvious that both the Krian and Muda FO studied could not exist without the subsidies provided by the FOA and MADA in the form of staff salaries, office and storage buildings and grants for various projects. Therefore it can be concluded that neither of the two FOs was viable as a business enterprise. Nevertheless, the Muda FO was more successful than the Krian FO at making a "profit". This is not profit in the usual sense of the word, since important costs, such as those of the land, buildings and FO staff salaries are not borne by the FO. What the FO accounting section considers as "profit", is in fact a positive balance between the total income and the expenditures paid from the FO's own funds. In recent audit years the annual "profit" amounted to $ 15,000-$ 30,000 in the Muda FO, whereas the Krian FO has suffered a loss. The profit made by the Muda FO is distributed over various funds according to the by-laws of the FO. Part is used to pay a 10% dividend on the members' capital shares and part to pay a bonus to the staff and board members.

Staff attitudes towards their work

The FO officers, although coming from a peasant background, had become urbanized and lived in nearby towns, such as Taiping or Alor Setar. Because they were transferred frequently, the officers' commitment to their FO was limited. They considered themselves to be low ranking government officers with an administrative task rather than entrepreneurs. Their promotion prospects were limited. The officers remarked that private companies bought out their better qualified colleagues. The others had to be content with a small salary and a relatively low status. These complaints were most prominent in the Krian FO. Some officers regarded their job as a good training for private enterprise.

The officers were respectful when in contact with peasants. They knew that peasants were sensitive to even the faintest indication of not being taken seriously and that they would report impoliteness to the general manager via the SAU chief or the board. In both areas, the officers were disappointed by the limited extent of co-operation from the peasants. They considered that many members were only interested in subsidies, particularly the cheap FO credit on easy terms, and that only a minority was really interested in the development of the FO.

The members' influence on the FO

Although on paper the supreme decision-making bodies of the FO are the assembly and board of directors, their influence is checked by the considerable power of the supervising government agencies (FOA and MADA), over both the staff and the resources of the FOs. In the following I present a picture of the actual scope of the influence of FO members and leaders, on the decision-making and the role played by them. The analysis is based on observations during meetings at various levels, interviews with staff and FO leaders, and the official minutes of the assembly meetings in the period 1976-78 and the board meetings of 1977 and 1978. The general picture is similar for the Krian and Muda FO. Only where specific differences occurred, are these referred to.

Ordinary members can influence FO decision-making in two ways: either by their representatives in the assembly or board of directors or their own efforts by voicing their opinion at the annual SAU meetings. The first of these methods is in actual practice not used. In fact, there is very little communication between assembly or board members and the ordinary members, with regard to FO matters. The former do not consult the members in their SAU about matters to be raised at board or assembly meetings. Furthermore the majority of the ordinary members do not receive information about what happened at these meetings. Such information is only given in passing, usually when board or assembly members happen to meet ordinary members at non-FO activities. Some FO leaders do not provide information at all and claim that they are bound by the other board members to maintain secrecy towards the ordinary members.

Some of the ordinary members try to influence FO decisionmaking by attending SAU meetings and asking questions, making complaints and proposing new projects and activities or improvements to existing ones. Formality is reduced to a minimum at these meetings, which helps to overcome some peasants' timidity towards FO staff. Only a minority of the proposals made by the members concern activities which the FO does or could undertake on its own. The majority consist of requests to the NAPRA to increase paddy prices to the Agricultural Bank to improve the credit programme, and to the DID or Engineering Division to improve the quality of local drainage and irrigation facilities and roads.

Constitutionally, proposals put forward during SAU meetings are made by individual members, not by the SAU. The meeting has no power to approve or reject these proposals nor to assign a priority ranking. The latter powers are confined to the board and assembly who deal with the SAU proposals in a later phase. Usually, the FO staff attending the SAU meeting notes the proposals made, without much effort to adjust the number and nature of the proposals to the scarce resources avaiable in the FO and the government agencies concerned. The discussion in SAU meetings takes place between individ ual members and the FO staff. There is hardly any discussion of the members'

proposals among the ordinary members, nor do the members consult each other before the meeting. Lists of proposals made in SAU meetings are a collection of individual requests and suggestions rather than the wishes of a corporate group.

The representative bodies whose decisions do have a formal influence on FO policies, are the assembly and board of directors. The Assembly and board of directors have to sanction the budget and service plan (a plan summarizing the activities and projects to be undertaken in the current year), the reports concerning the FO's financial operation in the previous period and all *ad hoc* measures. Without this approval the FO could not work. However, although representatives do exercise this formal authority in actual practice, their influence on the activities and projects undertaken by the FO is curtailed as the staff serves two masters. They are not only responsible to the board and assembly, but also to their superiors in FOA and MADA. Since it is not the board or assembly, but these superiors who determine transfers, promotions and conditions of service, instructions from the latter get priority over those of the former.

Normally, assembly and board members in both the Krian and Muda FO accept the fact that the FO staff have to consult their superiors before carrying out any action suggested by the FO leaders, and that the instructions of superiors rather than those of the board or assembly determine the form of the action, if it is carried out at all. An illustrative example is the implementation of the proposals to act against bad debtors, which were made in *every* board and assembly meeting in 1977 and 1978. Instead of instructing the staff to take the direct legal action requested, FO leaders accepted time and again that the matter was referred to MADA, FOA or the Agricultural Bank and that these agencies retarded the matter considerably.

In actual practice the board and assembly do not design a coherent policy for the FO with definite priorities. Most of this work is left to the staff and their supervisors and usually the service plans drawn up by the latter are accepted unanimously after very little or no discussion. Only occasionally do the board or assembly suggest marginal changes such as increases in some budget allocations and extra activities to be added to the service plan. This unanimity and lack of discussion is conspicuous especially when one takes into account that FO leaders do not discuss these issues with each other beforehand. In a total of six assembly and eighteen board meetings of the two FOs analysed, it happened only once that a board member tabled a counter-proposal which made voting necessary. This unanimity is partly caused by the nature of the service plan and other proposals which, in the members' perception, serve the common interest, rather than those of subgroups and, thus, do not give rise to conflicts of interest between SAUs or between various categories of members, and partly it is a consequence of the lack of administrative capacity of the board and assembly, plus a tendency to leave difficult decisions to the staff.

This does not mean, however, that representatives do not see shortcomings in the implementation of activities and that they have no other wishes, e.g. concerning new projects and activities not yet undertaken by the FO. Individual board and assembly members propose these new activities and promote the implementation of the proposals by asking questions about progress in each meeting. However, since board and assembly members recognize their ultimate dependence on FOA or MADA and regard themselves as inexperienced in business and organizational administration at this level of complexity, they let the staff and their superiors judge the feasibility of proposed projects and implement them. There are no training programmes to help board and assembly members in the execution of their tasks.

How many of the representatives' proposals are implemented, depends on their feasibility, the motivation and capacity of the staff and, if necessary, on the pressure which individual board and assembly members can bring to bear on the staff and their supervisors. If a politically influential representative considers that his proposals get insufficient attention, despite unanimous acceptance by the board and many requests to the staff, he tries to increase pressure on the staff by complaining directly to the staff's superiors in FOA or MADA. In Muda this is easier than in Krian due to the shorter distances involved. In some cases, the FO leaders in the Muda FO did more than complaining; they even exerted direct influence on MADA to change some of its policies concerning their FO. For instance, when MADA transferred the general manager of the FO studied, against the will of the board, almost all the board members resigned and announced this to the press, thus putting pressure on MADA to compromise[8)].

No similar cases of attempts to exert direct influence on FOA were found in the Krian FO. However, if the need arises, Krian peasants could exert effective indirect influence on the FOA via the political party in power. In one instance in which peasants in the Gunong Semanggol area wanted irrigation water to be released earlier than scheduled by the Department of Irrigation and Drainage, one of them used his access to high level politicians to obtain a concession from DID. These are extreme cases however. Normally the FO leaders and members are very patient and accept the initiatives of the supporting government agencies.

Apart from their formal responsibility for managing the FO, the FO leaders have the equally important task of translating to the members the FO activities, initiated by FOA or MADA. For instance, when MADA could not supply irrigation water for the off-season crop of 1978, and obtained a large grant from the government to reduce the resultant decrease in income of the poorest peasants, the FOs were charged with the implementation of relief projects. The role of FO leaders was mainly to explain these new activities and the conditions for participation to both members and non-members of the FO.

From my observations and subsequent analysis, it can be concluded that I do not agree with Afifuddin who sees the FOs, and particularly the FOs under MADA, primarily as a sound operational framework for the sharing of regional wealth, power and esteem by peasants, by which the peasants are mobilized at all levels and which is a stage towards their complete "participatory involvement" in the growth and development of the regional economy (Afifuddin 1978: 300). Although such traits may be weakly discernible in the FOs, the scope for the members to make their own decisions and their willingness to accept the responsibility for them is too limited. Members are too dependent on government agencies. Furthermore, it appears that the "participatory involvement" is limited to a relatively small section of the members (see also chapter 7). For this reason in this thesis I purposely avoid using the concept of participation with the exception of some specific instances where the concept is used in a very restricted sense and its meaning clearly defined (see chapter 7).

Concluding remarks

The main function of both the Krian and Muda FO studied is to provide services to individual members, primarily short term paddy production credit and related inputs, as LCC for the Agricultural Bank. The business activities and agricultural diversification projects undertaken are at present of no more than secondary importance. In their role as service centres, the FOs function primarily as administrative field units, closely supervised and controlled by FOA and MADA. The emphasis is on office work and formal procedures related to credit provision and recovery and leaves very little scope for the actual guidance of the peasants.

Although it is recognized at the policy level that FOs in paddy areas could play an important role in the co-ordination and synchronization of paddy production activities, no attempt had been made to perform this function in actual practice. Furthermore, in their present capacity the FOs are not able to carry out the task of co-ordinating the services provided by the various government and para-statal agencies involved in the development of the paddy sector. In the Krian FO area, these agencies still carry out their own activities independently of the FOs, whereas in the Muda FO area, their activities were co-ordinated at the regional rather than FO level.

Concerning the relationship between the FOs and their respective supervising agencies, FOA and MADA, it appears that the Muda FO is more tightly controlled, but also receives more support than the FO in Krian. It was noted, however, that the relative advantage of the Muda FO in terms of support only affects the non-credit activities, particularly the business activities. Routine activities such as the credit administration are carried out in a similar fashion by both the Krian and Muda FO.

The communication function of the FOs was particularly stressed in Muda. In the latter area, the FO framework was used for top-down communication

with peasants by all MADA Divisions and their sub-units. Due to the short distances involved and the concentration of tasks in MADA, the peasants could also contact, relatively easily, the various government services affecting their paddy production. In the Krian FO area on the other hand, the various government agencies had headquarters in different places and each had their own channels of communication with the peasants. This does not cause problems in the top-down communication, but clearly made the communication from below more cumbersome.

5 *THE LOCAL CONTEXT: SOCIAL STRUCTURE, ECONOMIC ACTIVITIES AND THE INSTITUTIONAL FRAMEWORK OF PADDY PRODUCTION*

The response of the paddy growing peasants to the various government interventions discussed in the foregoing chapter and in particular to the FOs, cannot be isolated from the social structure of local society, the role of paddy in the household economy and the institutional framework of the peasants' economic activities. This chapter deals with the micro-level social and economic background against which the responses of the peasants in chapters 6, 7 and 8 take place. The first part of the chapter analyses the social structure of the research villages. The findings confirm a number of structural characteristics of Malay peasant villages which have also been reported in earlier studies in the Muda and Krian areas (Kuchiba *et al.* 1968, Kuchiba 1978, Kuchiba *et al.* 1979b, Afifuddin 1972, 1973, 1977a, 1978, Sternberg 1977). Simultaneously, I have analysed in greater detail than these studies the consequences of these structural characteristics for possible co-operation. The basic information provided in this part of the chapter will be most relevant to the analysis of the peasants' contributions to the development of FOs in a more theoretical perspective in chapter 7.

The second part of the chapter starts with an analysis of the role of paddy production within the complex of economic activities undertaken by the peasant households in the research areas. This indicates that peasants regard paddy production as their major economic activity and that double cropping has made paddy an even more important source of income. The crop does not only provide the staple food for the household's subsistence, but also a significant part of the household's cash income. A substantial portion of the harvest is marketed. The analysis then focuses on the social structural aspects of the mobilization of resources for paddy production, particularly land, labour and mechanized services. In this connection analysis costs and returns of paddy production are discussed, in order to give an impression of the paddy incomes earned and the relative importance of various production costs. The final section deals with the role played by shopkeepers in the rural economy. They are frequently also paddy buyers and suppliers of consumer credit.

In this and the following chapters, the FO-areas that were studied have often been referred to as "the Krian area" and "the Muda area" or simply "Krian" and "Muda". It will be clear from the context whether these names refer to the selected FO-areas or to the irrigation projects as a whole.

5.1 THE HOUSEHOLD AS THE BASIC SOCIAL AND PRODUCTION UNIT

In the research areas the unit of production and the basic social unit that individuals identify with is the domestic group or household. It usually consists of a nuclear family, who live in a separate house, eat from one pot and exploit the resources of its members as an integrated unit. Although this is necessarily an ideal-typical description of the household, it very nearly approaches the actual situation.

The Malays in the Krian and Muda FO-areas studied have a bilateral ego-focused, cognatic kinship system (*adat temenggong*). The personal kindred does not extend beyond second cousins. Kinship links which date back further than three generations are forgotten, and cannot be ascertained because of the absence of a system of family names. It is forbidden to marry second cousins or closer relatives, but there are no other rules concerning the choice of a marriage partner. Usually, marriages are arranged by the parents. Quite frequently the marriage partners come from different villages. Polygamy is very rare.

In the first year of marriage, before the first child is born, a young couple has to find an independent economic base, build their own house and set up their own household. Until then, they stay with either of their parents or alternately at both parents' home. There is no prescription concerning the place of residence of the young couple after they have set up their own household. Usually they build their house in the compound of either of their parents, or a close relative, the location depending on the availability of building space, infrastructural facilities, personal preference and as many young couples still have to depend primarily on paddy farming, the distance to the paddy field. The latter is usually rented from one of the couple's parents or grandparents. When a young couple does not farm paddy and has other sources of income, such as a small business or a regular job, they usually have to move to other places, although many prefer to stay in the village where the cost of living is much lower than in urban areas.

After all the children in a nuclear family have married, the old couple remains as long as possible in their home, even after the death of one of the partners. These old people often continue to farm a small plot of paddy or live entirely on the income obtained from renting their paddy land to their children or grandchildren. Only if they can no longer take care of themselves, will they move in with one of their children or alternately stay a few weeks with each of their children. Although in such cases they form part of their children's household, they keep their own income.

Another deviation from the nuclear family pattern is sometimes found in cases of divorce or prolonged absence of the husband, e.g. when the latter serves in the army or police force. Divorced wives with young children usually return to their parent's household. However, when her children are older, a divorced woman will usually try to set up an independent household.

If she does not own a paddy field herself, she will try to rent a plot from her parents or other close relatives. Table 5.1 shows the prevalence of the nuclear family pattern among the paddy farming households in my random sample in the Krian and Muda FO-areas studied. The table also indicates the frequency of the deviations from the pattern discussed above. The picture is similar for both areas. A similarity which is not indicated in Table 5.1 is that in both Krian and Muda about 10% of the households also contained an unmarried sibling of the nuclear couple, or a niece, nephew or adopted child. The size of paddy farming households in Krian ranged from one to fifteen persons with an average of 6.2. In Muda, the range was from one to ten, and the mean household size was 5.4.

Above it was noted that households exploit their members' productive resources as an integrated unit. These resources include the land owned by the husband and wife (legally however, each remains owner of his or her own land), their labour and capital. The children's labour is not usually included in the household resources. Peasants value education highly, so they prefer their children to attend school and spend time on homework[1)]. School leavers' participation in paddy production is usually on a voluntary basis. When unmarried children who form part of the household earn income, e.g. as temporary wage labourers or in a regular job, they can usually keep it. They are occasionally expected to buy some candy or clothes for their younger siblings or food that the household cannot normally afford.

Even though most peasants would not immediately admit this, decisions about the use of the household's productive resources are not made exclusively by the husband. The wife has an important say in the matter, particu-

Table 5.1 Kinship structure of paddy farming households (% of households).

kinship structure of the household	Krian (% of households)	Muda (% of households)
single person	3	4
conjugal family[1]	4	6
nuclear family[2]	70	67
two-generation extended family[3]	4	2
three-generation extended family[4]	19	21
total	100 (n=114)	100 (n=102)

[1] married couple without children

[2] married couple or widow(er) with unmarried children

[3] nuclear family with newly wedded child plus spouse

[4] nuclear family with either of the couple's parents/nuclear family with married or divorced daughter and her children

larly since she provides a considerable share of the labour inputs required for paddy production, earns cash income as a wage labourer working for other peasants and, in some cases, owns part of the household's land resources. The wife also has an important say in the pattern of expenditure of the household income. Large assets are always bought in joint consultation and women often accompany their husbands when they go shopping.

5.2 THE SOCIAL ORGANIZATION ABOVE THE HOUSEHOLD LEVEL

A characteristic of Malay rural society in the research areas is that there are no corporate entities forming an intermediate level of organization between the peasant household and the state or other nation-wide organizations such as political parties. To the rural Malay, his village is the place where he lives and not a social unit to which he belongs or with which he identifies. As one Japanese observer commented, a bit impressionistically, a Malay village is not regarded as a village but more like a suburbanized area (Funahashi 1979). In this respect it is interesting to note that the Malay word for village (*kampung*, literally meaning "cluster of houses") is also used to denote urban residential areas which are purely Malay. A well known example is Kampung Baru, a settlement area in the midst of Kuala Lumpur with 13,000 residents, mainly working class and lower middle class Malays (Husin Ali 1968).

Villages as residential areas rather than social units

The village size in both research areas ranges from a few dozen to a hundred and fifty houses in separate compounds of one or two houses. The houses are on stilts and of typical Malay design, usually made of wood and with thatched or corrugated iron roofs. House improvement is one of the things on which people spend the increased income from double cropping. Villages near the roads are provided with electricity and piped water, but those further inland do not as yet have these facilities. People in these villages bathe in the canals or drains and get their drinking water from wells or hand pumps.

In the research areas the word village refers to the place where the houses are located, and does not include the surrounding paddy fields. There are no self-governing organizations, with authority over a certain area, facilities or a group of people; the village has no corporate structure and corporate groups above the household level are conspicuously absent from the social scene. Instead, social organization is based on dyadic relationships between individuals and households, i.e. on ego-focused networks which do not stop at the physical boundaries of the village. Moreover, these boundaries are often not very clear. Even in old established areas where there was originally a clustered settlement pattern, such as in part of the Muda area (including the Jitra FO area studied), the physical village bound-

aries have become vague. In the course of time the area between formerly separated clusters has often been built up or new clusters have been established immediately adjacent to older ones. There is also a tendency for clustered villages to change and to take on a linear pattern straddling the new roads (Afifuddin 1972, 1978). When asked for the physical boundaries of their village, villagers appear to disagree. The exact location of the boundary is not important to them. In immigration areas, such as the whole of Krian and large parts of Muda, physical boundaries are even less clear. The linear settlement pattern straddles the canals, drains and roads for miles and miles. In this situation, peasants sometimes do not even refer to their residential area as a village (*kampung*), but just mention the number and section of the drain or canal.

The absence of a village identity or community feeling is reflected in the openness of the villages. Non-villagers can move into the village without initiation ceremonies or having to ask permission from anybody except the man or woman on whose land their house stands. Settlers are equal in social status to the indigenous population. In the FO-areas studied in both Krian and Muda, about one third of the respondents in my simple random sample had originally lived in another village. Another notable feature emphasizing the absence of a village identity is that non-villagers cannot hold the village responsible for the actions of its inhabitants.

The linkage of villages to the administrative structure of the state

The system of linking villages to the state has not contributed very much to creating a village identity. The administrative structure is based on territorial subdivisions called *ketua kampung* areas which are linked to subdistricts (*mukim*), districts (*daerah*), the state (*Negeri*) and, ultimately to the federated nation (*Negara*). A *ketua kampung* area is the territory under the administrative authority of a village chief (*ketua kampung*) who is a resident of the area appointed by the state. The village chief does not have the status of a government servant and only receives an annual allowance of $ 300. These *ketua kampung* areas do not, or no longer coincide with the residential areas called villages. In areas which were originally clustered settlements, this is because now there are often two or more adjacent clusters in a *ketua kampung* area, or new villages have been built across the borders of these administrative units. Another reason why villages no longer coincide with *ketua kampong* areas is the afore-mentioned tendency for clustered villages to become linear. In immigration areas with a linear settlement pattern, *ketua kampung* areas are necessarily artificial units. The boundaries usually follow the original dividing lines of paddy field lots.

Another, even more important reason why these administrative areas have not developed into social units with a corporate identity is that the appointed village chief has little or no administrative power. In fact, in

Malaysia, local administration is the responsibility of the District Office (Beaglehole 1973). The village chief serves mainly as a communication link between the inhabitants (*anak buah*) and higher levels of administration, explaining government policies and helping the inhabitants in their contacts with government agencies. In this respect, the village chief is often not a direct mediator since there is one more level between the village chief and the district, formed by the sub-district officer (*penghulu*). This lowest administrative officer usually works without a staff and his functions and powers are not much different to those of the village chiefs.

The power of the village chief to exercise authority is limited to his formal authority to mediate between the villagers in cases of specific minor infringements of the law, which he does not need to report to the police. However, even in these rare cases, the village chief cannot force quarreling villagers to accept a compromise. The limited formal authority of the village chief is clearly brought out by the fact that in some villages in the Muda area, it appeared even difficult to find out who the chief was. In Kampung Guar Kepayang, for instance, the official village chief was old and inactive and informally his tasks had long since been taken over by someone else. In the nearby Kampung Banggol Besi there was not even an official village chief, but unofficially one of the villagers had taken up this task and was regarded as the responsible person by the other villagers. In the Krian villages studied, it was always the official village chief who actually performed the task.

The absence of a village identity has not changed very much with the formation of Village Security and Development Committees (VSDCs) in each *ketua kampung* area (see chapter 3). Formally, these VSDCs do not have any administrative power and responsibility. Their task is confined to proposing infrastructural improvements in the *ketua kampung* area. These include requests for electricity, piped water, construction and improvement of roads and bridges, mosques, community halls or clinics. Once a year these plans are drawn up and sent to the Sub-district Office where they are collected and submitted to the District Office. There some decisions are taken and the rest are sent on to higher authorities. The responsibility for the implementation of these plans is completely in the hands of government agencies. Labour inputs are sporadically provided by villagers, especially in the Krian area where transport of equipment over the cycle paths requires a great deal of labour. In such cases only the villagers who are directly affected by the infrastructural facility provide labour inputs. The participants will often try to get financial compensation for their efforts.

Many VSDCs are at present almost completely inactive[3)]. At best they meet once a year to draw up the afore-mentioned plans. However, quite often such plans are not submitted by the VSDC as a corporate entity, but by individuals who may or may not be official members of the VSDC. These individuals are villagers with some initiative and in contact with politicians and/or

officers in a particular government agency. They submit their plans directly to these contacts, thereby skipping the normal administrative channels. Usually, this happens without prior knowledge of other villagers or even the members of the VSDC. Only when the plans are about to be implemented, will the affected villagers be informed.

It is not surprising therefore, that many villagers in the research areas were not aware of the existence of a VSDC in their *ketua kampung* area. What they observed is that some *individuals* used their personal contacts to obtain infrastructural improvements in the area. In the villages studied by anthropological methods, the non-corporate character of the VSDCs is further illustrated by the fact that those who are said to be members of the committee are not sure who their fellow members are and listed different names. They can usually name three to five members, whereas officially there are eleven members.

The role of political parties at village level

Villages are not only linked to the federated nation via the administrative system, but also via the political parties, the United Malays National Organisation (UMNO) and the Pan-Malayan Islamic Party (PMIP). As mentioned above, applications for village development projects and particular actions by government agencies can be made via the political parties as an alternative to the administrative channel. This applies primarily to the political party in power, but even opposition Members of Parliament have some public funds at their disposal, to be used for the development of their constituency.

Just like the administrative system, the political parties have not helped to create a corporate identity at village level. Although some peasants say that there is a branch of either UMNO or PMIP in their village, or even branches of both parties, there is no formal organization with a committee of elected leaders. Few peasants have actually become members of political parties and usually the party branch only exists because of the continuous efforts of its leader. In most cases the latter is a man with easy access to local politicians and government agencies who is informally recognized as leader but has not been elected by members. In most villages with a party branch, it has no other activities than those directly related to the elections, such as organizing election speeches of state and federal politicians. As in the case of the Village Security and Development Committees, when villagers apply for development projects and put pressure on government agencies via the political parties, it is not the party branch which acts as a corporate entity, but the branch leader acting on his own initiative.

Although there is no formal party organization at village level and few peasants are members, most peasants support either of the two Malay parties. Both parties defend the privileges of the *bumiputera* but, in doing so, the

UMNO is more aware of the need to compromise with the other ethnic communities, in order to maintain the delicate political balance. The UMNO supporters are more pragmatic and place a higher value on economic development than the PMIP supporters. Nevertheless only some of the latter are really orthodox Muslims who are only disgruntled by UMNO's concessions to the non-Malay interests. Many peasants also support PMIP because they are dissatisfied with the development under the National Front and the way benefits are distributed.

In some villages, these differences in political views cause permanent ruptures in social contacts between the supporters of both parties. In other villages the UMNO and PMIP supporters get along well. This was the case in both the Krian and the Muda village studied by anthropological methods. However, even in these relatively balanced villages, political feelings ran high at election time with some of the supporters of each party avoiding social contact with the other, despite the conciliatory efforts of some respected villagers. Just before the end of the village study in Muda, some villagers even forced a split by forming an UMNO "branch" in the predominantly PMIP village, making it difficult, if not impossible, to return to normal pre-election conditions after the elections were over. This example demonstrates how easily in this respect the conditions in a village can change.

It can be concluded that, whereas political parties did not help to form corporate entities and to stimulate corporate action at village level, they did split social relationships in some villages.

The Islamic parish

The only local level entity with a permanent organizational structure and some characteristics of a social unit is the Islamic parish, i.e. the group of Muslims who use the same mosque (Afifuddin 1972). Although a parish does not have an official membership, the mosque attracts a rather regular group of people, viz. those who live nearer it, than to any other mosque. The people who frequent a particular mosque often come from several villages or *ketua kampung* areas. On the other hand, the inhabitants of one village do not necessarily frequent the same mosque. If the mosque in a neighbouring village is nearer than the one in their own village, they will attend the one nearest their home.

The group of people using the same mosque usually recognize certain obligations to the mosque, such as the payment of *fitrah* (a small annual contribution of paddy to the man looking after the mosque) and the contribution of labour inputs to the maintenance of the mosque and graveyard. There is a mosque committee that looks after these matters and organizes common meals on certain religious holidays. The users of the same mosque do not, however, strongly identify with each other as a group. If a new mosque was built nearer a villager's home, he would easily move to the new parish. One should

therefore be careful in talking about a religious *community*. Apart from the afore-mentioned activities, the parish does not unite its members in collective undertakings and the mosque users do not act as a group in non-religious fields of social life. The role of the *imam* is confined to strictly religious duties with no particular influence in non-religious matters (Husin Ali 1968).

Social control and the maintenance of social order

The question is how can a local rural society without institutions or persons who have the task of exercising social control, enforce norms and guarantee a certain standard of predictability in social interaction. There appear to be three mechanisms which perform these functions. Firstly, this task has always to some degree been exercised by the institutions of the state, such as the police force and the courts. Secondly, Islam appears to perform a very specific function making social interaction predictable. Whereas an individual only identifies weakly with his village as a residential or administrative area or with a particular parish, he feels very strongly that he is a member of the Islamic community in general. In the Malaysian situation, this community coincides with the Malay ethnic group[4]. The common religion is symbolic for a common way of life which does not confine itself to religious matters but pervades all aspects of social life. Being Malay means that one has to live up to certain expectations in interaction, both with other Malays and non-Malays. Thus, to some extent social behaviour is predictable because Malays observe a number of basic values and norms which have been internalised in an arduous process of religious training. In addition to their lessons at the primary school, rural Malay children usually attend a Koran school three or four afternoons per week from the age of six until they are fifteen years old. Some adults still continue to follow the lessons of religious teachers in specific institutions (Afifuddin 1973). A substantial part of the norms internalised in this learning process are norms which do not relate to specific roles, but pertain to human interaction in general. Although this does not mean that these norms are automatically followed, nevertheless the influence is significant, despite the fact that there are no sanctions other than strong moral disapproval. Regarding these particular norms, Malays are quite sensitive to these sanctions. However, in many fields of social life, the internalised norms only confine the behavioural alternatives within very broad limits and often do not provide concrete guidelines defining right and wrong in a given situation, especially since these norms pertain to human interaction in general and not to particular roles.

A third mechanism which makes behaviour predictable and which is probably much more important than the institutions of the state or the internalisation of norms is the process of dyadic negotiation of roles and the application of interpersonal sanctions. In the villages studied, where the indi-

vidual depends on an ego-focused network of dyadic relationships for the performance of functons which are elsewhere provided by groups and organizations, there exist few markedly structured roles. These roles are confined to a very limited number of relationships, mainly within the nuclear family. All other relationships and roles are "created" or "negotiated" by the individual in dyadic interaction with other individuals. This even applies to kinship ties beyond the nuclear family and grandparents. Whether there actually exists a relationship between ego and a particular other member of his personal kindred depends on what both parties have to offer each other. The content and meaning of the relationship depends entirely on the obligations and rights that the parties have negotiated. In the absence of social control exercised by organizations, it is through this process of dyadic negotiation and the application of interpersonal sanctions that behaviour is reinforced and rendered predictable. It should be noted, however, that this predictability is limited to the short term and that the partners keep all options open to act differently in future.

The limitations of these various mechanisms of social control become obvious when a conflict arises between individuals which they cannot resolve themselves. In such cases, they either leave the matter unresolved, or, in serious cases, they ask an informal leader or the village chief to mediate. For these mediators the only way to achieve success is through personal persuation. Their position does not give them the slightest authority to force a solution on any of the parties. If their friendly advice fails to make both parties agree, the matter remains unresolved. Sternberg (1977) who studied Malay paddy growing villages in the Krian area considered that conflicts among villagers were seldom resolved and that no attempt was made to enforce discipline on quarreling villagers. Afifuddin (1978) draws a similar conclusion concerning the Muda area.

Co-operation and the solution of common problems

The fact that social order and control is so dependent on personally negotiated rights and obligations in dyadic relationships has important consequences for co-operation. Co-operation that works relatively well is that of the "generalized reciprocity" type which is confined to very close relatives, mainly the members of the nuclear family[5]. This is particularly evident in the practices of land mobilization (see section 5.4).

Another form of co-operation which works relatively well is that of the "balanced reciprocity" type, i.e. co-operation, on a person to person basis, involving a clearly defined and negotiated set of obligations and rights[6]. This type of co-operation includes labour exchange for social and productive purposes (weddings, house construction, transplanting, reaping and threshing). The burial funds (*khairat kematian*) and crockery societies (*syarikat pinggan mangkok*) should also be included in this category of co-operation. A burial fund or crockery society is initiated by one of the villagers, who

recruites the members via his personal network. The members usually come from one neighbourhood which might include sections of different villages. In the Krian FO-area only 47% of the households had joined a burial fund or crockery society. The corresponding figure for Muda was 92%. The members of the burial funds pay their contribution annually and upon the death of a subscriber or one of his household they receive a fixed sum to help meet the costs of the funeral. The crockery societies own a stock of plates, bowls, pots and pans used for feasts (*kenduri*). Individual members pay an entrance fee which gives them the right to borrow the society's utensils whenever they hold a feast, only paying for those utensils which get broken. Although these seem to be groups, in fact they only consist of a number of people who each have a dyadic connection with the person who started the fund or society. When the latter loses interest, dies or moves to another village the organization usually disappears with him. There are well defined obligations and rights of the leader and the individual members and interpersonal sanctions can easily be applied.

However, co-operation for collective rather than individual purposes is difficult and only occurs on an *ad hoc* basis when certain problems arise, e.g. the minor repair to a collective infrastructural facility. In such cases no action is undertaken until one of the villagers who use the facility takes the initiative, usually the following day, to call on the other users to contribute labour inputs to do the repair. The participants are not invited personally, but the message is passed round by word of mouth at the mosque or at a small prayer house (*surau*). The composition of the group of participants is dependent upon the problem to be solved.

It is generally recognized that all households who use the particular facility have to contribute labour inputs to these so called *gotong royong* activities. In actual practice, however, participation is much lower. The survey data which I collected shows that the percentage of peasant households who had never taken part in communal labour activities was as high as 23% in Krian and 37% in Muda. In both areas only about half the households attended *gotong royong* activities regularly i.e. at more than 3 of the last 5 *gotong royong* activities to which they were expected to contribute labour inputs. Less than half of the non-attending households were those with very elderly or female heads who are normally exempted from these duties. I witnessed various *gotong royong* parties of less than a dozen peasants usually close friends of the formal or informal leader who initiated the activity, working on facilities that were used by a majority of the villagers. On other occasions the leader had to start on his own and then gradually got help from those accidentally passing by, who felt embarrassed because of their non-participation.

For several reasons the non-fulfilment of generally recognized *gotong royong* obligations is not sanctioned. Firstly, in a specific case of *gotong royong* nothing has been negotiated between the potential participants, therefore there is no possibility of applying interpersonal sanctions. Secondly,

in a society where a chance group assembled for at a *gotong royong* activity cannot but perform a very limited function for the individual, it is generally accepted that a potential participant might have more binding obligations to others. This tolerance towards non-attendants is apparent from the fact that the latter are not asked to justify their absence. The non-attendant's activities on the day of *gotong royong* are his own business. Participants simply conclude that, apparently, the non-attendants had more urgent commitments (*urusan mustahak*) elsewhere.

In the case of *gotong royong* activities for the repair of a road or bridge, the fact that only some of the potential participants turn up, does not prevent the attendants achieving their goal. However, it becomes different if the solution of a common problem requires the participation of all those affected. Examples are pest control campaigns and the co-ordination of water control and planting schedules. The non co-operation of only one of the peasants involved would make the entire effort useless. These efforts are never undertaken because the required discipline cannot be achieved due to the fact that not all peasants are prepared to give priority to these goals. For instance, although many individual peasants express the need for more effective water control, they do not attempt to achieve this collectively. The problem of unco-ordinated plot to plot irrigation is considered as uncontrolable as the weather.

These problems are no new phenomenon as is shown by an example given by Gullick (1965). He refers to the Annual Report, Pahang 1897, which records that the Malay village chiefs in that state had strongly expressed the opinion that "the [paddy] cultivators were incapable of combining among themselves to agree to any such arrangement as the simultaneous planting of their crops. [....] Selfish considerations, they [the chiefs] said, would always lead some members of a village community to delay planting in spite of any mutual agreement; others, fearing the destruction of their crops by vermin if planted before those of their neighbours would follow this example...." (*op. cit.*: 30-31).

These various observations have important consequences for the possibility of developing permanent organizations, such as FOs, which require long term commitments. These issues will be discussed in greater detail and theoretical perspective in chapter 7.

Leadership, status and prestige

The villages studied could be described as basically egalitarian communities. The traditional minor social status differences, based on administrative or religious office (the village chief, sub-district officer and *imam*) and on land ownership and wealth, were of little or no importance in face to face interactions. A more important factor in interaction among villagers is that some command more respect and prestige among their co-equals than others. These could be "wise men" who have a religious background, a

good moral standard, command sympathy in the village and whose advice is sought to solve individual and interpersonal problems or to organize the feasts (*kenduri*) of individual villagers. Others are people with contacts in the government bureaucracy or political parties who use their access for the benefit of other villagers in order to create some goodwill (Husin Ali 1968, Kuchiba 1978, Ahmed Hussein 1979). These roles are very often fulfilled by a few individuals in a village who are usually the instigators of a *gotong royong*, who organize the burial funds and crockery societies, and are members of the mosque committee and the Village Security and Development Committee. This small group is also encountered in above village level committees such as the school committee and the FO board and assembly, and some are "branch leaders" of a political party.

These individuals could be described as either formal or informal village leaders. However, their influence is determined by the personal respect and goodwill which they command rather than their formal position. The efforts of these leaders are time-consuming and unpaid, consequently the leaders are usually peasants who are richer, i.e. working more land (Afifuddin 1972). They are also better educated than the average peasant. Most of them are between 40 and 50 years of age. Lower middle class government servants or school teachers who live in the village might also mediate and sit on various committees.

The position of these formal and informal leaders earns them a lot of prestige and goodwill, but very little power. Their relationship with the other villagers is horizontal rather than vertical and should not be classified as a patron-client relationship. Although these leaders have good access to government agencies or political parties and perform mediating functions, they are not the only links with these organizations. The latter are relatively open and many peasants relate with them without the help of mediators. Furthermore, if leaders should make demands of those whom they helped, they would soon lose their position. A case illustrating this occurred in Kampung Kubu Gajah in the Gunong Semanggol area. When the village chief started to ask payment from villagers who sought his help for administrative formalities, they promptly complained to the District Office and the political party and he was replaced, by another of their choice.

Participation in village affairs

It follows from the above analysis that peasants participate at different levels in village affairs, as measured by the frequency of labour contributions to *gotong royong* activities and by membership of village associations and committees, such as the burial funds, the crockery societies, the mosque committee and the Village Security and Development Committee. Those who are active on behalf of the general interest are usually motivated by a genuine concern for local affairs: "If we do not repair that bridge, who else is going to do it?"

A number of characteristics differentiate active villagers from the less active ones. Firstly, in Muda the active villagers operate larger paddy farms than the less active ones. In Krian, however, there is no statistically significant difference in participation between operators of large and small paddy farms. I attribute the relationship between paddy farm size and participation to the impact of paddy income on available leisure. Those who earn large paddy incomes do not need to supplement this income with off-farm labour, catching some fish for home consumption, looking for firewood, et cetera. Therefore, they can more easily afford to spend time and effort on village matters. In Muda, operators of large paddy farms earn large paddy incomes. But in Krian, due to the much lower income per hectare than in Muda, many operators of as large paddy farms, earn much lower paddy incomes and have to do off-farm work just like the smaller peasants. Thus, the difference in leisure between large and small peasants in Krian are smaller than in Muda. For this reason, the observed statistically significant relationship of participation to paddy farm size in Muda is not present in Krian.

In both Krian and Muda, the active villagers are also characterized by higher education levels than the less active villagers and a more pronounced orientation to the world outside the village. The correlation of the latter characteristics with the extent of participation in village affairs is interesting. It has often been stated that peasants' sense of obligation to their community would decrease with an increasing market contact and communication with the world outside the village. An explanation for the fact that this did not occur is, that in Malay paddy growing villages obligations to the community are weak, non-commital, and do not require large sacrifices. In order to increase his external contacts, the individual peasant does not have to break with these obligations.

Malay paddy growing villages as loosely structured societies

The structural characteristics of the Malay villages described above appear to be typical of Southeast Asian paddy growing villages on plains. These include characteristics, such as:

1. the absence of clear boundaries of the social system, and the absence of a village identity and self-governing organizations;
2. the absence of formal institutions for social control, the weakness of social sanctions and a lack of ability to settle internal disputes;
3. the openness of the village to outsiders who want to move into the village;
4. the reliance of the individual on non-group organizations (e.g. dyads, networks, and chains of alliances), which implies no lasting relationships, the absence of enduring social groups above the household level (Piker 1969, Anderson 1970, Kuchiba 1979a, 1979b, Goodell 1980).

The cultural, historical and ecological origins of these structural characteristics and their similarity throughout the region are not very clear

and have not until now been the subject of much research. There are clear indications, however, that the individualisation in these societies dates from before the establishment and intensification of contacts with the West during the colonial epoch (e.g. Goodell 1980).

Some authors have characterized such village societies in a rather impressionistic way as "loosely structured social systems", following the introduction of this concept by Embree who based his observations on Thai material (Embree 1950, Piker 1969). Recently, Malay villages in paddy growing areas have also been described in these terms (Provencher 1975, Maeda 1978, Kuchiba 1979a, 1979b). According to Embree these societies were characterized by the fact that "considerable variation of individual behaviour is sanctioned" (Embree 1950: 182). He noted that, whereas obligations are recognized in a loosely integrated social structure, agreements are always made with the implicit proviso that the parties do not have to keep to the agreement when, on second thoughts, they regard the ensuing obligations as unduely large sacrifices. Other characterizations of loosely structured societies point to the strongly individualistic behaviour, lack of discipline and weakness of traditional groupings (Provencher 1975).

The impressionistic nature of these and other characterizations (normless, excessively deviant) has been rightly criticised by a number of authors, mainly students of Thai society. They point out that Embree, Piker and others have underrated the degree of structuralisation and the continuous institutionalization of the social order which originates from the negotiation of mutual rights and obligations in the interaction of individuals in dyadic relationships (e.g. Mulder 1967, Evers 1969, Anderson 1970). An important contribution by the latter two critics is that they have highlighted the mechanisms by which social behaviour is made relatively predictable, even though there are no formal mechanisms of social control and norms are weak. All these critics, however, recognize the special characteristics of these societies such as the predominance of non-group organizations (dyads, networks), the provisional nature of commitment to groups and the fact that social sanctions are weak and that norms are meaningful mainly in particular circumstances when underlaid by *reciprocal* obligations. Even though it is stressed that the looseness of the structure of these societies should not be exaggerated, it is acknowledged that they are characterized by a "less institutionalized" level of order (Anderson 1970).

These characteristics of loosely structured or "less institutionalized" societies have important consequences for co-operation. Above I have observed that co-operation of the "reciprocity" type, i.e. aiming at the achievement of individual ends, functions relatively well in the Malay villages studied. However, co-operation aimed at achieving collective goals poses problems when this requires complete discipline to be successful or a continuous long term commitment. The multiple loyalties of the individuals in these societies, make group interests difficult to reconcile with indi-

vidual interests and preclude this type of discipline and commitment. Various authors have also noted these consequences (Provencher 1975, Kuchiba 1978, Kuchiba *et al.* 1979a; see also Goodell (1980) who made similar observations in the Philippines.

5.3 SOURCES OF HOUSEHOLD INCOME AND THE IMPORTANCE OF PADDY

In the Krian FO-area, 87% of the households produced paddy. The corresponding figure for the Muda-area was 65%[7]. Apart from a very limited number of rubber smallholders, and landless farm labourers most of the non-paddy-farming households were not engaged in agriculture. The absence of a significant number of landless farm, labourers should be attributed to migration to urban areas stimulated by non-agricultural employment opportunities which provide a more attractive income than the temporary wage employment in paddy production. They include employment in government agencies and in the manufacturing and construction industries. Working as a farm labourer can only be a supplementary source of income for households that have other main occupations. Most wage labour used in paddy production comes from households operating small paddy farms.

In the Krian FO area, the non-farming households were mainly elderly people who rented their land to their children. Some of them were former policemen or ex-labourers of the Department of Irrigation and Drainage Public Works Department whose rent income was supplemented by a small pension. One or two non-farming households were shopkeepers or taxi-drivers. In the Muda FO area, the number of non-farming households was larger than in Krian. This is due to the fact that some of the census areas were very near to Jitra (5,000 inhabitants) which is a rapidly expanding commercial centre and the seat of the Kubang Pasu District Office and various other government offices. Many lower middle class government servants rent or buy a house in one of the surrounding villages. Furthermore, some of the landless householders in these villages find regular employment in nearby Jitra so that they are not forced to migrate to other areas. Near Gunong Semanggol similar employment opportunities are not available; there are no more than two dozen shops.

It should be noted that, apart from the immigrant government officers, one or two shopkeepers and the elderly people, the non-farming households in the FO-areas that were studied did not leave paddy production because other alternatives were more attractive, but mainly because they could not obtain land. As most of them have not got the qualifications for the relatively well-paid jobs and only earn low salaries of $ 80-120 per month, they would be better off if they could obtain a ha of land and engage in paddy farming.

Income sources of paddy farming households

As I will indicate below, for the paddy farming households who form the subject of this study, paddy is certainly the most important income earning activity. However, paddy is not their only source of income. Table 5.2 lists the various income sources and the percentage of the paddy growing households in the sample who said that they receive income from these sources. Most households rear a dozen or so free range chickens or ducks which are for home consumption or provide a regular small cash income. Commercial broilers that have to be fed on bought feed and raised in relatively large numbers (50-100) are not considered as a profitable enterprise by most peasants. Other animals, such as goats, sheep, cows and water-buffaloes are only owned by a minority of the households. The goat or sheep owner will only have an average of 4 animals whereas the cow or water-buffalo owner will average less than 2 head of cattle. Large scale animal husbandry using known techniques is prevented by land scarcity. The larger number of Muda households owning cattle is due to the fact that waterbuffaloes formerly had an important function in land preparation, whereas as indicated in chapter 4 this was not the case in Krian. The compounds of most households are planted with some fruit trees (coconut, banana, citrus, mango, *rambutan, areca-palm* but only few own a small orchard, usually not more than one ha. Other crops grown in the compound are limited to a few square meters of cassava, chillies, ginger and other spices. Only very few peasants have some land to grow a small plot of maize or groundnuts. Rubber provides additional income for a small section of the paddy growers. About half of them own a rubber garden themselves, whereas the other half are share tappers[)8]. Except for one or two Muda peasants with large rubber gardens - one owned as many as 8.5 ha - rubber plots are small (0.5-2.0 ha), planted with old, low yielding trees and providing only a very small cash income. Even with relatively favourable rubber prices, small rubber owners and share tappers could not possibly live on their rubber income only. Practically all of them are also paddy growers and paddy provides a much larger proportion of their income.

Most peasant households that earn off-farm incomes do so as temporary wage labourers on their neighbours' fields or as contract labourers on nearby estates or in urban construction in slack periods of the paddy cycle (between transplanting and harvesting). Few peasants have regular wage employment, not only because job opportunities are scarce, but also because the jobs for which they have the qualifications are badly paid. The low salary is not attractive to them, particularly because regular jobs cannot be easily combined with paddy production. These jobs are only attractive to the landless or very small peasants. A few peasants have bought power tillers or even small 4-wheel tractors and offer mechanized services to other peasants on a contract basis. The relatively high percentage of Krian peasants involved in fisheries, mainly inland fisheries for home consumption, is due

Table 5.2 Additional income sources reported by paddy growing peasants (% of peasants reporting).

on-farm income sources	Krian (n=114) (%)	Muda (n=102) (%)
chickens and/or ducks	96	89
commercial broilers	3	1
goats and/or sheep	5	15
cows and/or water-buffaloes	3	21
fruit trees (orchard)	6	19
rubber	13	26
other crops	1	2
off-farm income sources		
wage labour on other paddy farms	39	24
contract labour in slack periods of the paddy cycle[1]	18	8
part-time regular job (rice mill operator)	0	1
full time regular job[2]	5	9
tractor/power tiller rental	4	4
fisheries[3]	14	0
shop	1	4
petty trade/hawker	10	5
making mats, baskets, roof thatching	2	1
carpentry (village house construction)	1	6
Koran teacher (private)	0	1
bomoh (traditional curer)	0	1

[1] on estates or in urban construction

[2] school teacher, office clerk, irrigation linesman, estate labourer, bus or lorry driver

[3] mainly with the use of fish traps or throwing net (*jala*) in the Bukit Merah reservoir

to the fact that some of the census areas in the Gunong Semanggol area were within 1 or 2 km from the Bukit Merah reservoir. Except for some hawkers and petty traders selling fish, vegetables, cakes, cloth and minor household utensils, other off-farm activities are only undertaken by very few peasants.

The importance of paddy as a source of income

Although for many peasants paddy production is not their only occupation, it is by far the most important activity which, on average, accounts for 69% of the total annual net income of the paddy growing households sampled in

the Krian FO-area and 65% in Muda. Even peasants operating less than 1 ha get more than half of their net income from paddy. For those operating farms above 1.5 ha, paddy contributes 82% of total net income in Krian and 76% in Muda. In both FO-areas, a large majority of the paddy growing peasants mention paddy as their most important source of income (Krian: 93%; Muda: 87%). The importance of paddy is further illustrated by the fact that in both areas roughly 85% would prefer to operate a larger paddy area. Furthermore, all other economic activities are temporarily neglected when labour inputs are required for paddy production.

Whereas paddy provides for the staple food requirements of the household, it is only partly grown for subsistence purposes. As Table 5.3 demonstrates, even small peasants (<1.0 ha) save only roughly one third of their paddy crop for home consumption. The cash income earned from paddy production is an important element in the total cash income.

The concentration on paddy production is due to three reasons. Firstly, physical conditions preclude the planting of other crops. Secondly, paddy production provides a basic income and employment security for the household. Thirdly, as compared to other economic activities it provides a high income per man hour, even for tenants. This latter observation is clearly borne out by the consumption patterns of the various households in a village which are a very reliable indicator of income levels. Small, hardworking peasant farmers who operate less than one ha and have to combine their farm work with such activities as petty trade or a job as bus or lorry driver, are clearly less well-off than large peasant farmers (>1.5 ha) who primarily concentrate on paddy production and have more leisure time. Peasants themselves also clearly recognize paddy farm size to be the major variable separating rich from poor (Sternberg 1977).

In this respect, it should be noted that double cropping and paddy price subsidies have increased the comparative advantage of paddy production to

Table 5.3 % of gross paddy yield saved for home consumption on small, medium and large farms (main season 1978/79)[1]

farm size	Krian (n=114) (% of gross yield saved)	Muda (n=102) (% of gross yield saved)
<1.0 ha	33	35
1.0-1.5 ha	22	17
>1.5 ha	16	11
all farms	24	24

[1] the paddy which is not saved for home consumption is used to pay *zakat* (officially 10% of gross yield), the remainder is marketed

other economic activities, particularly in the case of the small peasant farmers. With the introduction of double cropping and higher paddy prices, the latter have shifted their labour inputs from low income side activities to the production of a second crop. Income increases in the Muda area between 1966 and 1975 were found to be primarily due to increased cropping intensity, higher yields and substantially higher paddy prices. The real increase in the paddy growers' average annual net household income over this period was 141% in constant 1966 prices (Jegatheesan 1977). A similar study for the Krian area was not available, but there too the income increase that occurred should be attributed primarily to the improvements in paddy production and paddy prices.

At the present level of capital formation and management skills, none of the income earning activities listed in Table 5.2 can compete with paddy, in providing both income security and a relatively high income per hour. As long as these other activities necessarily remain small scale, peasants cannot leave paddy production without suffering a decrease in income. These other income sources are therefore only undertaken as a side activity as long as they do not interfere with the production of paddy and are temporarily stopped when labour inputs are required for this crop[9]. Rubber tapping for instance, comes to a complete stop in peak periods of labour demand for paddy production, and hawkers leave their regular customers unserved.

The limited range of alternative activities will not change in the near future since the emphasis in the economic outlook of the peasants is on security. Security is sought in land ownership or in a job in the public sector. This attitude precludes large investments in business activities. The preference for employment in the public sector, if possible in white collar jobs, is a general characteristic of Malay peasants (see also Afifuddin 1973, Kuchiba 1978). In both Krian and Muda, 90% of the peasants who mentioned a preference for a certain type of occupation for their school-going offspring indicated that they would prefer them to have a job in the public sector[10]. Only 10% would like their offspring to start a business of their own. Significantly, none of the peasants wanted their children to become paddy growers. They considered that there was not enough land for them to make a decent living. Furthermore, paddy farming was regarded as dirty work, which could be avoided by employment in higher status white collar jobs.

When the survey peasants were asked what they would do if they won $ 10,000 the most frequent answer was "to buy land" (see Table 5.4). Only about 15% would start a business or other risky activity, whereas only very few peasants (Krian 1%; Muda 13%) would use the money to rent paddy land on a long term basis (*pajak*, see section 5.4). Other uses mentioned were not directly productive. The emphasis on security rather than on higher incomes is clear from these answers. An amount of $ 10,000 would not even buy 0.5 ha, whereas it is more than enough to buy a second hand pick-up van or to open a shop. Only $ 5,000 would be sufficient to rent 2 or 3 ha for

Table 5.4 Preferred investment opportunity for $ 10,000 (% of peasants)

investment opportunity	Krian (%)	Muda (%)
buy land	61	37
rent land	1	13
buy power tiller/water pump	2	1
open shop	0	3
trade	15	10
pilgrimage	9	17
children's education	0	7
buy car/improve house	2	4
save in bank account	10	8
	100 (n=114)	100 (n=102)

several years, and the income from this rented land would be enough to renew the rent contract and still give a good return per man hour. Nonetheless, most peasants prefer to buy and own land rather than increase their incomes by risky enterprises. In the light of these findings it is not surprising that none of the peasants were prepared to sell land, even if this was possible, in order to raise capital to start a business[11)].

However, some peasants do invest in capital goods such as pedestrian power tillers, water pumps or small rice mills. These investments are paid from savings or loans. It should be noted, however, that these investments are not only made with a view to earning income; ownership of these machines also reduces the anxiety involved in dependence on the services of others who own the machines. It is this function which is probably more important than the financial returns. For instance, one rarely finds a peasant who owns two or more power tillers, whereas it is much more common to find a power tiller owner who also owns a water pump or a rice mill. Furthermore, I observed that those few very large peasants (6 ha) who already owned one power tiller, one water pump, one rice mill, a car, et cetera, made further investments in land rather than for example buying a second power tiller. Usually these investments involved rubber gardens or orchards at some distance from the Krian or Muda irrigation schemes. One of these peasants had even invested in urban real estate.

The amount of paddy land available to a peasant as owner-operator or tenant determines to a large extent his opportunities to make capital investments of the afore-mentioned type. A small peasant farmer, for instance, could not afford the cash purchase of a power tiller ($ 5,500) and also could not take the risk of buying one on hire purchase. As his farm is small, he incurs the risk that he will not find enough customers to be able to make

a profit from the machine. Furthermore he would have to advance the costs of diesel, spare parts, repairs and the wages for an assistent operator until after the harvest. Large peasants with large per capita paddy incomes are in a much better position for such investments (Ouchi *et al.* 1977).

Whereas investment in certain capital goods for the sake of convenience and to earn additional income tends to be confined to the larger peasants, other side activities are mainly done by the smaller peasants. These include relatively low income labour activities such as the making of mats, baskets and thatching of roofs, or work as power tiller operator, contract labourer, rubber share tapper or hawker. Most of the permanent jobs for which peasants would qualify, would also fall into this category. Only the small peasant farmers and their wives can work as wage labourers in the transplanting, reaping and threshing of paddy, because they complete the work on their own farms earlier. Large peasants do not normally engage in these "poor man's labour activities" and prefer to spend more of their time on social activities such as visiting friends, or fulfilling leadership functions.

Finally, there are some side activities which do not appear to be closely related to the size of the paddy farm. These include the operating of a shop, work as a master builder of peasant houses, or as a broker between combine owners and peasant customers. On a per hour basis, these activities earn incomes which are comparable to or even higher than those obtained in paddy production but especialy the latter two income sources are highly unreliable and only provide occasional employment.

It can be concluded that both in the Krian and Muda FO areas, paddy production is not only the most important income earning activity of some 90% of the peasants, but that the amount of paddy land available to a peasant also strongly affects the other activities that he can undertake in order to augment his income.

5.4 THE MOBILIZATION OF RESOURCES FOR PADDY PRODUCTION

In this section, I will discuss the socio-economic institutions by which peasants mobilize resources for paddy production such as land, labour and mechanized services. Where possible, it will be indicated to what extent these institutions and the way they are used have changed since the introduction of double cropping and other government innovations which affect the production of paddy. The mobilization of variable capital (frequently by short term production credit) will be discussed in chapter 6, in relation to the peasants' decision-making concerning affiliation to the FO. Fixed capital played a very minor role in paddy production. Only very few peasants owned power tillers or tractors. Further fixed capital was limited to such implements as scythes, hoes, sickles, threshing tubs, planting sticks and other small utensils. Practically all households owned these individually.

The mobilization and distribution of land

Paddy land in the Krian and Muda areas is a closed resource which is in very high demand. It is individually owned and, in principle can be bought and sold. In most cases, however, a sale would be very difficult, since titles held by sole owners have become rare, due to the inheritance pattern which follows the Islamic law of inheritance (*faraid*) or, if all claimants agree, the Malay customary law. Both practices lead to a subdivision of the deceased's land among his or her children, grandchildren, parents, wife or husband, and so on. Because these subdivisions cannot be realized in practice, the claimants normally reach a compromise by which the land is given to only some of them, while the others are compensated in some other way. As survey costs are high, the heirs usually have their rights registered by the Land Office in terms of a fraction of the original individual title, without actually subdividing the title. Thus, it is not officially determined which piece of the land under the title is owned by each of the heirs (Wilson 1955). Nowadays most titles register two or three owners and sometimes even a large number of co-owners, some of them with a right to only a minute fraction of the total (Ho 1970). In actual practice, however, each of the remaining heirs receives a plot of land of which he or she can consider himself or herself as the "owner" (Wilson 1954). Collective exploitation does not occur. However, it is obvious that the sale of a piece of land has become a difficult matter.

The methods through which peasants mobilize land are similar in both research areas and are more clearly understood by describing the life cycle of a typical peasant household. A young couple tries to get access to land for paddy production on marriage or at the latest within a year thereafter. For couples who have already inherited land before they married this is easy, the others must either buy or rent land. Buying is at present very difficult, as very little land is offered for sale and double cropping has greatly increased land prices; a hectare costs $ 20,000. Very few young couples have that much money and borrowing is out of the question since the net paddy income would not even be enough to pay the interest. Formerly, however, young settlers in the Krian and Muda FO-area bought land with money saved when they were migrant labourers. In the Krian sample 33% of the landowning peasants had purchased all or part of their land. The corresponding figure for Muda was 22%.

Since buying land is not a realistic proposition, most young couples who had not yet inherited land, have to rent land, usually from other peasants. Large landholdings appeared to be rare in the research areas and various studies indicate that landlords do not comprise a homogeneous social and economic class distinct from the peasants (Jegatheesan 1976). Few landowners offer land for rent of their own accord (Kuchiba *et al.* 1968). This only happens when for some reason the landowner, who as indicated is usually a peasant himself, cannot cultivate the land and has no close kin in need of

land. In this case land is usually rented through a practice called *sewa* which involves a rent contract for one season with a fixed cash rent which is paid before planting. Another situation which may lead a landowning peasant to offer part of his land for rent is an acute need for a large amount of cash, e.g. because of illness or a wedding. In the latter case land is rented for more than one season with the total fixed cash rent for the whole period paid as a lump sum at the start of the first season. This practice is called *pajak*[12]. The amount of money required to enter into such a contract is usually well over $ 1,000. *Pajak* contracts are only found in exceptional cases and, at present practically all land is rented under *sewa* agreements.

Both because little land is offered for rent and because the rent has to be paid in advance only some of the young couples in search of land can solve their problems in this way. For the others there is only one solution: to request relatives to rent them some land. The potential landlords in such cases are either the tenant's or his wife's parents or grandparents. If the young couple succeeds in renting land in this way the tenure agreement is of the *sewa* type, but with payment after harvest and usually a more flexible rent. Although in principle rents are fixed, the tenant expects the rent to be reduced if the harvest is bad, whereas the landlord expects extra rent when the harvest is relatively abundant. To indicate the difference with the *sewa* agreements between non-kin or more distant relatives this practice is called *sewa hidup*. Such agreements normally provide a secure tenure. Although the agreement covers only one crop season, it is tacidly renewed after each season.

The land tenure relationships between close kin change in the course of time. If the parents have enough land they will usually rent the land to the young couple at a nominal rate until they have established themselves economically. Later on, when the parents are too old to work, the rents will be the same or even higher than those charged of non-kin (Kuchiba *et al.* 1968, Horii 1972, Corner n.d.).

If the young couple's parents or grandparents do not have enough land, they can only try to rent land from more distant relatives such as uncles or aunts. In such cases the tenure agreement is often less secure, since the landlord will eventually need the land when his own children get married. Tenure agreements with these more distant relatives are of the *sewa hidup* type, but rents are less variable and normally equal to the rents charged to non-kin.

In the course of time the tenant household will inherit some land, thereby changing its tenure status to that of owner-operator. When the couple's children grow up, the wife will be able to provide more labour for the farm and the household might extend its land base by renting some additional land either from non-kin or from siblings or more distant relatives who have migrated to the cities, moved to another village or become too old for paddy

Table 5.5 % of tenants and owner-tenants renting land from various categories of kin

categories of kin	Krian (% of tenants and owner-tenants)	Muda (% of tenants and owner-tenants)
close kin[1]	31	33
distant kin[2]	20	9
close and distant kin	8	4
close kin and non-kin	10	11
non-kin	31	43
	100 (n=67)	100 (n=54)

[1] the tenant's/owner-tenant's or his wife's parents, grandparents or siblings

[2] other relatives than those classified as close

farming. In such cases the rents are equal to those between non-kin. This owner-tenant status will then revert to that of owner-operator, when the labour power of the household declines and the children get married. When the original couple are old, they will usually rent their land to their children or grandchildren.

Table 5.5 shows from whom the pure tenants and owner-tenants in my simple random sample rented their land. In both areas, the prevalence of rent agreements between kin is clearly indicated.

The present land tenure status of the peasant households in the survey is shown in Table 5.6. The incidence of tenancy is clearly high in both research areas. Table 5.6 also shows the present farm size distribution and indicates the prevalence of relatively small farms. I shall refer to the farms below 1.0 ha as small farms, those of 1.0-1.5 ha as medium farms, whereas farms above 1.5 ha will be referred to as large. It should be noted, however, that these terms are relative and used in the local context only. In fact, by international standards, a majority of the large farms are still very small (less than 2.5 ha). The largest farms in the sample were two farms, one of 4.0 ha in Krian and the other of 5.7 ha in Muda. At the other end of the farm size continuum, farms under 0.5 ha are an exception (Krian: 8%; Muda: 7%). Therefore, most of the farms classified as small are between 0.5 and 1.0 ha.

Whereas some of the historical developments in the land tenure system are rather evident, other aspects have not been very well documented (Jegatheesan 1976). One of the evident developments is the fragmentation in land ownership. Several peasant households farm more than one plot (Krian: 32%; Muda: 42%). In exceptional cases farms of 4 plots were found in both areas.

Table 5.6 Land tenure status and farm size distribution (% of peasants)

tenure status	Krian (%)	Muda (%)
tenant	39	38
owner-tenant	20	15
owner-operator	35	34
owner-tenant + lessor[1]	2	1
owner-operator + lessor[2]	4	12
	100 (n=114)	100 (n=102)
paddy area operated		
<1.0 ha	34	45
1.0-1.5 ha	33	29
>1.5 ha	33	26
	100 (n=114)	100 (n=102)

[1] peasants who rent part of their land to others while also renting land from others and cultivating part of their own land

[2] peasants who rent part of their land to others, usually children

Another development in both areas which started in the 1950s is a decided change from rents in paddy to rents in cash. This was accompanied by an increase in rents, even before the introduction of double cropping (Jegatheesan 1976, Sternberg 1977). This development continued after double cropping. At present, practically all rent is paid in cash (Krian: 96% of the land tenure arrangements of the survey respondents; Muda: 89%). It appears that the rent increases are a result of higher yields and higher product prices. As a proportion of the value of crop yield (Krian: ±20%; Muda: ±25%) rents have remained fairly stable over the last decades (Jegatheesan 1976). A high incidence of tenancy and prevalence of fixed rents (*sewa* and *sewa hidup*) were found in both areas when the first studies on land tenure were made in the 1950s (Wilson 1958).

The trends in mean farm size and farm size distribution are less clear. Nonetheless, various studies between 1955 and the middle of the 1970s suggest the hypothesis that there have been no significant changes in the mean farm size during this period. This might be attributed to out-migration from the paddy areas. The average annual rate of population growth in these areas during this period was only half the national average (Jegatheesan 1976).

Data on trends in farm size distribution is not available except for a news magazine article summarizing the main conclusions of an unreleased study of historical developments in land tenure in Muda, conducted by the Centre for Policy Research of the Universiti Sains Malaysia (Ho Kwon Ping 1980).

The main conclusions are that, whereas land ownership concentration declined between 1955 and 1976, there appears to be a polarization of farm size. The latter trend is a consequence of the harvest mechanization which reduced labour shortages and allowed peasants to extend their cultivated area by renting more land. Those who succeeded in doing this were the larger peasants. On the other hand increased productivity has induced the peasants who were less successful in renting land to continue to farm a very small plot, whereas before the introduction of double cropping they would probably have left the area in search of more attractive employment opportunities (Ho Kwon Ping 1980). Thus, the observed polarization - although causing greater income differences - is partly due to an absolute improvement in the position of the smaller peasants.

A shortcoming of this summary of the study by the Centre for Policy Research (CPR) is that it does not say to what extent the observed polarization process contributes to the formation of permanent classes of small and big peasant farmers, compared to the present situation where farm size and tenure status may change during the life cycle. This shortcoming is surprising since the CPR-researchers were aware of this life cycle pattern (see e.g. MADA-Universiti Sains Malaysia 1974). A better insight into the effect of double cropping and mechanization on this life cycle pattern and the possible development of permanent classes is urgently needed.

The mobilization of labour

Various studies estimate the total labour input required for paddy production at ± 500 work hours per ha in Krian (manual land preparation) and ± 400 in Muda. Small farms use more labour inputs per ha than large farms (Jegatheesan 1976, Sternberg 1977). These labour inputs are mobilized in various ways. Some minor activities are always performed exclusively with household labour. These include the repair of the bunds around the paddy field, preparation of the nursery, weeding and application of fertilizers, herbicides and crop protection chemicals. These activities are usually performed by the husband, sometimes with help from his wife. When a widow or divorced woman cultivates her own paddy, she performs most of these tasks alone.

However, activities which require relatively high labour inputs within a short time span, such as transplanting, reaping, threshing and the transport of paddy, often cannot be completed without recourse to outside labour. In Muda this also holds true for land preparation which, as indicated earlier, is almost completely mechanized and performed on a contract basis. In Krian, where part of the land is prepared with the scythe, this task is usually performed by the husband. However, one fifth of the peasants who used the traditional method of land preparation, employed outside labour.

A brief note on the sexual division of labour and the techniques employed is necessary before I discuss the various ways of mobilizing outside labour for transplanting and harvesting. Transplanting and reaping are typically

female tasks, whereas threshing and paddy transport are done by men. This traditional sexual division of labour is still adhered to, except that men occasionally participate in transplanting and reaping, particularly in Krian. Transplanting is done by hand, using a forked planting stick (*kuku kambing*) and requires ±100 work hours per ha. Reaping is done with serrated sickles and requires ±200 work hours per ha. In the research areas the traditional small reaping knife had been used where the grain ripened unevenly, however, for several decades now it has only been used to collect seed for the new season (Jackson 1972). Reaping and threshing are carried out simultaneously in the field. The traditional method for threshing which requires ± 85 work hours per ha is to beat the sheaves against a ladder or board set upright in a wooden tub placed on a sledge. A screen of empty fertilizer bags is placed round three sides of the tub to prevent the grain from scattering. Gunny sacks are filled from the tub, sewn up and then transported by bicycle or hand. As indicated above, in Muda mechanization is rapidly occurring and the traditional methods of harvesting are being replaced.

One way of mobilizing outside labour for transplanting and harvesting was through reciprocal labour exchange between households. This type of co-operation is locally known as *derau*. In its pure form, a *derau* group consisted of 5-10 relatives and friends with medium size farms, living near to each other. The group would undertake to transplant or harvest a fixed area or work for a fixed time on each other's farm in a pre-determined order. One worker would be supplied by each household. *Derau*, in this pure form, was already exceptional before the introduction of double cropping, because the variation in farm sizes made the formation of a sufficiently large group difficult. In order to solve this problem, peasants who cultivated less than the fixed area were asked to participate in the group. When the latter participated in a *deau* group, they could sell the labour credit which they had accumulated in excess of the requirements for their own farm, to any interested peasant. In this way, even landless households, e.g. those of low-paid labourers in government departments, could supply female labour to a *derau* group. It also happened that peasant households who had no labour, hired someone to participate in a *derau* group (Kuchiba *et al.* 1968).

The *derau* system could not solve the labour problems of all peasants even before double cropping started. Those cultivating relatively large farms did not have enough labour and would not have been able to complete the work in time if they relied on the *derau* system. On the other hand, because of the nuclear family pattern and sexual division of labour, even the households with small farms were frequently unable to supply the required labour inputs for their own farm, for instance when the wife was pregnant or ill, too old, or occupied caring for young children. Thus, the use of wage labour (*upah*) was a normal practice and, although it was more common on large farms, could be found on farms of all sizes (Kuchiba *et al.* 1968).

In the Muda area the payment of wage labour is at present always a fixed sum of cash per ha for transplanting and an equal amount for both reaping and threshing. Since reaping requires more labour hours than threshing, women are paid less than men. In Krian, payment for transplanting is also on a per ha basis. However, harvesters are paid 20% of the gross value of the paddy harvested, which is the traditional practice in the area, called *sepuluh-dua*. One half of this is for reaping, the other half for threshing. Here too women receive less than men on a per hour basis. Actual payment is at present always in cash. There were no indications that a similar pattern had ever been used in Muda. In both Krian and Muda, when outside labour is used for the transport of paddy this is at present always wage labour, and payment is in cash per gunny sack (±70 kg), the amount depending on the distance from the paddy field to the road side.

The introduction of double cropping has increased the reliance on wage labour because it further hampered the use of the traditional *derau* system, by limiting the periods available for critical operations such as transplanting and harvesting. The household labour available is limited, therefore labour exchange is only possible when these operations can be spread over a relatively long period, so that each participant's farm can have its turn. Because this is no longer possible, *derau* groups of the traditional type have become even rarer. Most of the groups that are presently called *derau* groups are actually groups of small peasants who finish their own farm work relatively quickly and then temporarily combine to hire themselves out as wage labourers. These are always *ad hoc* groups and never permanent (Afifuddin 1973). Usually, they are mobilized by a peasant who has found transplanting or harvesting work, quite frequently in other villages. When the work is done, the earnings are shared equally; for this reason these modern *derau* groups are often called "share groups". On the next job a day later, the group might be composed differently, because new peasants join who have just finished their own farm or because some members have joined another group.

In the Muda area, double cropping has clearly led to temporary, but acute labour shortages during peak periods of demand for labour for transplanting and harvesting. To some extent these shortages are also attributed to the fact that some of the younger people no longer participate in these activities. They did not acquired the skills because of the prolonged emphasis on schooling. In the first years of the irrigation project, the labour shortages were mitigated by migrant labour from Patani and Kelantan, but since the introduction of double cropping in the latter areas, this source of labour supply has dried up. Wages were continuously increasing and had reached the level of $ 100 per ha for transplanting and similar wages for reaping and threshing. These developments have contributed to the aforementioned process of mechanization of harvesting operations. Experiments with the mechanization of transplanting have not yet proved successful.

In Krian labour shortages were not as acute as in Muda, partly because the average household is larger, and a larger proportion of the household members participate in farm work. In Krian, on an average 47% of the household members participate in farm work, whereas the corresponding figure for Muda is 36%. Another reason is that the double cropping schedule is still less strictly adhered to than in Muda, so that there is more time to finish the work and less need to rely on outside labour. Finally, recruiting outside labour is not as difficult as in Muda. As the different parts of the irrigation scheme are in very different phases of the paddy production cycle, labour is always available from nearby. Nevertheless, on a per ha basis wages for harvesting which are calculated as a share of the crop, have risen with increased productivity and are equal to those in Muda. Transplanting wages per ha are also not much lower than in Muda.

As an illustration of the present labour mobilization practices Table 5.7 shows the average percentage of the total cultivated area transplanted and harvested with paid labour or contracted combines on small, medium and large farms in the research areas. The table shows even on the small farms the great reliance on paid services for these critical operations. It is also clear from the data in Table 5.7 that the use of wage labour in the Krian FO-area is less than in Muda.

The mobilization of mechanized services

The mechanized services used by peasants are those for land preparation and harvesting, the latter only in the Muda area. Since only 8% of the Krian peasants and an equal proportion of the peasants in Muda owned a power tiller or tractor, most peasants had to hire these services from contractors. In both Krian and Muda power tillers were always contracted from peasant owners in the neighbourhood. In the Muda area, larger tractors (60-70 hp) could be contracted from Chinese shopkeepers. At the time of the fieldwork for this study, the prevailing uniform rate for power tiller or tractor services in both research areas was $ 59/ha for the first pass and $ 56/ha

Table 5.7 Average % of total cultivated area transplanted and harvested with paid labour or contracted combines on small, medium and large farms

farm size	Krian (n=114)		Muda (n=102)	
	transplanting (% of area)	harvesting (% of area)	transplanting (% of area)	harvesting (% of area)
<1.0 ha	28	28	61	69
1.0-1.5 ha	27	44	74	89
>1.5 ha	36	51	81	97
all farms	30	41	70	82

for the second pass. These services were almost always paid after harvest (Krian: 96% of the peasants who contracted power tillers; Muda: 89%). Peasants who were hired as operators by tractor or power tiller owners could sometimes use these machines on their own land free of charge.

For Krian peasants, the costs of mechanized or manual preparation of the land using wage labour were nearly the same. The standard wage was $ 80/ha for slashing, plus a very variable additional amount for raking and leveling. Thus manual land preparation with hired labour, was more expensive than a single pass with a power tiller and only slightly cheaper than two passes.

In Muda, combines were contracted from their owners who were usually Chinese shopkeepers or businessmen who bought them on hire purchase from importers. Peasants mentioned a number of advantages and disadvantages of mechanized harvesting. Combine services cost as much as labour services ($ 174/ha), but a peasant did not have to provide snacks, had no trouble finding labourers and often saved on transport costs, as gunny sacks were put on the bunds. Especially during the off-season harvest, when it often rained and fields were wet, the machine had the advantage of keeping the paddy dry. Finally it was quicker and gave the peasants a break before the hectic period of the start of the next season. The disadvantages were, that it reduced employment for the poor and that more paddy was lost through dropping and less effective threshing. During qualitative fieldwork, I heard of one village, where there was a consensus of opinion that the combine should not be used because of the position of the poor, i.e. the landless and the small peasants, but in most villages no such attitude prevailed. Larger peasants sometimes waited, however, to see what the smaller peasants would do. When some of the latter started to use the combine themselves, the larger peasants no longer saw a need to refrain from using the machine out of pity for the poor.

5.5 COSTS AND RETURNS OF PADDY PRODUCTION

In order to get an impression of the incomes earned by the production of paddy, I have calculated the average gross production value and the average cash production costs on a per ha basis for the various farm size categories. The results are presented in Tables 5.8a and 5.8b. I only calculated as costs the actual cash production costs, as paid by the peasant. The only non-cash cost included is that of seed, which was usually provided from the peasants own stock (see chapter 8). Imputed costs for the labour inputs of the members of the peasant household and the peasant's own land were not counted as actual costs. Depreciation and interest costs on fixed capital are negligible and were also left out. In case a peasant owned a power tiller or tractor, the cost of land preparation was set at the level that would have been charged if the machine had been rented (opportunity cost). The per ha net incomes shown in Tables 5.8a and 5.8b are those which were earned before

Table 5.8a Average per ha costs and returns of paddy production on small, medium and large farms (Krian)[1]

	size of paddy area operated			all farms
	<1.0 ha ($/ha)	1.0-1.5 ha ($/ha)	>1.5 ha ($/ha)	($/ha)
1. Gross value of yield minus *zakat*[2]	1,031	1,050	1,024	1,033
Costs of material inputs				
2. seed	16	14	14	15
3. fertilizers	113	106	108	109
4. crop protection chemicals	3	4	5	4
5. sub-total (2+3+4)	132	124	127	128
Costs of mechanized services and hired labour				
6. land preparation[3]	79	81	77	79
7. transplanting	27	34	38	33
8. reaping, threshing and transport	84	149	148	125
9. other tasks	0	1	0	0
10. sub-total (6+7+8+9)	190	265	263	237
11. Net income before rent [1-(5+10)]	709 (n=64)	661 (n=60)	634 (n=53)	668 (n=177)

[1] Costs of household labour, land and minor utensils have been excluded. Averages are the weighted means of all cases in the stratified random sample.

[2] Although it can be assumed that many peasants paid less than the required 10% of gross production, few were willing to admit this. Therefore the exact amount of *zakat* could not be determined. In calculating the figures in row 1., *zakat* was assumed to be 10% of gross production.

[3] Includes power tiller charges, wages for slashing weeds (*menajak*) and herbicides.

land rent was deducted. Since there were no statistically significant differences in expenditure between the land tenure groups, on the various cash inputs shown in Tables 5.8a and 5.8b, it can be said that the average net incomes presented are those earned by owner-operators, whereas the average per ha net income earned by tenants can be easily derived by lowering the presented net income with the average rent as paid by tenants and owner-tenants (Krian: $ 210/ha; Muda: $ 360/ha). The average per ha income of owner-tenants would be in between the averages for owner-operators and tenants.

Table 5.8b Average per ha costs and returns of paddy production on small, medium and large farms (Muda)[1]

	size of paddy area operated			all farms
	<1.0 ha ($/ha)	1.0-1.5 ha ($/ha)	>1.5 ha ($/ha)	($/ha)
1. Gross value of yield minus *zakat*[2]	1,411	1,353	1,325	1,371
Costs of material inputs				
2. seed	16	17	17	17
3. fertilizers	133	151	170	149
4. crop protection chemicals	9	9	10	9
5. sub-total (2+3+4)	158	177	197	175
Costs of mechanized services and hired labour				
6. land preparation[3]	126	130	132	129
7. transplanting	73	78	106	84
8. reaping, threshing and transport	172	220	223	199
9. other tasks	2	2	1	2
10. sub-total (6+7+8+9)	373	430	462	414
11. Net income before rent [1-(5+10)]	880 (n=64)	746 (n=61)	666 (n=60)	782 (n=185)

[1] See footnote 1 under Table 5.8a.

[2] See footnote 2 under Table 5.8a.

[3] Includes power tiller charges, herbicides and payment for leveling with a water-buffalo.

The net incomes calculated in this way include the reward for the peasant's household labour, minor utensils and - if he is an owner-operator or owner-tenant - his own land. I have chosen this simple way of calculating net incomes because the use of imputed costs invariably leads to negative incomes because of the high value and consequent high interest cost of land. In that way one obtains no insight into the reasons why peasants attach so much importance to the production of paddy. In their short term economic decisions peasants do not regard land as an asset with an interest cost. Given the peasants' preference to hold on to their land for security reasons, their economic decisions are mainly determined by the manifest material costs and benefits of an activity and by the opportunity costs of their labour.

Tables 5.8a and 5.8b indicate that cash costs take up a substantial proportion of the gross production in both research areas. It is also clear from this data that the cash value of material inputs such as seed, fertilizers and crop protection chemicals is relatively small compared to the costs for labour and mechanized services. For tenants the cash outlays for rent mentioned above are also larger than those for material inputs.

As indicated in Tables 5.8a and 5.8b the lower gross yields in Krian as compared to Muda are largely compensated for by the lower production costs, primarily because Krian peasants make less use of paid labour and mechanized services. It should be noted, however, that this does not mean that the Krian peasants earn incomes comparable to those in Muda. On a per annum basis, Krian peasants obtain only 1.5 crop, whereas Muda peasants come nearer to 2 crops per year. Thus the non-adherence to the double cropping schedule in Krian, while making it possible to lower production costs by relying more on household labour, at the same time reduces the annual gross income.

5.6 THE ROLE OF SHOPKEEPERS IN THE RURAL ECONOMY

In the foregoing, it has already been indicated that despite government intervention in the credit and paddy markets via the Agricultural Bank, the FOs and NAPRA, the rural shopkeepers still play an important function in the rural economy. Firstly, as explained in more detail in chapter 6, a section of the peasants continue to use production credit from shops. Secondly, a function which is often more important than production credit to both peasant and shopkeeper - and which the FOs do not perform - is the supply of consumer goods on credit and occasionally no-interest cash loans in an emergency. Thirdly, shopkeepers remain important as primary paddy buyers.

Although commerce is still strongly dominated by the Chinese, various Malay shopkeepers can be found in the villages. In Krian, 71% of the survey peasants bought their consumer goods from and sold their paddy to Malay shopkeepers. In Muda, this figure is much lower than in Krian (10%). Most of these Malay shops each have close business relationships with a particular Chinese shop in a nearby road side commercial centre. The latter supplies the shop and provides transport facilities, since most Malay shopkeepers do not own these themselves.

Table 5.9 shows the predominance of shopkeepers as marketing outlet for the peasants in the survey. This predominance is not entirely due to the shopkeepers' grip on the peasants' marketable surplus via the provision of consumer credit. In fact, only roughly half of the peasants in the survey made a more or less regular use of shop credit facilities for consumer purposes. As briefly indicated above, a more important reason why so many peasants sell their paddy via the shopkeepers is the convenience of the latter's transport services.

Table 5.9 Marketing channels used for paddy (% of peasants)[1]

Marketing channel	Krian (%)	Muda (%)
shopkeeper	87	68
shopkeeper and NAPRA	0	3
NAPRA	1	16[2]
paddy buyer[3]	12	4
private mill	0	1
co-operative society	0	8
	100 (n=113)	100 (n=96)

[1] A few peasants had not yet marketed their paddy at the time of the survey.

[2] As compared to Krian, the larger number of peasants selling to the NAPRA in Muda should be attributed to the fact that the NAPRA operated a collection point in the Jitra FO-area, whereas the NAPRA complex in Krian was at a distance of 30 km from the Gunong Semanggol FO-area.

[3] Paddy buyers are all those private intermediaries between peasants and mills who are not shopkeepers.

Shopkeepers pay competitive prices for paddy. Paddy prices varied slightly between shops, but they seldom differed by more than 4%. In most cases the price per *pikul* (60.5 kg) was about $ 28 which was only $ 1 below the price received at the mill. If transport to the mill - usually by small lorry of 1.5-2 ton - cost about $ 0.50 per *pikul* of paddy, the reward for the shopkeeper's labour and capital was $ 0.50 per *pikul*, i.e. 2% of the total turnover. This margin can be increased, however, if shopkeepers use unfair scales. This contention is often heard, but could not be investigated. Another method by which shopkeepers can increase their profit margins is through unfair use of the system of standard deductions in *kati* (0.6 kg) per gunny sack for the weight of the empty sack and for different percentages of moisture content, unripe grain and pollution with grass, stalk, et cetera, as estimated by the shopkeeper. Peasants sometimes complained of unfair weight deductions referred to as *potong angin* (deduction for too much air in the paddy). The average deduction for the main season harvest in Muda of 10.9 *kati* per gunny sack (9% of the gross weight) as against 4.8 *kati* per gunny sack in Krian (4% of the gross weight) gave reason to suspect that deductions in Muda were too high.

The prices received for paddy and the weight deductions were the same for peasants whether or not they were in debt to the shopkeeper. Therefore, the credit customer's obligation to sell enough paddy to the shopkeeper to repay his debts does not imply an extra cost. In fact, the costs of consumer credit to the peasant are confined to an interest which is "implied" in the

prices of consumer goods, and the obligation not to buy consumer items in other shops, as long as similar ones are available in the shop were he enjoys credit facilities. The term "implied" interest refers to the fact that shopkeepers do not charge a formal interest since this is unacceptable to the Malays as Muslims. Instead, they charged fixed prices when they provided consumer goods on credit, whereas customers who buy on cash terms can bargain and get a rebate of about 10%. Since three quarters of the consumer debts of the survey peasants were between $ 100 and $ 400 per season, the extra costs involved are in the order of $ 10 to $ 40. Although the real interest of such a loan on a per annum basis could be very high, the absolute costs to the peasant are limited.

In order to understand the influence of shopkeepers over credit customers one has to be aware that obtaining credit is not a purely economic transaction, but requires a relatively long term relationship of mutual trust. Since their loans are unsecured, shopkeepers limit the provision of consumer credit and other credit facilities to regular customers who have proved their repayment capacity and reliability. New customers first obtain limited quantities of goods on credit until they have proved themselves reliable over a period of one or more seasons. Under these conditions, customers do not easily change shops, but tend to remain with the one shop where they have built up a good reputation. A change of shop is seldom attractive, since it will take some time before one can enjoy the same facilities.

Since both credit customers and shopkeepers have an interest in perpetuating the relationship, they avoid contractual arrangements which would end after each has fulfilled a number of specified obligations to the other. Instead, they see their relationship as one in which both parties will continue to be indebted to the other. If a peasant should transfer his patronage to another shop without just cause, he would feel embarrassed because of his disloyalty and the shopkeeper would feel offended. On the other hand, a shopkeeper would feel embarrassed to refuse further credit facilities to a regular customer. In that case the customer would feel his earlier loyalty to the shopkeeper betrayed.

It is obvious, that the borrower-shopkeeper relationship is an unequal one in which the shopkeeper is the more powerful party, controlling the credit resources wanted by the peasant. Nevertheless, the margins of operation for shopkeepers are narrow. When their prices are not competitive their customers can go to another shop, even if this causes some difficulties in the beginning. Debts to shopkeepers which would make such a transfer impossible have become less prevalent since double cropping (Ouchi *et al.* 1977, Kuchiba 1978). I found that most users of consumer credit (87% in Krian; 76% in Muda) could repay their debts after harvest; moreover the remaining balances were small.

In practice, borrower-shopkeeper relations range from rather business-like relationships to those involving strong personal loyalties. Peasants with a business-like relationship prefer a looser relationship with their shopkeeper, change shops more readily when they are not content, and often keep their own records of their credit purchases to underline the relatively impersonal character of the relationship. Personal loyalties, on the other hand, can develop in the course of time, for instance, when a shopkeeper has always proved ready to help with cash loans in cases of emergency or has helped the customer through a series of exceptionally bad seasons. It is obvious that such personal loyalties towards shopkeepers are often associated with greater dependence on the latter's help. These customers find it much more difficult to change shops than the more business-like customers. Because of the personal character of their relationship to the shopkeeper they do not keep records of their credit purchases. They either trust their shopkeeper or, if they don't, they do not dare to introduce the practice. In their type of relationship keeping records is considered a sign of distrust and is offensive to the shopkeeper.

Only a minority of the regular credit customers (Krian: 16%; Muda: 36%) had ever changed shops. About half of them because they were not content with the service or with the prices of consumer goods. The other half changed because they moved to another place, because a new shop was opened nearer to the house, or because the shopkeeper died or closed his shop. The rest had never changed shops and some of them said they would not even change if the shopkeeper asked higher prices than those of other shops. As the major reasons for their loyalty, these peasants stressed that they could not easily leave a shop where they had been a regular customer for a long time, that it would be difficult to find another shopkeeper who would trust them and, finally, that the present shop was conveniently nearby.

The foregoing chapters 3, 4 and 5 have analysed the government policies concerning FOs, the operation of these FOs within the specific regional and organizational environments of the Krian and Muda areas and, finally, the local social structure and institutional framework of paddy production. These various elements form the setting in which the responses of peasants to FOs take place. The way has now been paved for the analysis of these responses and the sociological factors which influenced them. The following chapters deal with this subject.

6 *AFFILIATION OF PEASANTS TO FARMERS' ORGANIZATIONS*

FOs are not public service organizations, but *associations* which operate on the basis of a regular membership. Many of the functions performed by FOs and many of the services provided are exclusively directed at the membership. Therefore, in any response of peasants to FOs, affiliation is the initial step. This chapter will deal with some of the factors which influenced the affiliation of peasants to the FOs that were studied. These include the method used to mobilize the peasants, the social conditions and characteristics of the individual peasant which determine whether he will even consider to join the FO and finally the factors that determine the results of these considerations.

6.1 THE FORMATION OF FARMERS' ORGANIZATIONS AND RECRUITMENT OF MEMBERS

The procedure of introducing FOs is best illustrated by the qualitative findings concerning the FO in Pendang in the Muda area. This FO was only registered in February 1975, less than three years before the start of the fieldwork for this study, and was still in the process of extending its coverage by forming new SAUs. The FOs in the survey areas, Jitra (Muda) and Gunong Semanggol (Krian) had been established almost ten years before the start of this fieldwork, and the responsible officers had long since been transferred to other parts of the country. However, fragmentary information on the processes used to establish these FOs, obtained from FO leaders' recollections, suggest that these processes were very similar to that observed in Pendang.

A MADA officer was stationed in the area and given the task of identifying one suitable contact person among the peasants in each individual village and to discuss with him the proposed formation of an FO during a number of visits. As contact person in each village, the officer selected the one influential leader who would be most suitable as a future board member, i.e. as an intermediary between ordinary members and the FO or MADA. This was always a peasant who already maintained close contacts with various government agencies and to whom villagers turned to for help in their dealings with these agencies. He was usually the most influential of the local leaders. The contacted leader was not necessarily one of the traditional leaders such as the *ketua kampong*, but he belonged to the category of modern emergent leaders, characterized by being better educated, industrious and more eloquent (Afifuddin 1972). Quite often, he was a local political party leader, as also observed by Afifuddin (1978). In Kampong Guar Kepayang it

was not the official *ketua kampong*, old and inactive, who was approached, but the informal leader who had long since taken over the actual tasks of the *ketua kampong*. This man, a *haji*, commanded wide respect and sympathy in the village. Peasants frequently sought his advice in their dealings with government agencies. He held various positions on committees and organizations, both in and outside the village and had become one of the richest peasants in the village, mainly because of his own initiative and intelligence, renting a total of 4 ha of paddy land. In the nearby Kampong Banggol Besi where there was no official *ketua kampong*, MADA approached the son of the late *penghulu*, a rich owner-operator who spent most of his leisure time as organizer in clubs and organizations both at local and higher levels.

From the start, the MADA officer took care to establish rapport with each contact person in order to win his co-operation for the establishment of the FO. Recognizing that the traditional condescending attitude of government officials towards peasants would lead to unco-operative responses, MADA trained its officers to treat the contacted leaders with due respect. MADA also recognized that a good working relationship between officer and contact persons required the establishment of some form of informal, personal relationship between them, as long as both parties were aware that the officer was unable to bend the rules in order to personally oblige the contact person. For this purpose, officers were officially allowed, and even encouraged, to socialize with the selected peasant leaders, e.g. by attending a leader's *kenduri*, while on duty (Afifuddin 1975, 1978).

When the contacted leader in a village reacted positively to the idea of establishing an FO, information was channeled to the potential membership. Apart from a MADA-organized meeting at village level or a speech by the MADA officer at a contact person's *kenduri*, the task of informing the potential members and canvassing was left to the local contact person. Because the latter also had to approve each peasant's membership application in his SAU-area, his influence on the composition of the SAU membership was very big[1)].

Most of the contacted leaders spread general information about the FO to as wide a public as possible after the Friday mosque meeting, but they did not invite each and every peasant family in their SAU-area to join, nor did they distribute membership application forms to all of them. Because there was no general invitation, a large section of the potential membership believed that access to FO membership was at the discretion of the contacted leader rather than open to the public. These peasants felt a strong culturally determined restraint to ask for information on the FO and apply for membership on their own initiative, particularly when they maintained no personal relationship with the contacted leader or one of the latter's close friends or relatives. For this reason, these peasants preferred to wait until they were personally invited to join the FO.

This restraint, however, was not felt by all peasants to the same extent. As I will explain below some peasants did not hesitate to apply for FO membership on their own initiative, when they considered this in their own interests. Practically all these applications were accepted. Nevertheless, the latter peasants formed a smaller proportion of the total potential membership than their more hesitant brothers. Personal invitations, therefore, formed an important method of canvassing for new members. In the villages studied, between one half and two thirds of the total FO membership was formed by peasants who had been personally invited to join the FO.

In the initial stages of canvassing for members, these invitations were extended only by the contacted leader. The latter concentrated his canvassing efforts on those whom he knew personally. He approached his friends, close relatives and also more distant acqaintances. There were obvious reasons for this concentration. The contacted leader had much easier access to these people, there was more mutual trust between them, and, they would have felt hurt if the leader had not accorded them priority in the process of canvassing for members.

The invited peasants did not automatically join the FO, but based their decision on their appreciation of the advantages and disadvantages of FO membership. The relevant criteria are dealt with in a later section. This means that some of the invited peasants remained non-members, despite having been invited to join.

Once the first members affiliated themselves to the FO, they joined the contacted leader in the process of canvassing for new members by informing and inviting their own close friends and relatives. In this way membership spread through the SAU-area's social structure as a chain reaction. But, for several reasons, only some of the formally eligible peasants in a SAU were invited via this process. One reason is, that there was a deliberate selection of new members from among friends and relatives. The major criterion was that those invited must be acceptable to the leader. The latter appeared to employ only vague criteria. According to the leaders in the various villages studied, expectations about the new member's reliability played an important role. Their aim was a membership consisting of a trusted category of people from whom they could expect co-operation in exchange for assistance. They would not accept those whom they suspected would become unreliable partners.

This does not mean, however, that all non-invited peasants - or even a majority of them - were suspected of being unreliable partners. Another reason why not all formally eligible peasants were invited is that the process of extending the membership through personal invitations lost momentum long before all these peasants had been invited. For the first members, most of whom maintained close personal contacts with the contacted leader before

the FO was formed, it was relatively easy to know whom of their friends and relatives would be acceptable to the leader. These members also felt relatively free to invite peasants on their own initiative. But those members who were invited by the friend of a friend of the initially contacted leader had few friends among the membership (otherwise they would have been invited earlier) and no direct contact with the leader. In this peripheral position they found it difficult to gauge whether those whom they could invite would be acceptable as new members. Generally, they did not canvass for new members.

For these reasons, the initially large seasonal increases in FO membership because of this method of canvassing for new members came to a standstill or slowed down considerably, even before half of the potential membership had been invited to join the FO.

Under the regulations in force at least 30 members were required to form a separate SAU. If a leader could not canvass this number at short notice, his following was (temporarily) combined if this was acceptable, with that of others in nearby villages. For each SAU which was established, the initial contact person was appointed as a member of a preparatory committee. When 6 SAUs had been formed, this committee was confirmed as protem board of directors at an inaugural meeting. Thus, from the start, the contacted local leader in each village held an influential position in the FO. At the first official SAU meeting after registration of the FO this position was further consolidated. The contacted leader was always elected as representative and nominated candidate for the first elected board of directors, because of his role as intermediary and because the majority of the initial SAU membership was formed by his close friends and relatives.

In Pendang the whole process of establishing the FO took almost a year from the date of arrival of the mobilizing MADA officer until the date of official registration of the FO. The coverage is then extended by forming new SAUs established over a period of several years.

In Jitra and Gunong Semanggol the mobilizing officers were from the Department of Agriculture, prior to the formation of MADA and FOA. They followed a similar strategy. As in Pendang, it was left to the contacted leader in each village to inform the potential membership and canvass for members. Here too, a large section of the peasants felt too restrained to apply for membership on their own initiative, so that the majority of the membership in both areas consisted of peasants who were invited to join. Leaders and their close friends followed a similar tactic of personal approach, which lost momentum once the membership extended beyond the circle of a leader's close friends' friends. After almost 10 years of FO existence only 42% of the eligible peasants in both Jitra and Gunong Semanggol had ever been invited to join the FO. In the Muda FO, this slowdown in momentum was even the deliberate policy of the board. Once leaders had surrounded themselves

with most of those whom they expected to be reliable and trustworthy members, the board of directors announced an official member stop. This is contrary to the MADA policy, however, and not representative of other FOs in the Muda area. After the transfer of the former FO general manager just before the survey, the new manager announced that the stop would be lifted.

6.1.1 The role of personal invitations in the formation of the membership

The qualitative finding, that a personal invitation to join the FO was important to overcome the restraint felt by many peasants, was confirmed by the survey results for both Krian and Muda (see Table 6.1). The table indicates that, whereas a majority of invited peasants had decided to join the FO (79% in Krian and 60% in Muda), the non-invited peasants had done so in significantly smaller proportions (49% in Krian and 27% in Muda). The differences between the two categories of peasants in both areas were highly statistically significant. Since the objective advantages and disadvantages of FO membership were found to be similar for invited and non-invited peasants, the differences in affiliation between these categories should be attributed to other factors.

The major cause of this correlation of invitation and affiliation to the FO is that a large segment of the peasant population still views access to FO membership (and to other public services distributed via locally contacted leaders) as being at the leader's discretion. As briefly indicated above, the culturally prescribed modesty and restraint, make that these peasants do not obtain information and apply for FO membership on their own initiative. In fact, if they have not been invited to become FO members, many of these peasants have never contemplated joining. Their non-membership is not a consequence of a decision-making process in which the advantages and disadvantages of FO membership were weighed. When I asked the non-in-

Table 6.1 Affiliation of invited and non-invited peasants

affiliation to the FO	Krian		Muda	
	non-invited peasants (%)	invited peasants (%)	non-invited peasants (%)	invited peasants (%)
FO members	49	79	27	60
non-members	51	21	73	40
total	100(n=66)	100(n=48)	100(n=59)	100(n=43)
	τ_c=0.30; P<0.0005		τ_c=0.33; P<0.0004	

vited peasants why they were non-members, many did not know why they had not joined. Others referred to the fact that they were not invited or said that they had not known that FO membership was open to the public. Only a section of these peasants could explain their non-membership in rational or rationalized terms, referring to the disadvantages of obtaining inputs through FO credit compared to the available alternative methods. Although for some - not for all - of these more outspoken peasants FO membership was *objectively* less attractive than alternatives, these explanations are often *ex post* rationalizations in the sense that they create the impression that the peasant actually took a decision, whereas in most cases he only uses these arguments to explain *de facto* non-membership: Even if FO membership had been more attractive, most of these peasants would have felt restrained from joining on their own initiative.

The contention that the observed significant difference in the degree of affiliation of invited and non-invited peasants is due to restraint, is further supported by the fact that many of the non-invited peasants who remained non-members said that they would have joined or would have considered joining the FO if they had been invited. In Krian and Muda only 38% were sure that they would not have joined the FO, even if they had been invited.

However, not all peasants were equally hesitant. The view that access to public goods (e.g. FO membership) is a favour of an informal leader rather than everybody's right, is changing under the influence of education and increasing contacts between peasants and the world outside their village, because of improved means of communication, such as roads, public transport, motorcycles, radio, television and newspapers. At the time of the introduction of FOs an already substantial portion of the peasant population was sufficiently freed of traditional restraint to apply for FO membership without being invited, if they considered it would be profitable. There are indications that this category was larger in Krian than in Muda. This was found in explorative field work and is supported by the fact (in Table 6.1 above) that in Krian 49% of the non-invited peasants joined the FO compared to only 27% in Muda. A hypothetical explanation attributes the difference to the higher authority of leaders, even non-traditional ones, in the long-established and more traditional Muda villages as compared to the authority of Krian leaders. In Krian, a settlement scheme with an originally egalitarian distribution of land, a linear settlement pattern without village clusters, and a still more individualised society (in the sense of few social relationships among villagers), a leader is even more than in Muda a *primus inter pares* with less of a traditional authoritative connotation. Afifuddin (1972) observed similar differences in leadership between long established clustered Muda villages and linear ones in more recently settled parts of the Muda area. Furthermore, formal FO leaders in Krian are more often replaced by others from among the ordinary members, whereas this sel-

dom occurs with Muda leaders. All these factors will have made Krian villagers less restrained towards their FO leaders than Muda villagers, making it less difficult for non-invited Krian peasants to apply for membership on their own initiative.

Above I described the hesitant attitude of some of the peasants, leading to reduced affiliation to the FO among the non-invited, as a major factor causing the correlation of invitation and FO membership. A question which remains to be answered is: What is the impact of an invitation on affiliation, in the case of invited peasants? I found that, although invited peasants joined the FO in significantly larger proportions than the non-invited peasants, an invitation did not automatically lead to FO membership. Whereas a few members, who had indeed never used FO credit or other FO services, declared that they had joined the FO exclusively because they had been invited, the large majority of invited peasants had based their decision about affiliation on the material advantages and disadvantages of FO credit compared to available alternatives. On the basis of such considerations some of them had remained non-members, despite the invitation. In general the evidence confirms that invited peasants based their decision about affiliation mainly on these objective criteria. It is not unlikely, however, that the invitation has had a limited positive influence on decision-making about affiliation. Except for those peasants who clearly could not be expected to benefit from FO membership, invited peasants might have been afraid that, by declining the invitation, they would be alienated from inviting relatives or friends. One might expect therefore, that, even though the decision to join the FO was based mainly on objective material benefits, the fact that they had been invited had a positive influence on peasants' decision to join the FO. This influence appears much less important, however, than the negative influence of the absence of an invitation.

6.1.2 Social factors associated with "invitation"

From a sociological point of view, the fact that invitation plays such an important role in affiliation to the FO makes it interesting to see whether there are any *general* social differences between invited and non-invited peasants, apart from the fact that the former are more sympathetic to the leaders than the latter. There are several types of social differences which might play a role here.

Social status and prestige

Firstly, it could be that those invited differed from the non-invited on criteria of social status and some related personal characteristics. This could be expected if leaders inadvertently or deliberately select their friends and invite new members on a social status basis. The qualitative fieldwork did not provide evidence which could confirm this hypothesis. As

noted earlier, peasants themselves seemed to feel prestige rather than social status differences among themselves. These differences are based on such diverse characteristics as religious knowledge, worldly success, intelligence, wisdom, good works and moral standard. Only few people rank above the rest in prestige and become recognized as leaders. In the egalitarian local society, prestige differences within the category of the rest of the villagers are small and difficult to observe. Prestige ratings, moreover, differ with the person who does the ranking. Only the informal leaders were mentioned more regularly. It would seem therefore, that there is no reason to assume that new members are invited on the basis of criteria which could somehow be related to social status and prestige.

In order to verify these observations statistically, various variables normally used to measure social status and various preconditions of prestige were correlated with the variable "invitation", which measures whether a peasant was invited to join the FO (score 1) or not (score 0). Table 6.2 indicates that peasants were invited irrespective of the size of their paddy

Table 6.2 Correlation coefficients (τ_c) of indicators of social status and preconditions of prestige with "invitation to join the FO"[1]

indicators of social status and preconditions of prestige	Krian (n=114)	Muda (n=102)
size of paddy farm	0.08	0.02
annual income per household member	0.01	-0.05
standard of living index[2]	0.10	0.13
tenure of paddy fields[3]	-0.02	0.10
years of formal education	0.11	0.01
proficiency in reading[4]	0.11	0.02
proficiency in arithmetic	0.01	-0.06
years of experience in paddy farming	0.17*	0.14
age	0.05	0.06
sex of the head of the household[5]	0.11*	0.11
origin of the head of the household[6]	0.04	-0.15
number of guests at *kenduri arwah*	0.09	-0.06

1 Invited peasants were given score 1, non-invited peasants score 0.

2 Indicators are a number of durable consumer goods such as radio, tv set, sewing machine, et cetera.

3 Full tenants were scored 0, peasants who owned part or all of their paddy farm were scored 1.

4 Both in *rumi* (Roman alphabet) and *jawi* (adapted Arabic characters).

5 Men were given score 1, women score 0

6 Immigrants were scored 0, non-immigrants were scored 1.

* $P<0.05$.

farm or wealth. Both tenants and peasants who own all or part of their land were invited. Among the various variables only "years of experience in paddy farming" appears to have had some influence in Krian, indicating that more experienced paddy growers were more often invited. In both areas there is a tendency to pass over the farm households with female heads (widows). It can be generally concluded, however, that as expected the social status and prestige were not important criteria used in selecting members by invitation.

Participation in village affairs

Another social factor which might have influenced "invitation" is the extent of the peasant's participation in village affairs. The more active participants in village affairs ("active villagers") are those who either (1) take part in *gotong royong* more often, or (2) serve on a village level committee, or (3) have joined one or more village level associations, or (4) show more interest in discussions about village affairs after prayers in the mosque or *surau*, or (5) those who combine various of these aspects.

For two reasons one might hypothesize that active villagers have a better chance of being invited to join the FO than those who are less active. Firstly, the FO leader who is frequently also one of the most active villagers is more acquainted with those who participate in village affairs than with most of the less active villagers. Secondly, in the leaders' eyes the active villagers' occasional co-operation might have made them more reliable prospective FO members. This hypothesis, however, was rejected by testing on account of the survey data. Apparently, the active villagers were not invited more often than the less active villagers. A hypothetical *ex post* explanation for the absence of the expected correlation is suggested by the finding that, compared to less active villagers, the active ones more readily joined the FO on their own initiative. Table 6.3 shows that only 9% of the peasants who infrequently participated in the *gotong royong*, joined the Muda FO of their own initiative, as compared to 21% of those who participated regularly. The pattern is not consistent for all indicators of participation in village affairs, but the general tendency in the data is clear, particularly in Muda.

The relative lack of restraint by active villagers in applying for FO membership on their own initiative could have reduced the number of invitations in this category, simply because many of the more active villagers (who might have been invited otherwise) joined before they could have been invited. They might thus have "prevented" their invitation by their quick reaction, thereby diminishing the expected difference in the occurrence of invitations among active and less active villagers.

This lower restraint among active villagers might be attributed to two characteristics in which they differ from the less active villagers. Firstly, as regular co-operators with leaders in communal affairs, they might

Table 6.3 Percentage of peasants who joined the FO on their own initiative (by subcategory of participation in village affairs)

indicators of participation in village affairs	subcategory	Krian (%)	Muda (%)
frequency of participation in five last *gotong royong* activities			
	less than 3 times	27	9
	3-4 times	23	22
	every time	38	21
number of village associations joined			
	low	27	8
	medium	22	19
	high	41	21
number of village committees joined			
	none	28	11
	one or more	28	29
participation in discussions in the mosque or *surau*			
	no	27	13
	yes	31	28

have been more certain that they would be acceptable as members. Secondly, the active villagers, being better educated and with more knowledge of the world outside the village, were more aware that access to FO membership was not a favour of the contacted leader, but open to anyone who qualified.

Political allegiance

A final factor which might have influenced invitations is the occurrence of political differences in some villages. In most SAU-areas the potential membership consisted of supporters of both the large Malay parties: the United Malays National Organisation (UMNO) and the Pan-Malayan Islamic Party (PMIP). The contacted leader in a SAU-area was either an UMNO or PMIP supporter, depending on which party was clearly stronger in the village. The question which interested me was whether FO leaders tended to confine invitations and FO membership to their political friends or not. Combining the findings of qualitative fieldwork in the Muda and Krian village with more piecemeal information from other villages, it appears that there is no general answer to this question, since the relationship between PMIP and UMNO supporters differs considerably from village to village. As indicated in

chapter 5 conditions in villages range from relatively balanced situations where political differences do not cause permanent ruptures in social contact between the supporters of both parties, to situations where villages are permanently split in factions along political lines.

In the former type of village FO leaders try to play down political differences and to avoid disturbing the delicate political balance in the village. They invite supporters of both parties to join the FO. This was the case in both the Krian and the Muda village studied by anthropological methods. However, there were indications - and sometimes proof - that FO leaders in divided villages confined invitations to the supporters of their own party. The results of the survey do not make it clear in what proportion of the villages this situation occurred. Sample sizes per village - ranging from less than 10 to no more than 34 (average: 12) - were too small for significance testing. Furthermore, in most villages one party had such a large majority that even the largest single village sample (34) included no more than 3 supporters of the minority party.

6.1.3 Social and personality factors promoting the affiliation of non-invited peasants

When dealing with the question of the influence of social factors on affiliation to the FO, the analysis should not confine itself to the possible influences on who is and who is not invited to join the FO. Another way in which social factors might influence affiliation to the FO is through the impact on affiliation of non-invited peasants. Above I have noted that, whereas many peasants will not consider joining the FO before they are invited, there are others who are less hesitant and sufficiently freed of traditional restraint to join on their own initiative. I hypothesized that affiliation of non-invited peasants was associated to preconditions of a less restrained attitude such as:

1. level of education as indicated by proficiency in reading and arithmetic,
2. extent of external contacts (social contacts and experience with people and organizations outside the village, visits to town, access to mass media), and,
3. the number of a peasant's relatives who joined the FO.

The latter factor was thought to increase a peasant's certainty that his application would be acceptable to the leadership. It was also expected, that these preconditions were less strongly correlated with affiliation to the FO in the case of invited peasants, since the latter did not need to overcome traditional restraints in order to join the FO.

Education level and external contacts are also preconditions for yet another factor which influences affiliation, particularly among non-invited

peasants, namely insight into the working of the FO and into the consequences of membership and the use of FO credit. Non-invited peasants, having less access to inside information about the FO than invited peasants, need a "sharp mind" to obtain this necessary insight "from a distance". The more educated and those with more external contacts are better equiped for this mental effort. Other non-invited peasants, who lacked this insight into the consequences of FO membership, will be less inclined to join the FO on their own initiative. In the case of invited peasants the influence of education and external contacts on affiliation will be much less important. Firstly, information about the FO is more easily available to them and obtaining it requires less mental effort than for the non-invited. Secondly, the invited peasants are more prepared to join, even if they themselves are illiterate and have little insight into the consequences of FO membership. If they have been invited by an FO leader or by a close friend who has easy access to the leader, the invited peasants can be assured of the leader's help when their own lack of understanding causes problems in their dealings with the FO. It should be recalled here, that FO leaders usually have a reputation as trusted mediators, helping individual villagers to obtain benefits from various government services. This assurance is not available for non-invited peasants. Therefore, the latter's affiliation is more dependent on their own insight than the invited peasants' affiliation. Table 6.4 gives the outcome of the statistical tests of the various hypothesized relationships.

Table 6.4 confirms the expected correlations for non-invited peasants (columns 1 and 3). All these correlations are positive and at least significant at the 0.10 level, but often more significant. Most of the correlations for invited peasants (columns 2 and 4) are not only lower than for the non-invited, as expected, but also negative. This could be explained as follows. Presumably, if peasants with a less restrained attitude were invited to join, this was because they had decided to remain non-members. If they had liked to join the FO, they would probably have applied for FO membership of their own accord long before the invitation. As a consequence, one finds correlation coefficients for the invited peasants that are often opposed to those found for the non-invited peasants.

Although this was not hypothesized, the findings in Table 6.3 above suggest that restraint in joining the FO on one's own initiative was not only reduced by the variables discussed in the present section, but also by participation in village affairs. This participation appeared to have a positive impact on the affiliation of non-invited peasants to the FO, which was particularly strong in Muda. The affiliation of invited peasants on the other hand was either not or negatively correlated with indicators of participation in village affairs. Apparently, the impact on affiliation to the FO exerted by participation in village affairs is similar to that of the variables discussed in the present section.

Table 6.4 Correlation coefficients (τ_c) between affiliation to the FO and variables promoting own initiative in applying for FO membership (separate for the categories of invited and non-invited peasants)

variables promoting own initiative in applying for FO membership	Krian		Muda	
	non-invited peasants (n=66)	invited peasants (n=48)	non-invited peasants (n=59)	invited peasants (n=43)
proficiency in reading	0.20*	-0.18	0.35***	-0.42
proficiency in arithmetic	0.17*	-0.05	0.24**	-0.11
external contacts	0.28**	0.01	0.42***	-0.07
number of relatives who joined the FO	0.53***	-0.21	0.26***	0.35***

* P<0.10 **P<0.05 ***P<0.01 (one tailed tests of significance)

The observed influence on affiliation of non-invited peasants exerted by variables promoting a less restrained attitude and more insight should be interpreted with caution. Less restraint and more insight do not *automatically* lead to affiliation. These variables are no more than preconditions which, by reducing traditional restraint, stimulate a peasant to start considering the step of applying for FO membership on his own initiative. The ultimate decision about affiliation remains dependent on the peasant's appreciation of the material advantages of FO membership. Thus, one finds non-invited peasants who, despite a relative absence of restraint and despite sufficient insight, did not affiliate themselves, because they considered the benefits to be too few.

6.2 FACTORS INFLUENCING DECISION-MAKING WITH REGARD TO AFFILIATION TO THE FO

The foregoing sections of this chapter have dealt with conditions and factors that determine which peasants even ever start at all considering affiliation to the FO. In several places in the text, I stated that, ultimately, the outcome of such considerations depended on other factors, most important among them the material benefits of FO membership. The following sections deal with the latter type of factors and centre round the question: If a peasant considers affiliation to the FO, which factors does he take into account? Which factors determine his appreciation of FO membership?

To get a first impression, I asked members why they had joined the FO. In the interviews, the methodology followed was to ask for all possible reasons until the peasant could not think of any more. The answers are given in Table 6.5. Whether the answers are *ex post* rationalizations or not, the outcome is significant in providing information about what elements peasants regard as useful in the FO. The members were also asked, whether they expected any new benefits from FO membership in the future. The vast majority of members (90% in Krian and 88% in Muda) replied negatively. Those who expected such benefits thought of government subsidies on fertilizer and other inputs, supply of machinery, agricultural extension advice, government scholarships for their children and other welfare assistance and, finally, higher paddy prices.

Table 6.5 confirms the expected predominance of material interests in decision-making about affiliation to the FO. Apparently, in both Krian and Muda the main and often only reason for membership was to obtain access to the cheap production credit provided by the FO. The attraction was the low interest rate, not the items contained in the credit package. I will return to this distinction later. The predominance of material considerations is further supported by the accounts of non-members. Those among them who were able to explain their non-affiliation (other than by reference to the absence of an invitation or to their misunderstanding of the accessibility of the FO), emphasized the disadvantages of obtaining inputs through FO credit compared to available alternative ways.

A second relevant observation in Table 6.5 is the predominance of references to private, as distinct from common interests, in justifying decisions about affiliation to the FO. Furthermore, whereas a small section of the members in Muda refer to common interests, such answers are virtually absent

Table 6.5 Reasons for FO membership (% of members)

	Krian (%)	Muda (%)
references to private interests:		
. cheap credit only	93	80
. cheap credit and/or extension advice and/or share in FO profit	3	5
. other	0	2
references to common interests	0	11
no particular reason[1]	4	2
total	100(n=70)	100(n=60)

[1] most of these members joined "because they were invited".

in Krian. In a later section, I will return to the influence of considerations of common interests on affiliation to the FO.

Finally, it is an interesting finding that access to the extension advice provided by or through the FO did not play a role of any importance in decision-making about affiliation. The reason for this limited interest in access to extension advice is the very general content and the static character of this advice as reported in chapter 4. Most peasants knew the more important recommendations, even if they had never seen a leaflet or extension worker. Furthermore, the general opinion was that the advice given was not very practical. These issues are discussed in further detail in chapter 8.

When a peasant's appreciation of FO credit is indeed the major criterion in decision-making about affiliation, one would expect that factors which influence this appreciation are of primary importance in explaining affiliation to the FO. The next sections deal with these factors.

6.2.1 Factors influencing appreciation of FO credit

In evaluating the advantages and disadvantages of FO credit, peasants considered only two alternatives for FO credit, i.e., either the purchase of inputs on cash terms or on credit from local shops. Other traditional credit sources, such as pawn shops (*pajak gadai*) were seldom used for production loans. The same holds for credit from relatives or friends. In one survey village covered by the Muda FO, there was one more alternative, provided by an active local credit co-operative. As indicated in chapter 4, this co-operative functioned as a Local Credit Centre for the Agricultural Bank and, thus, provided credit on exactly the same terms as the FO, following the same administrative procedure. Table 6.6 gives the percentages of peasants utilizing each of the four alternative ways of obtaining inputs. Few peasants had production loans from two sources. These were all peasants who obtained FO credit and bought extra inputs on credit terms from a local shop; they were included in the category of FO borrowers in Table 6.6. Simultaneous borrowing from both the co-operative and the FO could not occur due to effective checking by the Agricultural Bank.

Interestingly enough, other modern institutional credit sources than the FO were not considered as alternatives (with the exception of the village with the co-operative). In interviews, peasants were unable to compare the advantages and disadvantages of FO credit with those of other organizations, even when, as in the Muda area, these operated in the same location. The reason is, that these other credit organizations, Insan Diranto and Chartered Bank, had not actively canvassed for members and had not approached local leaders as intermediairies. As a consequence, they had obtained no more than one or two members in the villages that were studied in detail. Moreover, most of these members had stopped borrowing from these organizations by the time of this research. They had joined these credit schemes on

Table 6.6 Way of obtaining inputs (% of peasants)

	Krian (%)	Muda (%)
cash purchase from shops	34	34
credit from local shops[1]	31	24
FO credit	34	26
co-operative credit/other	1	16
total	100(n=114)	100(n=102)

[1] Some peasants who borrowed cash from relatives or friends are included in this category (Krian 3%; Muda 0%).

the advice of a relative or friend, usually before the FO had been introduced. Since there was no active membership drive, however, information spread slowly. Because of the restraint which I have previously mentioned, other villagers did not search for information on their own accord.

When the FO was introduced, on the other hand, a local leader canvassed for members and provided information on a much larger scale than the other credit schemes. Very few peasants who now received information about the FO had ever obtained information on other credit schemes. It follows, that the majority of the peasants who considered joining the FO, were unable to compare with other institutional credit sources. They only compared FO credit with known alternatives, i.e. shop credit or cash purchase. In decision-making theory such behaviour is referred to as "satisficing"[2)].

Credit co-operatives generally did not figure as alternatives either. The one village in the sample with an active credit co-operative is an exception rather than the rule. The qualitative fieldwork was located in FO-areas (Pendang and Gunong Semanggol) where credit co-operatives were inactive. Therefore, the research did not concentrate on the reasons for using co-operative credit instead of other alternatives, for example, FO credit. Neither did the questionnaire take into account the existence of this alternative. For in the Krian survey area (Gunong Semanggol) co-operatives were known to be inactive, while for the Muda survey area (Jitra) the FO manager assured me that there were no active credit co-operatives. The detection of the one co-operative in Muda came as a surprise when the survey was well underway and it was too late to adapt the questionnaire.

Since a majority of the peasants in Krian and Muda could choose from only three alternatives (FO credit and the purchase of inputs on cash terms or on credit from local shops), the analysis in the following sections concentrates on the factors influencing the peasants' choice between these alternatives without considering any others.

Attitude to credit use in general

The motives which peasants gave for the choice they made between the various alternatives (FO credit, cash purchase or shop credit) provide an indication of the factors which influenced peasant appreciation of the various ways of obtaining inputs. The peasants who purchased their inputs on cash terms were often fundamentally opposed to the use of credit in general, both for production and consumption purposes. This category comprised 24% in Krian and 31% in Muda. These peasants motivated their stand not by referring to religious tenets, but to the fear that credit would induce them to spend more than necessary and lead to debts and permanent dependence. These fears are based on experiences in the past, when some peasants became so indebted to shopkeepers and moneylenders that they could never hope to repay them. Even though these large debts have become very rare since the introduction of double cropping, the continued existence of this fear is understandable, especially in view of the limited education levels and consequent inability to review the financial position.

It was hypothesized that as fear of the consequences of defaults was the main reason for the opposition to credit use, the peasant households with a low per capita net income, would be more opposed than those with higher income. This hypothesis was based on the fact that the objective probability of default increases when per capita net incomes are lower. The narrower margin of surplus income[3)] in these income categories makes that these peasant households will be the first to experience repayment problems, when natural factors, price fluctuations or disappointing opportunities for off-farm work reduce per capita net income.

The use of "annual net income per household member" as an indicator of the probability of default, incorporates the effect of a number of physical conditions which tend to increase this probability, such as shortcomings in irrigation and drainage at farm level and soil conditions (acid sulphate soils). The indicator also takes into account that tenants run a greater risk of becoming indebted than owner-operators of similar acreages.

Table 6.7 shows that, if there is any relationship between per capita net income and opposition to credit use, it was not what was expected. There is a slight growth of this opposition with increasing per capita incomes, so that it would appear that the anti-credit attitude is a luxury which the rich can afford more easily than the poor. The differences remain very limited, however, and the attitude is found in all income categories. Similarly, the anti-credit attitude was not found to be dependent on such factors as education level, external contacts, age or experience in paddy growing, which might have influenced the feelings of uncertainty involved in credit use. This would indicate, that opposition to credit use is very much a personal principle which is not, or only weakly, dependent on material circumstances.

Table 6.7 Correlation of attitude to credit use with annual net income per household member

attitude to credit use	annual net income per household member[1]			all income classes
	low (%)	medium (%)	high (%)	(%)
Krian				
opposed	16	26	30	24
not opposed	84	74	70	76
total	100(n=38)	100(n=39)	100(n=37)	100(n=114)
τ_c= -0.12; P<0.92				
Muda				
opposed	19	38	35	31
not opposed	81	62	65	69
total	100(n=32)	100(n=32)	100(n=37)	100(n=101)
τ_c= -0.14; P<0.92				

[1] In order to avoid an extremely unequal number of cases in each income category, cutting points were at different income levels for Krian and Muda.

One would expect that none of the peasants opposed to credit use joined the FO. However, the present attitude to credit use is not always similar to that of about ten years ago, which could not be measured. Some peasants who, apparently, were prepared to use credit at that time and joined the FO, have since changed their minds, so that 17% of the Krian members and 21% of those in Muda were now opposed to credit use. This change of attitude was not related to debts to the FO. Despite these changes, however, a significant relationship of the attitude towards credit use and FO membership remains. For Krian τ_c is 0.19 (P<0.02), for Muda τ_c is 0.18 (P<0.04).

Costs and benefits of FO and shop credit

Some of the peasants who were not fundamentally opposed to credit use, joined the FO and motivated this by referring to the cheap interest rate and the opportunity to share in the FO's profits as the main advantages. The rest used shop credit. Nevertheless, only very few of them stated that they actually preferred shop credit to FO credit. The opinion of most of these peasants was that FO and shop credit hardly differed from each other. Some of these peasants belonged to the category of the non-invited who were too restrained to join of their own accord. That they used shop credit does not mean that they actually preferred this to FO credit. In fact, they often

did not know which type to prefer. However, other peasants who said that FO and shop credit did not differ much, referred to objective facts to illustrate their opinion. These peasants, although often recognizing FO credit as an attractive alternative, generally did not regard the benefits of FO credit as sufficiently large. As disadvantages of FO credit they mentioned excessive paperwork, costs in time and cash (transport) for visits to the FO office, limited opening hours of office and store, dependence on uncertain deliveries of inputs by the FO, transport costs for inputs, lack of choice of various brands and qualities of inputs, membership entrance fees and the obligation to buy shares[4]. Some of them also shrunk from the obligations involved in FO membership, such as attending meetings, et cetera, and preferred to stay free (*bebas*)[5].

These extra costs and inconveniences of FO credit were weighed against the material advantages. Comparing the costs of shop and FO credit, it was found that shopkeepers do not charge interest *per se*, but charge 10-20% higher prices on fertilizer and other inputs, when they sell these on credit terms. (Production credit from shops is always in kind; rarely do shopkeepers provide loans in cash for wages or tractor rental.) This compares infavourably with the 4.25% interest per season of FO credit. The use of shop credit also entails the obligation to patronize the shop for consumer goods and to sell paddy through the shopkeeper, but this does not influence the balance between FO and shop credit: FO borrowers also patronized local shops for consumer goods and paid the same prices as peasants who obtained fertilizer on credit from the shop. Furthermore, a large majority of FO borrowers sold their paddy through local shopkeepers and received the same price for their paddy as the peasants who used shop credit.

Although many shop borrowers were aware that they paid more for their credit than FO borrowers, they made it quite clear, that the absolute difference was more attractive for peasants who used large total amounts of inputs, i.e. for those operating the larger acreages. This is because the absolute benefits of FO credit grow proportional to the amount of inputs used, while the costs and inconveniences of obtaining it are equal for all peasants. On average, a peasant who operates less than one hectare and applies recommended amounts of fertilizer pays only $ 5-15 more for shop credit than he would pay if he used FO credit. This difference is further reduced, when one deducts the costs for visits to the office. In order to obtain credit, members have to go to the FO office two or three times and each visit takes about half a day due to travelling, waiting in the FO office and because peasants take the opportunity of being "in town" for shopping and visiting friends. Furthermore, operators of small paddy farms who only use a few bags of fertilizer, can save transport costs when they obtain inputs from a nearby shop and use their bicycle for transport. Finally, when peasants use shop credit, they do not need to pay FO membership dues and buy shares, a cash outlay totalling $ 28 for new members. Thus, for the

operators of small paddy farms the material benefits of FO credit compared to shop credit appear negligible or might even be negative. Therefore, when these peasants are not fundamentally opposed to the use of credit, they tend to use credit from a nearby shop. For them this has the further advantage of a wider choice of various brands of inputs, longer opening hours and certainty of delivery.

Some small peasants in the Krian area, where annual per capita incomes were much lower than in Muda, stressed yet another reason for using shop credit: its flexibility and the lower risk involved. These were peasants who sometimes found themselves in repayment problems. They had to make sure that their access to credit would be continued, even when occasionally they were unable to repay the full loan given to them. Only the shopkeeper provides this assurance, since FO credit is terminated when outstanding loans are not repaid. For such peasants, shopkeeper loans have the further advantage that interest payments do no accumulate when a loan cannot be repaid promptly. Due to the system of not charging interest *per se* the amount of debt to a shopkeeper remains unchanged, no matter how long it is outstanding. However, when an FO loan cannot be repaid, the debt increases at a rate of 4.25% per season and a 1% fine per month, i.e. more than 20% per year.

Obviously, the balance of material advantages and disadvantages of FO and shop credit is dependent on the size of the paddy farm. The relationship of FO membership to (paddy) farm size which was first brought out by my anthropological field study was verified on various occasions. Firstly, after reporting this finding to MADA, its Evaluation Unit did a rough test of this hypothesis by comparing the farm size distribution of FO members (in two or three FOs) with the farm size distribution for the Muda area as a whole. In all these FO areas, it was found that the small farms were greatly under-represented in the FO membership, whereas the large farms were over-represented[6)]. Secondly, as indicated in Table 6.8, the census in the Krian and Muda area which I did to construct a sampling frame strongly confirms the relationship of farm size and FO membership. Since each census in itself is a sample of the total population in the FO-area concerned, statistical measures of association could be calculated.

The observed relationship holds both for invited and non-invited peasants. In Krian, the correlation coefficients (τ_c) for invited and non-invited peasants were 0.20 ($P<0.06$) and 0.40 ($P<0.002$) respectively. The corresponding figures for Muda were 0.24 ($P<0.03$) and 0.31 ($P<0.03$). These coefficients bring out clearly that the costs and benefits of FO credit play a very important role in the ultimate decision about affiliation to the FO. A multiple regression analysis shows that, among all factors related to FO membership (paddy) farm size is the single factor which explains the largest proportion of the variation in affiliation. This indicates, that a major reason why some of the invited peasants did not join the FO was that they expected no personal benefits from institutional credit. It also shows, that

Table 6.8 Correlation of affiliation to the FO with size of paddy farm

affiliation to the FO	acreage of paddy operated			all farm size categories (%)
	<1.0 ha (%)	1.0-1.5 ha (%)	>1.5 ha (%)	
Krian				
FO member	34	61	80	59
non-member	66	39	20	41
total	100(n=218)	100(n=153)	100(n=237)	100(n=608)
τ_c=0.43; P<0.0001				
Muda				
FO member	28	44	70	45
non-member	72	56	30	56
total	100(n=199)	100(n=105)	100(n=136)	100(n=440)
τ_c=0.38; P<0.0001				

the less restrained non-invited peasants made affiliation to the FO dependent on the relative costs and benefits of FO and shop credit.

A factor which increases the appreciation for FO credit, especially among operators of small farms, is a practice called *tumpang*. Through this practice non-members have access to FO credit via relatives who are members and who simply add the former's acreage to their own credit application, usually with the consent of the SAU chief. The non-members benefitting from this practice are either old people whose children are members or young tenants whose parents have joined. Most of them operate a small paddy field. By reducing the costs and inconveniences of obtaining FO credit, the practice of *tumpang* increases the attractiveness of this type of credit for these small peasant-farmers, but at the same time obviates the need for affiliation. The extent of the practice differs among SAUs. In one of the villages studied as many as 14% of all peasants obtained FO credit in this way, but this appeared to be an exception. The survey shows that in Krian 6% of all peasants profited from a *tumpang* arrangement. The corresponding figure for Muda is 3%.

Relationships with shopkeepers

Apart from the fact that shopkeepers affect peasants' affiliation to the FO by providing competitive services in the field of production credit, their activities might also influence the choice between shop and FO credit in still another way. As mentioned, production credit is not the only ser-

vice provided by shopkeepers. The latter also provide consumer goods on credit and occasional cash loans at zero interest in cases of emergency. Access to these facilities depends on a long term relationship of mutual trust.

One might assume that peasants who have always made use of consumer credit, and still make use of it, were less inclined to join the FO than those who did their shopping on cash terms. Firstly, they could be afraid that obtaining inputs from the FO instead of from the shopkeeper would affect their relationship with the latter and endanger their access to consumer credit. Secondly, shopkeepers could use this dependence as a lever to exert pressure on these peasants not to join the FO.

Some of the peasants - often speaking of their own experience - said that the fear of loosing access to shop credit facilities after affiliation to the FO was unwarranted (Krian 27%; Muda 32% of all peasants). But for another section of the peasants this possibility appeared to be quite real. In Krian 22% of all peasants believed that FO members could no longer obtain shop credit, while 51% was uncertain about the consequences of affiliation to the FO. In Muda these percentages were 19% and 49% respectively. These opinions, however, were often based on nothing more than rumours. During anthropological fieldwork I found that none of the peasants who believed that FO members would lose access to shop credit could refer to concrete cases to substantiate their fear. In fact, I found no evidence that shopkeepers exerted outright pressure to prevent affiliation to the FO, nor that they refused further credit to FO members. On the contrary, there were many FO members (60% of the members in Krian, 57% in Muda) who used consumer credit facilities provided by shopkeepers. But, even if shopkeepers did not exert pressure on their customers, it is not unlikely that those peasants who were most dependent on consumer credit and cash loan facilities from shops were afraid that affiliation to the FO would affect the shopkeeper's readiness to help them as before in case of a new emergency.

Another possible reason for these dependent peasants not to join the FO is the personal loyalty and non-business-like approach which they often developed towards their shopkeeper. Because of the shopkeeper's helpfulness in the past, some of them felt morally obliged to obtain production credit from their shops, despite possible material advantages of FO credit. The influence of this factor is expressed by some peasants who said that they had remained non-members because they regarded a transfer of patronage from the shop to the FO as a disloyalty which the shopkeeper did not deserve. This category of peasants displaying non-business-like loyalty to their shopkeeper did not only include those who were highly dependent on consumer credit and cash loan facilities. In the course of time, others who were not that dependent, developed similar personal relationships.

It might be hypothesized then, that affiliation to the FO is negatively affected by:

1. dependence on consumer credit, and by
2. a personal, non-business-like relationship to the shopkeepers.

In testing these two hypotheses, peasants who were opposed to all credit use were left out of the calculations. They form an atypical category in the sense that, although not dependent on consumer credit and not hindered by personal ties with shopkeepers, they would not join the FO. This would have a distorting effect on the correlations analysed.

The extent of dependence on consumer credit is indicated by the peasant's answer to the question: Do you think that you could do without consumer credit if you controlled your expenditure still more? Those who answered negatively were most dependent on consumer credit. The shop borrowers who could do without consumer credit took an intermediate position, while the peasants who did not use consumer credit were least dependent. The extent of a peasant's non-business-like loyalty to the shopkeeper was measured by the practice of record keeping. If a customer did not keep records of his credit purchases, this was considered as an indication of the existence of personal loyalties and obligations to the shopkeeper. Those who kept records were considered to feel less obliged, while the peasants who did not use consumer credit of course had no obligations to shopkeepers at all. This operationalization is far from perfect, since the category of customers who did not keep records automatically includes the illiterate customers, whereas their attitude to the shopkeeper need not always be non-business-like. Strictly, speaking, the indicator is only valid for sufficiently literate customers.

Both in Krian and Muda a test of these hypotheses refuted them. A high dependence on consumer credit and strong personal obligations to shopkeepers did not have a negative impact on affiliation to the FO. It can be concluded that, whereas a minority explained their non-affiliation to the FO by referring to personal loyalty to their shopkeeper or to a fear of losing access to consumer credit, most peasants who were equally dependent on or loyal to their shopkeeper did not consider this a reason to remain non-members. If the latter joined the FO, this did not affect their good relationship with their shopkeeper.

Readiness to apply new technology and orientation towards economic improvement

An important implication of the foregoing analysis is that the question whether a peasant wants to make a more or a less intensive use of new techniques and chemical inputs, does not play a role in decision-making about affiliation to the FO. In fact, both shop and FO borrowers and peasants who do not use credit apply these new methods to a more or less similar extent (see chapter 8). Instead, affiliation depends on whether FO or shop credit

forms the cheapest, c.q. easiest, way to realize the use of these new techniques and chemical inputs.

This finding is in great contrast to the often heard opinion that co-operative and other institutional credit organizations make new technology more easily accessible to peasant-farmers. Since this assumption does not hold in the Krian and Muda situations, where new technology is available through various channels, some factors which might otherwise have influenced peasant affiliation are not expected to have any effect on affiliation to FOs.

An example of such a factor is "relative deprivation", i.e. the extent of dissatisfaction with one's level of living. Galjart (1976), for instance, hypothesized that this factor was associated with affiliation to peasant co-operatives in Chile. The assumption was that peasants who feel more deprived are more "keenly aware of the possible utility of the co-operative" (*op. cit.*: 79). In the case of FOs, this hypothesis would only be relevant if one assumes that FO credit provides better opportunities than shop credit to apply new techniques and chemical inputs and, thus, to improve one's income. As I indicated above and will show in more detail in chapter 8, this assumption did not hold.

One would then expect, that a positive orientation to economic improvement and the consequent wish to apply new techniques and chemical inputs - which is generally felt - were not correlated with affiliation to the FO. In the areas under study, the preoccupation with the improvement of the individual family's economic plight is generally strong. But there are individual differences in the strength of this orientation to economic improvement, indicated by: (1) the extent of dissatisfaction with the present level of living, and (2) a belief that it is possible to increase one's income.

For each of the two items measuring orientation to economic improvement I tested whether affiliation to the FO was indeed unrelated to the item. The first item had to be operationalized. Since peasants have no clear idea about their yearly incomes, I could not ask them to express the aspired level of living in cash terms. Instead, I asked for the acreage of paddy field which they would need to obtain an income which they regarded as satisfactory. This acreage was then compared with the actual acreage. The relative increase was used as an indicator of dissatisfaction with present level of living. In view of the importance of paddy income to total income, this indicator is sufficiently valid.

It proved that the increase in acreage that was aspired to was highly dependent on the actual acreage, with operators of large farms aspiring to little or no increase and those of small farms aspiring to the largest relative increases. Significantly, aspirations generally did not go beyond the level of living of the larger local peasant-farmers.

In Krian, this indicator of relative deprivation is not correlated with affiliation to the FO, whereas in Muda, it shows a statistically significant

($P<0.01$) negative correlation with affiliation to the FO. This correlation, however, is only due to the indicator's strongly negative correlation with farm size. Within the separate farm size categories, dissatisfaction with the standard of living has no effect on affiliation to the FO.

As for the other item, it appeared that only few peasants believed that their incomes could be increased (Krian 13%; Muda 13%)[7]. This belief was unrelated to affiliation. Apparently, a peasant's affiliation to the FO is indeed unrelated to his orientation to economic improvement. At least, this hypothesis could not be rejected with available data.

Tenure status

Another factor which could have influenced a peasant's appreciation of FO credit and, indirectly, affiliation to the FO, is tenure status. The literature provides many examples of a lower utilization of institutional credit programmes by tenants as compared to owner-operators or owner-tenants. This lower utilization is explained on both theoretical and practical grounds. Thus, it is often indicated that the requirement (in many institutional credit programmes) of land as collateral is prohibitive for tenants. It is also pointed out that, where credit is given for land improvement or other permanent structures, tenants will not be prepared to borrow for these purposes, since they cannot be sure that they will be able to reap the benefits of such investments. But, even when a credit package only contains inputs which are used up completely in one crop season, it is argued on theoretical grounds that tenure status can affect the attractiveness of the use of new techniques which the credit programme intends to promote. This could happen in situations where share cropping arrangements put the full burden of production costs on the tenant, thereby reducing the benefits of new techniques for the tenant (e.g. Johnson 1950, Adams and Rask 1968). But, theoretically, even in cases of fixed rents, tenants might be less inclined than owner-operators to use new techniques when these involve increased risks, e.g., because of higher variability in gross output. Tenants who earn lower average surplus incomes per ha than owner-operators, will be less able to absorb the consequences of disappointing yields.

In the Krian and Muda area none of these constraints was operating or appeared to have significant effects. Firstly, it was the deliberate policy of the Agricultural Bank not to discriminate against tenants. Land is not required as collateral for the short term FO loans. Instead, the contract specifies that the crop should be sold to the FO, which never happens in practice, since none of the FOs undertook marketing. Secondly, FO credit is *seasonal* production credit which is always earned back (or lost) before the tenant has to return the land. It does not involve investment in permanent structures, et cetera. Thirdly, the theories which state that tenure status effects the use of institutional credit *because* new techniques are less attractive to tenants, are based on assumptions which do not hold in the Muda

and Krian areas. One of these assumptions is that there is a relationship between the wish to apply new techniques and the use of institutional credit. Apart from the fact that this assumption was found to be invalid in this specific case, there are also doubts about the more basic aspects of the theory; i.e. about the question whether new techniques are indeed less attractive to tenants than to owner-operators. Huang for instance, cites evidence from his own research in Province Wellesley, Kelantan and Kedah and from the 1960 Census of Agriculture to show that for the last decades tenants in Malaysian paddy areas have used *more* fertilizer and obtained *higher* yields per ha than owner-operators with comparable farm sizes (Huang 1975; Smith and Goethals 1966). Similar evidence, showing that yields per ha of tenants are at least as good as if not better than those of owner-operators, is also available from other Asian countries. Huang mentions India (Rao 1971; Malone 1965), the Philippines (Ruttan 1966), China (Cheung 1969) and South Vietnam (Hendry 1960).

More recent studies done in Malaysian paddy-growing areas are less decisive than Huang's material. Thus, village studies in Kelantan and Province Wellesley by Moktar Tamin and N. Hashim Mustapha (1975) and Bhati (1976) found no significant yield differences between the various land tenure categories. In another village study in Kelantan, Fujimoto found higher yields per ha among the owner-tenants, but no significant difference between owner-operators and full tenants (Fujimoto 1976b). These studies also do not show a consistent relationship of tenure status to fertilizer use per ha. One study found no relationship at all (Moktar *et al.* 1975), another found that tenants used more fertilizer per ha than either owner-operators or owner-tenants (Fujimoto 1976a). Yet another found that the owner-tenants used more than the other two categories (Bhati 1976). In all these studies, any difference observed in average fertilizer use per ha of various land tenure categories was relatively small.

My own findings indicate that, both in Krian and Muda, the yields per ha of the various land tenure categories did not differ significantly, nor did the per ha expenditure on new techniques (mechanized land preparation, fertilizers, crop protection chemicals) by tenants, owner-tenants and owner-operators. The prevailing practice of charging fixed rents allocates all extra production due to new techniques to the tenant and therefore does not discourage tenants the way some share cropping systems do. Apparently, the risk element has also not discouraged tenants from using new techniques. There are indications, moreover, that the new techniques have not perceptibly increased the risk of a zero or negative net income. Peasants themselves say that yield variability has not increased and most of them are quite positive that the new varieties and present fertilizer levels *always* give higher incomes than alternative techniques (see chapter 8).

In summary, access to FO credit and the costs and benefits of FO credit are not affected by tenure status. The only exception is formed by a small

sub-category of the pure tenants, viz. those with very insecure tenures, who cannot be sure whether they will still be farming when their contract ends. Some of them stated that they would have joined the FO, if they had had a more secure tenure. But, as long as there was a fair chance that they would only benefit for one or two seasons, they regarded joining as too much trouble. One would expect therefore, that the percentage of FO members among tenants is only slightly lower than that among peasants who owned part or all of their land. Both in Krian and Muda this expectation could be confirmed. In Krian 52% of the pure tenants joined the FO, against 67% of the peasants who owned part or all of their land. In Muda these figures were 33% and 46% respectively. The slight differences within each of the two areas was not statistically significant at 0.05 level. Similarly small differences were found when paddy farm size was controlled.

6.2.2 Commitment to the common interest

As indicated in the foregoing sections, decision-making about affiliation to the FO was mainly a question of choosing the cheapest, c.q. easiest way of obtaining inputs for paddy production. To the majority of ordinary members and non-members this is the only question they asked themselves. They do not primarily see their affiliation to the FO as an act of support for the FO in the common interest and seldom mention this as a motive for joining the FO. In the peasants' eyes, the success and survival of the FO is mainly dependent on supporting government organizations. They considered the possible influence of their own behaviour on the attainment of this goal as strictly limited.

This does not mean, however, that peasants were unaware of the fact that the continued existence of the FO - although mainly dependent on supporting government organizations - required that they show support for this government initiative and accept part of the responsibility for FO survival in the common interest of each individual member. At least part of the membership was well aware of the need for some support from the peasants. But they considered this as an obligation resulting from membership and seldom as a reason for joining the FO. Therefore, as indicated in Table 6.5, only very few of the ordinary members (Krian 0%; Muda 11%) said that they affiliated themselves to the FO in the common interest, i.e. "in order to strengthen the FO" or "because peasants should unite to further their development". As a second motive some of them added "to improve communication with government departments". FO leaders (board members, representatives and SAU chiefs) gave such motives more frequently (Krian 33%; Muda 48%), but even among them many referred exclusively to the private benefits of FO credit to explain their affiliation.

The higher frequency of references to common interests as a reason for joining the FO in Muda seemed to indicate a somewhat stronger ideological

commitment in this area as compared to Krian. This commitment should be attributed to individual efforts of some staff members, particularly the former manager, of the FO in Muda to increase awareness of the need for this commitment among FO leaders.

The fact that some peasants were so aware of the need to support the FO, that they considered this a reason to affiliate themselves did not mean that they thought of FOs as mainly dependent on their members' contributions, nor that they would like a development in this direction. Even in the view of these peasants, improving the members' economic position through the FOs was a joint task of government and peasants in which the former had to play a very important role. Their view of their own role is probably best represented in one FO leader's answer to the question why he had joined the FO: "To help the government eradicate poverty among the rural population".

6.3 THE RECRUITING IMPACT OF THE KRIAN AND MUDA FO

Table 6.8 above shows that aggregate affiliation to the FO is larger in Krian than in Muda (59% as against 45%), a statistically significant difference ($P<0.01$). I attribute this difference mainly to the stronger tendency in Muda to confine membership to a certain category of peasants who were regarded as reliable, a tendency which resulted in an official membership stop. Secondly, and probably partly as a consequence, non-invited peasants in Muda were more hesistant to join the FO on their own initiative than their counterparts in Krian. Finally, the Muda sample contains a larger segment of peasants opposed to credit use (31% as against 24% in Krian).

Concerning other aspects of the recruitment of members there were no great differences between the two areas. In both Krian and Muda recruitment was left to FO leaders and ordinary members. Through these channels information about the FO spread on a similar scale in both areas. This information was almost always limited to aspects of FO credit use. If peasants joined, this was because the benefits of the low interest rate of FO credit offset the costs of obtaining it. These costs and benefits were practically equal for Krian and Muda peasants operating similar acreages. In both areas credit provision followed the same standard procedure prescribed by the Agricultural Bank, involving the same costs to the peasant. Benefits were the low interest rate which compared equally favourably with shop rates in both areas. Neither of the FOs studied had tried to make FO credit more attractive to the members. Services were confined to processing credit application forms, issuing coupons, disbursing inputs and cash, and transport of inputs. In view of the resemblance in distribution of farms over various farm size categories in the two areas, the material benefits of FO credit should have appealed to a similar percentage of peasants in Krian and Muda.

It is interesting to note that MADA's efforts to increase the utility of FO membership by stimulating and supporting that FOs undertake more business

activities, did not have a significant recruiting impact. None of the members in Muda gave this as reason for their affiliation. Despite the large difference with the Krian area, where FOA has not pursued these business activities with the same vigour and consistency, the Krian FO has attracted at least as many members as the one in Muda. The reason is that most of the business activities stimulated by MADA did not take the form of extra services to the members. They provided profit, if successful, and employment to a few members' children, but the majority of the members did not see a direct advantage from these business activities. Even if they had an important psychological function for FO leaders and some members as symbols of success, they did not increase the utility of FO membership.

7 *MEMBERS' CONTRIBUTIONS TO THE DEVELOPMENT OF FARMERS' ORGANIZATIONS*

The responses of peasants to FOs are discussed in this chapter in terms of the performance of their roles as members. The discussion will more particularly concentrate on the variables which affect the peasant-members' willingness to make a number of material and non-material contributions which are essential to the survival and development of their organizations. The subject is not only of theoretical interest. It is also of considerable practical concern because, at least in their present form, FOs cannot be a success and function properly if the members do not make the contributions required by the norms defining their role in the FO. These contributions will be even more important should, as implied by Afifuddin, the government ever carry out its intention to reduce the role of agencies such as MADA and FOA which at present play a predominant part in managing and supporting the FOs (Afifuddin 1975, 1977a, 1977b).

The chapter starts with a theoretical discussion of some variables which, hypothetically, influence the members' willingness to make these essential contributions. This is followed by a review of the present state of these contributions in the selected FOs. Finally, the chapter uses the theoretical viewpoints which were developed earlier to explain the present state of member-contributions. The analysis first focuses on the causes of the unsatisfactory situation of member-contributions. Secondly, the reasons why some members make larger contributions than others are discussed and a statistical analysis is given of the impact which the various independent variables exert on the individual member's contributions. The chapter ends with a brief analysis of the causes of the differences in member-contributions to the two FOs studied.

7.1 THEORETICAL FRAMEWORK

In this section I have presented a theoretical discussion of the variables which influence the members' willingness to make a number of contributions which are essential to the survival and development of the FOs. But before starting this discussion, I must explain what the nature of the contributions is that I am concerned with here. In doing so, one should remember that FOs are not government service organizations but have been modelled on modern voluntary associations. As such they cannot function properly if the members confine their roles to the regular use of FO credit. Members are also supposed to increase the FO's working capital through share purchases, to attend SAU meetings in sufficient numbers and to elect FO leaders. These are minimum requirements. Ideally, in addition, members should take an in-

terest in the management of their FO, make proposals for improvements, et cetera. FO leaders, moreover, are expected to make substantially larger efforts on behalf of the FO. Apart from fulfilling their constitutional roles, FO leaders are also supposed to function as an example and to motivate the general membership to take part in FO activities. The various contributions which FO leaders and ordinary members are supposed to make can be briefly summarized as share purchases, attendance at meetings, and active mental involvement in the formal decision-making process. It should be noted that the contributions which members are expected to make are not always directly beneficial to them. Another problem is the fact that the new rules and norms defining these contributions differ from those that apply to the indigenous associations in local society.

Can one expect the above mentioned essential contributions from ordinary members and FO leaders? What are the conditions which influence this role performance? In answering these questions, I have used some concepts and insights derived from Galjart (1976) who provides a lengthy theoretical discussion of the factors influencing members' contributions to peasant co-operative associations in general. Galjart recognized that material incentives are of primary importance in bringing about affiliation to such associations, but that these incentives are not sufficient to guarantee proper member-contributions. Even if members are fully aware of what is expected of them and realize that the expected contributions will eventually bring material benefits to each individual member - benefits which could not be obtained without the co-operative association - material incentives are not sufficient to make them act in accordance with the norms. The reason is, that the benefits to be obtained from membership of a co-operative association are to some extent equivalent to a collective good in the sense used by Olson (1969). According to the latter, a collective good is a benefit available to all members of a particular group and which distinguishes itself from other goods by the fact that it cannot feasibly be withheld from those members who did not share in the costs of obtaining it. In other words, those who do not purchase or pay for the collective good (or pay less than their share) cannot be excluded or kept from sharing in the consumption of the good. Olson has shown that a group member who is exclusively motivated by material interests will not be inclined to contribute to a collective good, since he can also obtain the collective benefit without this effort. In the case of FOs, the benefits of membership resemble a collective good because FO members who only make minimum financial contributions and never attend meetings still enjoy access to FO credit. On average, however, higher contributions per member are necessary to make the FO work and survive. It follows from Olson's theoretical viewpoint that one cannot expect these higher contributions from FO members if the latter are only motivated by material incentives. This will be even clearer if one realizes that a proper role performance only serves the member's individual interest in the long

run. In the short run, other actions often serve this interest more directly and easily get priority. Thus, in situations where proper role performance is in conflict with these other actions, normative behaviour becomes equivalent to a sacrifice for the collective benefit.

Galjart concludes that apart from material rewards, other incentives are necessary to elicit essential contributions in compliance with the norms, even more so in view of the prevailing uncertainties about the eventual material benefits obtainable from newly instituted co-operative associations which have yet to prove themselves viable. As possible other incentives, he mentions coercion and solidarity. Coercion in itself will not be sufficient in the long run. What is necessary is, that members develop a certain commitment to the new norms, so that they are willing to perform their roles properly, even when this does not directly serve their material interests. There should be a feeling of unity with the other members which results in solidarity. Galjart defines solidarity as "the willingness to sacrifice resources or immediate gratifications for the welfare of others". I would prefer: .... for the welfare of a group or social category with which actor identifies. The latter definition stresses that which Galjart notes in his explanation, i.e., that solidarity is an attitude towards "*certain particular* others" and not to others in general.

For the purposes of the present study the theoretical viewpoints presented above have a number of advantages over those employed in the only other empirical study of the role performance of peasant-members in Malaysian FOs (Harun 1976). Harun did not focus on a limited set of essential member-contributions and their relationship with solidarity. His concept of "membership participation" includes the broadest possible range of behavioural, cognitive and emotional aspects of members' involvement with the FO. He does not differentiate between aspects of involvement which are exclusively motivated by private material interests (obtaining loans, receiving assistance, seeking advice) and those which are partly dependent on other motives, particularly solidarity (attending meetings, acquiring knowledge about the FO). Harun relates this broad concept of membership participation to the peasant-member's socio-economic status (as measured by formal education and standard of living), age, leadership position and the number of memberships in other organizations. These hypotheses have been derived from studies conducted in the United States and other Western countries, concerning participation in voluntary associations (e.g. Wright and Hyman 1958, Curtis 1971).

The drawback to Harun's theoretical approach is that it refers to participation in organizations in general. When one seeks an explanation for a specific type of role performance in a specific type of organization, such as the FOs, Galjart's theoretical point of view has advantages, because it penetrates to the level of *actual motives* for such behaviour. In the fol-

lowing, I hope to demonstrate that, by concentrating on the conditions which promote the development of these motives, the latter theoretical viewpoint can provide a more penetrating insight in the causes of both general similarities and differences in essential member-contributions among FO members. As an introduction to this attempt, I will discuss in the following two sections Galjart's approach in greater detail. The first section will further analyse the usefulness of this theoretical approach when applied to the present research problem, by asking the question: are share purchases and participation indeed sacrifices of resources? The second section will present some of the variables which, as hypothesized by Galjart, influence solidarity in peasant co-operative associations.

7.1.1 Are essential member-contributions a sacrifice of resources?

The question which has to be answered in this section is: can one expect members to buy shares, attend meetings and take an interest in the FO, purely on the basis of material incentives? Or should these contributions indeed to some extent be considered as a sacrifice of resources?

Share purchases

Certain minimum share purchases are a necessary condition in order to obtain the benefits of FO membership (i.e. credit) and, therefore, purely dependent on material incentives. Thus, in order to become eligible for FO credit, each member has to own at least 5 shares, as determined by the boards of directors in the FOs studied. Subsequently, members have to buy two shares every time they want new credit. But additional share purchases (over and above the required minimum) are not necessary to obtain FO credit. Do they form a sacrifice of resources? Contrary to what the name suggests, shares are no equity stock. In fact, share purchases are equivalent to savings on fixed deposits which cannot be withdrawn, unless the peasant stops being a member and has no debts to clear with the FO. Only then will the FO repurchase the shares at the nominal value. The question then is, whether share purchases are an attractive way of saving. In Krian this is clearly not the case, so that share purchases are an outright sacrifice of resources and, thus, dependent on solidarity. In the Krian FO a dividend had not been paid for several years due to an audit backlog and, as the FO had run at a loss during these years, it will never be issued. However, the Muda FO paid an attractive 10% dividend which is more than the interest obtained on a Post Office savings account in which many peasants put their savings. Even then, share purchases had great disadvantages when compared to other forms of saving, because they could not be converted into cash when necessary. Therefore, despite the attractive dividend, even in the Muda FO, share purchases above the required minimum can to some extent be considered as a sacrifice of resources dependent on solidarity.

Participation

The difficulties involved in the concept of "participation" have been outlined earlier. In the operationalization employed here, I did not measure the extent to which members shared in the power to make decisions. Instead of concentrating on power, I concentrated on contributions to and active mental involvement in the decision-making process as it functioned with all its shortcomings. Indicators of participation are: attendance at SAU meetings, playing an active part in these meetings, the extent to which members had an idea about the major problems of the FO and the possible solutions to these problems, the number of future activities of the FO which members could propose and, finally, the occupation of an FO office.

Ordinary members received no material rewards for attending SAU meetings and for acquiring knowledge on the functioning of FOs. SAU chiefs received some compensation for their efforts in the form of a commission over the number of loans in their SAU. Board and assembly members received a small sum ($ 5) per meeting. Finally, board members were entitled to a share in the FO's profit. In 1975 and 1976 this share amounted to roughly $ 75 per head in the Muda FO (more recent audit reports were not available in 1979). In Krian, board members did not receive this compensation because the FO ran at a loss. These compensations of $ 75 cannot be regarded as a sufficient incentive for the efforts of the FO leaders, particularly since the latter belong to the economically better-off and usually know easier ways of increasing their incomes.

Apart from these insignificant direct material rewards of participation, there might be more significant indirect ones obtained from influencing the decision-making process in one's own material interest. From the viewpoint of the individual member, however, his own participation is seldom necessary to obtain material benefits in this way. The reason is, that the issues raised and discussed in meetings at various levels in the FO were seldom controversial and could well be left to the men "who know how to speak up in meetings". The complaints were so general that non-attendants could rightly assume that they would be well covered by others and that they would have nothing to add to the discussion in the meeting if they attended.

Participation is therefore dependent on other motives than direct material interests. A section of the ordinary members who attended SAU meetings only did so because they did not want to disappoint the FO leader who had called on them to be present. But for others this was not the only motive. Moreover, some of the members who attended had no direct connection with the FO leader. Their attendance and participation in SAU meetings represented a sacrifice of resources, viz. leisure or the opportunity costs of labour. Similarly, fulfilling an FO office formed a sacrifice of resources. The large amount of time and effort involved in these offices was not compensated by the limited material rewards. From my qualitative interviews with FO leaders and active ordinary members, I got the impression that their wil-

lingness to make this sacrifice was based on a genuine interest in FO affairs as well as on a certain desire for prestige and creating goodwill among fellow members.

7.1.2 Factors influencing solidarity in peasant co-operative associations

Some basic implications of the concept of solidarity have to be clear before one can understand Galjart's theory of the conditions favouring or hampering solidarity in co-operative associations. An important implication of the concept is that it "is quite possible for a person to feel more solidary with one group than with another of which he is also a member" and "that groups and collectivities compete for the solidarity of the individual who is a member of both" (Galjart 1976: 102). For this reason, Galjart concludes, it will prove very difficult for a new co-operative association to obtain a permanent re-allocation of resources when groups which fulfil an important function for the members continue to exist alongside the new association. Often there is a continuous rivalry for the solidarity of the individual between the co-operative association and the more basic social units, e.g. the household.

Galjart makes a further distinction between mechanical and organic solidarity. Mechanical solidarity is defined as willingness to sacrifice resources (material contributions, participation in meetings) for a common goal. This type of solidarity is especially required during and shortly after the time of establishing the new co-operative association. Once the association is functioning on its own, mechanical solidarity tends to decrease. At this stage the success of the organization has become somewhat less dependent on the resources contributed by the members. Besides a certain degree of mechanical solidarity, members at this stage are required not to hamper the organization's development by "refusing to abide by the distribution of tasks or the allocation of benefits" that have legitimately been agreed upon (*op. cit.*: 103). In other words, members have to "give proof of organic solidarity" which is defined as the willingness to sacrifice gratifications in order to preserve the unity of the group. This type of solidarity becomes increasingly important when organizations grow and become more complex and differentiated entities which do not serve the individual or group interests of all members and sub-units to the same extent. In my opinion, however, mechanical solidarity will next to organic solidarity remain essential throughout the various development stages of a co-operative association.

Galjart presents a number of untested hypotheses concerning the factors which either help or hinder the growth of mechanical solidarity among members of peasant co-operatives. He justifies the concentration on this type of solidarity by referring to the fact that the co-operative associations which he studied were still in an initial stage of development and that,

consequently, the differentiation of interests among the members was limited (*op.cit.*: 106). These circumstances also prevailed in the Malaysian FOs which I studied. Although the FOs had existed for about 8-10 years at the time of the research, the need for organic solidarity had not yet manifested itself, so that the occurrence of this type of solidarity could not be studied empirically. To explain the absence of a need for organic solidarity, I refer to chapter 4 in which I have related the absence of policy conflicts in board and assembly meetings to the degree upon which the peasants relied on the guidance of staff and supervisors. The strong involvement of government agencies in FOs also reduces the need for mechanical solidarity, but not to a similar degree.

I will only briefly summarize the various variables that, according to Galjart, promote the peasant-members' willingness to sacrifice resources in favour of the development of their co-operative association. These include the following:

1. The magnitude of the benefits of membership in the co-operative association for the individual member, i.e., the *instrumental value* of the association for the member.
2. Awareness of the existence of a *structural bind*. Galjart derives this concept from Lamond Tullis (1970). It refers to a common factor constraining development of a social group or category and which can only be overcome through co-operation. A structural bind could be a local opponent, natural circumstances, et cetera.
3. The example of *committed leaders* who actively stimulate their followers by demanding solidarity from them. If these leaders do not make these demands, however, but content themselves with the prestige which they obtain in exchange for their efforts, their followers will feel their obligations to the leader fulfilled once they give him the credit for his solidarity.
4. *Social control* on the fulfilment of obligations.
5. *Reciprocity*, i.e. belief in the solidarity of other members. Galjart points out that solidarity, i.e. a sacrifice of resources or gratifications, is a gift which creates an obligation to reciprocate or to confer prestige upon the giver (*op.cit.*: 105 and 112). Solidarity, therefore, can only exist when members feel that others will not take advantage of their sacrifices.
6. *Affection* among members. The latter factor is particularly effective in stimulating solidarity in small groups. Where it is absent, suspicion can seriously hamper the members' role performance.
7. Support for the *non-material values* pursued by co-operative associations. Galjart mentions values such as equality, justice and participation.
8. The *possibility* for members *to participate* in the decision-making process of the co-operative association. This promotes the acceptance of the new norms and regulations.

9. Absence of *subgroups characterized by solidarity* (based on kinship, locality, political view) both within and without the co-operative association. Mechanical solidarity with such groups could harm the mechanical and organic solidarity for the association as a whole.

In the following I will analyse how these variables influence the contributions of FO members in the Malaysian context. But before starting this analysis, some insight will be provided into the present level of member-contributions to the FOs under study.

7.2 THE STATE OF ESSENTIAL MEMBER-CONTRIBUTIONS IN KRIAN AND MUDA

7.2.1 FOA and MADA policies

Neither the FOA nor MADA had made systematic efforts to increase the contributions of ordinary members to the FO. The initative in this respect had been left to the FO staff or to the FO leaders. In fact, in both FOs studied, the only systematic effort to increase the members' contributions was the policy which obliged new members to buy five shares and borrowers to buy two shares for each loan. This policy was an initiative of the board. The staff of the FO sometimes drew the FO leaders' attention to the need for member-contributions, particularly in the Muda FO. There was, however, no organized programme aimed at increasing contributions. The FO leaders' co-operation in the short term was much more important to the staff, than the potential contributions of ordinary members.

Apart from the above-mentioned informal and intermittent attempts by FO staff to stress the need for member-contributions, there were occasional direct appeals to the ordinary members "to co-operate and unite in order to develop the FO". These appeals were made at SAU and assembly meetings and formed a regular ingredient of the usual opening speeches by the FO staff, supervising FOA and MADA personnel and heads of government agencies at district level, such as the Department of Agriculture or the Department of Irrigation and Drainage. These speakers, however, never indicated what specific behaviour they had in mind when they called for "co-operation".

One could safely conclude that neither the FOA nor MADA was sufficiently aware of the difficulties involved in obtaining the ordinary members' solidarity and contributions to the FO and also of the need for specific policies to overcome these problems. Both agencies had apparently assumed that the task of increasing member-contributions could be left to local FO staff and leaders once the latter were sufficiently aware of the need for these contributions.

7.2.2 Acceptance of norms relating to member-contributions

Acceptance of norms is best indicated by measuring actual behaviour. Verbal expressions concerning acceptance of norms in an interview situation are often not reliable. Rather than their real attitude towards the norms, respondents tend to give the answers which they think make them more respectable in the interviewer's or other people's eyes. There is very little reason, however, to assume that respondents concealed their real attitudes in the interviews conducted for this study. During the explorative stage of the research project it became clear, that respondents showed no concern about other members' possible reactions to their statements concerning the acceptance of the norms relating to member-contributions. Nor did it ever seem to have occurred to respondents that their statements could affect their relations with government agencies with which the researcher or interviewer might be identified. I attribute this frankness to tolerance towards individuals who fail to obey these norms and the absence of the prospect of social control in the loosely structured society under study.

To measure the acceptance of norms concerning member-contributions, every FO member among the respondents was presented with a number of situations in which they had to choose between making certain contributions to the FO and alternative ways of behaviour which would serve their self-interest more directly. For each situation there were two statements, each attributed to a non-existing SAU chief. One SAU chief advised making the contribution, the other advised following the alternative method of behaviour. Respondents were asked to indicate which advice they thought the best.

It appeared that it was fully accepted that FO members should attend SAU meetings; both in Krian and in Muda 96% of the members supported this norm. Less accepted was that members should remain loyal customers of the FO even if shopkeepers offered them a fertilizer loan at a discount. Nevertheless 71% of the Krian members and 67% of their Muda counterparts supported this norm. Least support was expressed for the norm that members should buy *all* their inputs from the FO, even if they were not obtained on a credit basis (Krian 46%, Muda 41% of the FO members). These findings show a rather widespread acceptance of the new norms. Differences between Krian and Muda are negligible.

7.2.3 Share purchases

As indicated in Table 7.1, there are important differences in share ownership, both between members of the Krian and of the Muda FO and between individual members in each area. It is immediately apparent that members of the Muda FO had bought considerably more shares than their counterparts in Krian. The direct cause of this difference is the Muda FO's relatively

stricter enforcement of the obligation to buy two shares each time a member obtained FO credit. This stricter enforcement came to light when the FO files were checked for the most recent share purchases of the FO members in the sample, who took up FO credit for the paddy season which was completed immediately preceding the survey in early 1979. If the regulation had been strictly enforced, these members' most recent share purchases would have been in 1978 or 1979. Both in Krian and Muda this was seldom the case. But, at least in Muda, borrowers were not allowed to be too far behind schedule with their share purchases. Of the 1978-borrowers only 16% were more than a year behind schedule at the time of the loan and none of them were more than two years behind. The corresponding figures for Krian show a greater tolerance for borrowers who did not buy shares: as many as 61% were more than a year behind schedule and 35% more than two years. In Krian there were even cases of 1978-borrowers whose last share purchase was 5 or 6 years ago.

Since the Muda FO adopted the policy of greater enforcement of share purchases in 1974 there has been a successful development in the share ownership per member. Until that year share ownership in both the Krian and Muda FO studied had remained stable at a level below 5 shares per member. From 1974 till 1977 (the last year for which data were available), however, the Muda FO almost doubled its average share ownership per member every year. These high growth percentages indicate that members bought more than the minimum number of shares required. In the same period the Krian FO did not show a comparable increase of share ownership per member.

Table 7.1 Distribution of share ownership in Krian and Muda (% of members)

number of shares owned	Krian (%)	Muda (%)
1- 5	61	23
6-10	28	8
11-15	5	12
16-20	3	10
21-25	3	17
26-30	0	8
31-35	0	12
36 or more	0	10
total members	100 (n=67)	100 (n=49)

τ_c=0.60; P<0.001

source: FO records concerning members included in the random sample (when available in FO files)

The enforcement policy of the Muda FO could not have been successful without a general willingness on the part of the members to comply. This willingness to buy shares could be partly attributed to the 10% dividend which the Muda FO paid on shares. This must have been an important psychological encouragement. As indicated above this encouragement was lacking in Krian. On the other hand, the higher share purchases in Muda, even above the required minimum might be an indication of a somewhat greater solidarity of the Muda members as compared to the members in Krian.

The causes of the differences in share ownership between individual members within each of the FOs studied will be discussed in a later section (7.3.2).

7.2.4 Participation

The members' response to the FO in terms of participation in decision-making is measured by a number of indicators which have been mentioned below.

Attendance and participation in SAU meetings

Data concerning attendance and participation in the yearly SAU meetings were obtained both from the survey and from observations on the spot. The survey respondents were asked whether they attended either of the last two SAU meetings. Table 7.2 shows that Muda members were relatively more inclined to attend meetings and that the difference is statistically significant. My impression was, that inadvertently, the members in both areas gave a slightly favourable picture of the real situation. Because SAU meetings were unspectacular happenings, members who attended irregularly were not always aware that they missed a meeting or easily tended to forget that they had not attended. It is not unlikely therefore that the category of respondents who said they had attended two meetings was somewhat smaller than indicated. There is no reason, however, to assume that this supposed bias is stronger in any of the two areas, so that this leaves the statistically significant difference between Krian and Muda unaffected.

Table 7.2 Frequency of attending last 2 SAU meetings (% of members)

number of SAU meetings attended	Krian (%)	Muda (%)
0	23	13
1	33	17
2	44	70
total members	100 (n=70)	100 (n=60)

τ_c=0.25; P<0.003

My own impression was, that in both areas about half of the members attended the SAU meetings, but that on average attendance was slightly higher in Muda. In both Krian and Muda it was not unusual that the required quorum (50%) could not be reached. In situations such as these, FO officials called off the meeting when attendance was very low. But when they considered the attendance to be worthwhile, the FO staff continued with the meeting, even though there were not enough members present.

As far as active participation in SAU meetings was concerned, the survey outcome was that both in Krian and Muda only about 10% of the ordinary members took part in the discussion during these meetings. This confirms my own observations. The majority of the attendants only listened, others read a newspaper or simply dozed off. In the course of the meeting new members came in, others left temporarily and came back later.

Part of the explanation of the higher attendance in Muda as compared to Krian is the more active role of the SAU chiefs and board members in mobilizing the members in that area. In Muda 41% of the members said that they were always invited to attend meetings and only 10% were never invited, the others were invited irregularly. In Krian the corresponding figures are 20% always and 26% never. The difference is statistically significant (τ_c=0.28; P<0.001).

Active mental involvement with the FO

Active mental involvement with the FO (as measured by the number of FO problems, possible solutions and the number of proposals for future FO activities which respondents were able to mention) was limited in both areas. Only 24% of the ordinary members in Krian and 42% of their Muda counterparts were able to come up with at least one problem, solution or proposal. The rest had never thought about these issues or were unable to discuss them. The difference between Krian and Muda is statistically significant (τ_c=0.19; P<0.01). Similarly low levels of active mental involvement were reported for FOs in the Kemubu area (Harun 1976). The FO leaders of course, in both Krian and Muda showed a much higher mental involvement than the ordinary members. Except for a very few SAU chiefs who were not interested in their task, all of them mentioned one or more problem of the FO, suggested possible solutions and proposed some future activity. Among the FO leaders, board members showed a still higher mental involvement than SAU chiefs.

The problems mentioned by ordinary members cover a limited number of subjects. By far the most frequently mentioned problem concerned the increase in the number of unrepaid loans. Of the ordinary Krian members who did mention one or more problem, 75% refer to non-repayment as the most important problem faced by the FO. The corresponding figure for Muda is 66%. Other problems mentioned were poor FO staff performance, insufficiently motivated staff and lack of communication between staff and members (Krian 20%, Muda 13%) and insufficient support for the FO by the members (Krian 5%, Muda 19%).

These three categories cover about all the problems mentioned by ordinary members. Among the FO leaders who mentioned one or more problems, one finds the same categories of problems, occurring with similar frequency.

The solutions suggested for the problem of non-repayment range from "advise the debtors to repay" to "take the debtors to court". Most of the answers refer to "action" (*tindakan*) or "firm action" (*tindakan tegas*) to be taken against bad debtors, but are vague as to what action and who should act. There were also a few more imaginative suggestions such as to increase the guaranteed minimum price for paddy or an increase in extension advice concerning the use of fertilizer and pest control. Solutions to the other problems mentioned were "improve training and motivation of the staff", "more visits of staff members to the village to discuss the problems of the peasants" and "more advice and information about the FO and the task (*tugas*) of the members".

Most proposals for future FO activities in the members' interest concerned improvements in the existing activities, e.g. better quality fertilizer, lower prices for inputs, lower interest rates, extension courses, more machinery for hire and, most frequently, a faster disbursement and timely delivery of inputs. Proposals concerning new activities were scarce. They concerned paddy marketing and processing, the sale of consumer goods through FO sundry shops at village level and operation of a burial fund (*khairat kematian*).

Availability of FO leaders

Conscientious FO leaders who are prepared to spend much time and effort on their duties and who are also acceptable to the general membership, are scarce. In some SAUs there are a few of these leaders who take turns in various FO offices, in other SAUs there is only one and, finally, there are SAUs where no committed leaders could be found. The lack of acceptable leaders is indicated by the fact that, in spite of the by-laws - which determine that a member cannot hold the same office for more than two terms of two years each - several FO leaders had held their office for as long as the FO had existed. Particularly in the Muda FO the proportion of original incumbents who still held their office was high (nearly half of the board members and half of the SAU chiefs). In Krian these fractions were lower, but even there almost half of the SAU chiefs had held their office for more than the constitutional maximum of four years. Staff and supervising agencies did not press for a stricter adherence to the by-laws if that would mean that less eligible members would be appointed as FO leaders.

The tendency of oligarchisation cannot be attributed to FO leaders' attempts to hold on to their positions, but appeared to be due to the absence of other potential FO leaders who enjoyed the members' confidence and who were prepared to do the job. Several of the long standing office bearers were not particularly delighted with their continuous re-election. Some SAU

chiefs in particular would have liked to see somebody else take over their tasks which required a lot of time and effort and often did not significantly enhance the office bearer's influence in the local society. Many of them were assured of their influence because they held various other offices in committees which entailed less work, such as the Village Security and Development Committee, the school committee, the parent-teachers' association, et cetera.

In SAUs where nobody is very eager to volunteer for an FO office, the members still have to elect leaders. In such cases SAU members put so much pressure on particular fellow members to stand for election that the latter would feel embarrassed to refuse. If they do not perform their roles as FO leaders too badly, they might even be re-elected. It does happen, however, that members elect FO leaders who really are not willing to spend much time on the job. Such representatives soon start complaining about the work load and - in some instances in the Krian FO - even request payment for their services both from individual members and from the staff. Such representatives are never re-elected.

The FO leaders' role performance

The substance of the elected leaders' contribution to the development of the FO has been discussed in chapter 4. Some quantitative aspects are summarized below. Both in Krian and Muda the assembly met once a year. On average 26 assembly members (64%) attended the last three meetings (1976-1978) in the Muda FO. Corresponding figures were not available in the files of the FO in Krian. In 1977 and 1978 the Muda FO held 6 board meetings with an average attendance of 8.7 (79%). The corresponding figures for Krian are 9 meetings, attended on average by 7.9 members (72%). In both FOs, board meetings were held irregularly at intervals ranging from one to six months. Although there are differences in the frequency with which they attended, there were no board members who had missed all meetings. All those present took part in discussions, although not to a similar extent.

Despite the general appreciation of board and assembly members' sacrifices expressed by both FO staff, supervisors and ordinary members, these were still far removed from the efforts which would be required of them if the FOs were to become less dependent on supporting government organizations. I have already indicated that most of the initiative came from these organizations and that this situation is not altogether unacceptable to the board and assembly who leant to a very great extent on this initiative and support.

7.3 THE INFLUENCE OF THE HYPOTHESIZED VARIABLES ON MEMBER-CONTRIBUTIONS

The foregoing section illustrates three important aspects. Firstly, both in Krian and Muda the contributions of ordinary members to the FO are at a low level. Secondly, despite this generally low level of member-contributions, there are differences in the contributions made by individual members. Thirdly, the ordinary members in Muda contribute more and are more involved than their counterparts in Krian. In the following, I will try to explain these various phenomena with the help of the theoretical insights developed in section 7.1.

7.3.1 Causes of the generally low level of member-contributions

Most of the insights into the causes of the low levels of member-contributions are derived from a confrontation of the theoretical viewpoints developed by Galjart with the empirical social reality of the Malaysian FOs studied. It will be shown that many of the conditions which, according to Galjart, promote solidarity are lacking.

Government support

One condition which has a generally depressing effect on member-contributions is the present strong government support for the FOs in terms of funds and manpower. This does not mean that the government should not support the FOs. It is obvious that FOs cannot exist without a certain level of support from public funds and that they will continue to need support in the future. However, the way this support is given and the developments generated by it have a negative influence on member-contributions.

Firstly, the support is not made conditional to any substantial contributions from the peasants themselves. Supporting agencies have used the ample resources at their disposal to quickly increase the number of FOs without paying much attention to the need for member-contributions. In this way the time consuming process of building up member solidarity could be avoided. The members were not made to accept responsibility for the FOs, except for some minor contributions. This has reinforced the already prevailing attitude of regarding government support as a matter of course. This attitude was also observed by MacAndrews who noted that the "ethnic Malay in Malaysia [.....] sees the government as having a duty to provide him with certain services", that the Malay dominated government is under pressure "to meet the demands of the predominantly rural Malay voter", and that the latter knows "that he can effectively make demands on the government and expect consideration" (MacAndrews 1979: 180).

Only by making government support for the FOs more dependent on the members' own efforts can larger contributions be expected, assuming, that the members find the benefits of FOs worth the extra sacrifice of resources.

Whether this assumption is justified cannot be verified now that it seems politically impossible to make government support conditional upon members' role performance. It should be stated, however, that if members are not willing to contribute even slightly more than they have done, it is doubtful if the FOs are sufficiently appreciated to warrant the large expenditure of public resources which they required up till now.

Secondly, the strong government support for the FOs has not only reduced the need for substantial member-contributions, but has also affected the members' *ability* to make such contributions. The extent of initiative displayed by supervising agencies and trained FO staff with much higher education levels than the FO members has led to a scale and complexity in organization and activities which would not have been possible, at least not in such a short period, if the FO had been more dependent on its members' managerial and entrepreneurial abilities[1)]. The gap between the members' formal authority and managerial ability to control the FOs has a negative effect on member participation in the decision-making process. A reduced ability to participate is also supposed to slow down the acceptance of the norms pertaining to solidarity and member-contributions (see section 7.1.2 point 8).

It should be noted that strong government support for the FOs is both a cause and a consequence of the low level of member-contributions. It should not be seen isolated from the other causes of low member-contributions, particularly the loose structuration of the society. The formidable difficulties involved in building up members' solidarity to FOs in a loosely structured society would tempt almost every government to make up for a lack of member-contributions, particularly if that government is pressed for results to increase its chances of re-election. Goodell points out that lack of corporate action and "almost pathetic dependence [of peasants on government agencies] and paternalism [of the government] are hallmarks of loose structuration" (Goodell 1980: 17).

Closely related to the predominant role of supervising agencies and staff in the FO and the neglect of the role which the members themselves could play, is the dearth of information about FO matters among ordinary members. This contributes to the observed low level of the members' mental involvement with the FO. As indicated in chapter 4, the elected FO leaders inform only some of the members in their SAU of the issues discussed in board or assembly meetings. For many members, the only information which they obtain is that contained in the speeches of FO staff at SAU meetings, giving a brief summary of the FO's achievements and problems. When asked whether they regarded the present supply of information as sufficient, 92% of the Krian members and 88% of the Muda members responded negatively. For Kemubu FOs, Harun (1976: 144) also reports that "the need for more information about the Associations [FOs] was frequently voiced by community leaders, Association members and non-members".

The loosely structured society

Solidarity and member-contributions are also hindered by the loosely structured nature of the society formed by Malay paddy growing villages. Even if the (newly introduced) norms concerning member-contributions have been fairly well understood, the members' willingness to make contributions to the FO depends, amongst others, on social control, the example of dedicated leaders, the absence of groups outside the FO that compete for the members' solidarity, and the belief that other members will be prepared to contribute equally (see the hypotheses in section 7.1.2). These conditions are difficult to realize in the context of a loosely structured social system.

In this social context without effective institutional means of social control and where individuals do not accept authoritative interference on their behaviour by other villagers, I found that ordinary members did not consider it their task to control other members' role performance. Many of them regarded a member's role performance as a matter to be left to the discretion of each individual member and that did not concern other members or the SAU chief. Interference was only acceptable in the case of bad debts, i.e., peasants who deliberately and illegally profited from the FO. Even in these cases, however, members were unwilling to exercise this control themselves and considered this to be a task of the SAU chiefs. Some of the SAU chiefs did request bad debtors to repay their loans, but many regarded this as the responsibility of the FO staff. These SAU chiefs did not want to take the blame for such authoritative actions. The only occasions on which FO leaders could urge their members to make extra contributions was during speeches at SAU meetings. They could not, however, call on *individual* members for this purpose without running the risk of serious criticism from members about the leaders' interference with their affairs.

Even a very committed leader cannot demand that his members reciprocate his solidarity by making extra contributions themselves. In the Malay rural social context, an FO leader's goodwill depends on his services to the individual members in the SAU. What most members expect from leaders in the present situation is that the latter function as intermediaries between members and the FO, helping individual members to obtain direct material benefits. In the circumstances even the most committed leaders cannot be expected to make great demands on their members. Therefore, the example of dedicated leaders only affects those members who are already prepared to accept some responsibility and voluntarily follow the example.

Another notable feature of the loosely structured Malay rural society with an impact on member-contributions is the tolerance towards the tendency to assign priority to short term household interests whenever there is a conflict between these interests and obligations to a larger social unit. Since the essential member-contributions studied here require that members give priority to wider group interests in such conflict situations, it is obvious that this tolerance hinders the development of solidarity and member-contributions to the FO.

The tolerance to the non-fulfilment of obligations to wider groups when this suits the household or private interests does not hinder the functioning of most traditional types of socio-economic co-operation in Malay paddy growing villages discussed in chapter 5 such as labour exchange in agricultural production (*derau*), burial funds (*khairat kematian*) and the crockery society (*syarikat pinggan mangkok*). In fact, these types of co-operation do not involve obligations to groups but only to particular individuals. They are based on dyadic relationships of balanced reciprocity. Traditional group obligations only occur in the case of communal labour activities (*gotong royong*). As briefly indicated in chapter 5, the tolerance towards the non-fulfilment of group obligations does have a negative impact on participation in *gotong royong*. From the viewpoint of the individual, the results of communal labour often carry a "collective good" character in the sense that these results can be used by everyone including those who did not participate in the *gotong royong* activity. Contributions of labour inputs to *gotong royong* activities form a sacrifice of resources (viz. the opportunity costs of labour) for the collective benefit. These costs can be quite important for peasants who supplement their income with off-farm work in slack periods of the paddy cycle, since these are also the only suitable periods for *gotong royong*.

The conclusion can be drawn that, where the traditional and normatively accepted obligation to contribute labour inputs to *gotong royong* activities is often not fulfilled and where society has been unable or unwilling to deal with this problem, it cannot be expected that a newly generated feeling of obligation to the FO will be more effective in making members behave in accordance with their roles when this is in conflict with their households' interests. Compared to traditional contributions of labour inputs to *gotong royong* activities, member-contributions to FOs are still more dependent on solidarity. Unlike the case of communal labour, there is often no exact norm dictating what or how much is expected of FO members. Furthermore, when an FO member evades his responsibilities, this is easier to conceal than non-attendance at a communal labour arrangement.

It will be obvious that in a society where it is so accepted that people give priority to their private household interests, even when this implies breaking a group agreement, FO members do not have high hopes of their fellow members' willingness to make sacrifices for the FO. Respondents were asked whether they expected their fellow members to remain loyal to the FO if shopkeepers offered a bag of high quality fertilizer at 50 cts (± 5%) below the FO price. A very large majority (Krian 93%; Muda 79%) expected that at least half of the current FO borrowers would switch to the shopkeepers. When there is so little confidence in the co-operative behaviour and solidarity of fellow members, this must have a negative effect on member-contributions.

The ineffectiveness of structural binds

According to Galjart solidarity is greatly promoted if peasant co-operation aims to achieve the removal of a structural bind, i.e., a constraining factor which the members have in common and which could only be overcome by co-operation. The development of solidarity and member-contributions in the FOs is hindered by the lack of these aims. The members did not consider the FOs as a means by which obvious structural binds which were hampering their development, such as paddy pests, or the presumed power of shopkeepers and rice millers to take advantage of them could be overcome. In mentioning their reasons for joining the FO, members generally did not refer to these structural binds. Only one member in the survey explicitly referred to one of these constraining factors. He joined the FO "to end the exploitation by shopkeepers". In general, however, there are no indications that members regarded the shopkeepers as local opponents and the FO as a means to fight them. This is interesting, especially when considered in the light of the fact that at present the FO's main function is to give cheap production credit, a task which was assigned to it because the shopkeepers were presumed to exploit the peasants via their credit function. This situation could be expected to help the members form a block in opposition to the shopkeepers. However, the members generally considered the shopkeepers only as competitors of the FO (which is different from opponents!). These members believed that the FO had a mitigating effect on shop prices for farm inputs. In Krian 83% of the members expected shop fertilizer prices to increase if the FO closed down. The corresponding figure in Muda was 61%. Nevertheless, none of the members saw this as a reason to support the FO *against* the shopkeepers. In both Krian and Muda, when FO members needed more fertilizer or crop protection chemicals than was originally extended by the FO, they made use of the local shopkeeper rather than the more distant FO.

There are several reasons why members did not consider that the FO should try to break the power of the shopkeepers. Probably the most important reason was that the shopkeepers offered several services which the FO could not or did not provide and which even the FO members considered as very convenient (e.g. consumer credit, long opening hours, short distance). Secondly, the costs of shopkeeper services to the peasant were competitive; e.g., even though some peasants complained of unfair practices by the shopkeepers, such as exaggerated deductions, the FO members were not at all convinced that they would be better off by selling their paddy directly to private or government mills with the help of the FO. Thirdly, as one FO leader told me while watching peasants sell their paddy to the local Malay shopkeeper: "We Malay peasants could increase paddy prices if all of us stored our paddy under the house and only agreed to sell at a higher price, but we are not able to make one front. There will always be some who sell their paddy before any results have been obtained and the others will follow immediately"[2)]. Peasants do not believe that they could win a fight with the shop-

keepers or the government because they lacked the means to enforce solidarity. This argument once more focuses attention on the wide implications of the loosely structured character of the society.

The absence of small groups

The absence of small groups within the FO is another condition hindering the development of solidarity and member-contributions. Galjart hypothesized that, by forming small organizational units within a peasant co-operative, and providing them with incentives, one could capitalize on existing or newly established affectionate relationships among the members of these groups, to promote solidarity to these formal sub-units and, indirectly, to the co-operative as a whole. The assumption implied in this hypothesis is that, in small groups, affection among members diminishes suspicion and increases belief in the reciprocity of other members. Small groups also facilitate social control and, especially in combination with affectionate relationships, increase the individual member's sense of obligation.

Small organizational units such as these were not found in the FOs studied, except the board and some committees. But even in these few small units affectionate relationships did not develop. The board and assembly members came from various villages and only met each other at meetings. The work groups of ordinary members which figure in several MADA publications concerning FOs (Afifuddin 1975,1977b, MADA 1978a, Ho Nai Kin 1977) were non-existent. The smallest organizational unit was the SAU. Since SAUs were only used for communication and for electing members to the assembly, all contributions made by members accrued directly to the FO as a whole. It is obvious that this is too large a unit for affection to play a stimulating role of any significance. The number of friends and relatives with whom a member maintains affectionate ties within the FO is so small (less than 1-2%) that this affection does not influence the member's confidence in the reciprocity of the FO membership in general.

The role of non-material values

According to Galjart, adherence of peasants to such values as participation, social justice, equality, et cetera, could stimulate solidarity to co-operative associations which support these values. The Malay peasants aspire to attain a measure of social justice and equality via the socio-economic emancipation of the Malay community. As indicated, this aspiration finds a political expression in the policy objectives of the ruling National Front government's New Economic Policy (NEP): the redress of racial imbalances in the economy and the eradication of poverty. FOs are an instrument of this policy and are regarded as such by some peasants. Nevertheless, adherence to these values and the ensuing aspiration do not have the effect of promoting solidarity to the FO. This is because peasants, and the Malay community at large, still have to choose whether they want to attain their

goals through a policy of collective or individual upward mobility. At present even the FO leaders have not considered this question. Another unanswered question is whose role should be more important for furthering the NEP's goals, the peasants' or the government's. The general aspiration among the Malays to become economically equal to the other ethnic communities could only stimulate solidarity and member-contributions to the FO, *if* the peasants themselves assumed a larger share of the responsibility for their socio-economic emancipation, and if they would simultaneously choose a policy of collective instead of individual mobility. Until then, no concrete guidelines for member-contributions can be derived from the desire to promote Malay socio-economic emancipation.

7.3.2 Causes of individual differences in member-contributions

Despite the conditions discussed in the previous section that cause the generally low level of member-contributions, there remain differences between the members, in share ownership, participation in meetings and mental involvement in the problems of the FO. In this section I intend to assess to what extent these differences can be explained by the factors which, according to Galjart's theory influence solidarity. I will also assess whether member-contributions to the FO are affected by the variables which Harun found to be correlated with membership participation, a broader concept explained in section 7.1.

As indicated in the previous section, most of Galjart's variables cause similarity rather than differences in the individual member-contributions. The only variables derived from Galjart's theoretical framework which could have caused such differences were:

- the instrumental value of the FO for the member,
- belief in other members' solidarity to the FO, and,
- the extent of encouragement of the individual member by FO leaders.

The variables hypothesized by Harun include:

- socio-economic status,
- age,
- sex,
- number of memberships in other organizations, and,
- occupation of a position of leadership in other organizations.

In the following I will briefly review the various hypothesized independent variables and, where necessary provide some insight into the operationalisation of these concepts. The dependent variable (member-contributions) will also be operationalised below.

The instrumental value of the FO

It was hypothesized, that the individual member's willingness to make contributions to the FO would be positively affected by the magnitude of the benefits which he obtained from FO membership, i.e., by the instrumental value of the FO to the member. It has been sufficiently substantiated in the previous chapter that this instrumental value is mainly determined by the member's appreciation of FO credit as compared to production credit from a shop. As this appreciation appeared strongly related to the acreage of the paddy farm operated, (paddy) farm size is a good indicator of the instrumental value of the FO.

A second indicator of the instrumental value of FO membership used here is the frequency of a member's use of FO credit during the last three seasons, as indicated by FO records. FO credit is more appreciated by members who used this credit during all three seasons than by those who had not bothered to obtain FO credit during one or more of the last three seasons.

Belief in other members' solidarity to the FO

Galjart advanced the idea that a member's sacrifice of resources for the collective benefit, is a gift which cannot be sustained unless it is reciprocated by other members. Belief in other members' solidarity is an important precondition for sustained member-contributions. As indicated in section 7.3.1, belief in other members' solidarity to the FO was generally low. This belief was measured by asking respondents whether they expected their fellow members to remain loyal to the FO if shopkeepers would offer high quality fertilizer at 50 cts per bag (± 5%) below the FO price. Respondents had to indicate whether they expected less than half, half, or more than half of their fellow members to remain loyal. Although only few members expected more than half of their fellow members to remain loyal (Krian 7%; Muda 21%), it was hypothesized that this limited belief in other members' loyalty had some positive effect on member-contributions, particularly in Muda where this belief was stronger than in Krian.

The extent of encouragement by FO leaders

According to Galjart, solidarity would be promoted by the example of committed leaders who actively stimulate their followers by demanding solidarity and exercising social control. However, as explained in the previous section, it was found that it is very difficult, if not impossible, for FO leaders to demand solidarity from ordinary members or to exercise social control, especially when this involves material contributions. Nevertheless, even if FO leaders could not exercise social control, they could encourage their members to attend meetings and increase interest in the FO by keeping their members informed of what happened in board and assembly meetings. It was hypothesized that members who were regularly invited to attend SAU meetings by the local FO leader and frequently received information from him

would make larger contributions than members who were never invited and informed, or only irregularly. It should be noted, however, that if it were found, a statistically significant correlation of these indicators with member-contributions need not be completely due to the encouraging effect of the leaders's actions. To some extent, the positive correlation might also be due to a possible tendency by FO leaders to invite and inform only those members who are known to have shown interest in the FO and who make relatively large contributions.

Socio-economic status

Harun found that membership participation in FOs was correlated to socio-economic status, which he measured by the number of years of formal education and a standard of living index (items were various durable consumer goods). In the analysis below socio-economic status was operationalised similarly. An added indicator is annual net income per household member.

Age

Harun hypothesized that, as in the United States, membership participation would increase with age, reach a peak during the middle years and then gradually decline. Contrary to this hypothesis, he found a very weak negative and linear association of membership participation with age. As an explanation for this deviation from Western findings, he attributed the high participation by young peasants (below 30) as compared to middle aged peasants (30-49 years) to the late expansion of public education in Malaysia. Due to this late expansion, the differences in education levels between the young and middle aged categories in Malaysia were larger than in the Western countries, enabling the former to play a more important role.

Sex

In his theoretical framework Harun refers to studies relating sex to participation in American society (e.g. Curtis, 1971). These studies found that organizational participation was higher among males than among females. Harun does not, however, provide data concerning this relationship in the Malaysian FOs which he studied. My own survey contains too few female members to provide a basis for statistical analysis, but my qualitative findings provide strong evidence of a much lower participation by women. Of all the SAU meetings which I observed only one was attended by some women. Nevertheless this fact in itself can be regarded as a limited success for the FO officer in charge of the womens' section in the FO. The women did not, however, take an active part in the meeting.

Membership in other organizations

Harun expected that the greater organizational insight and experience of those FO members who also joined other formal organizations than the FO

would increase their participation in the FO. This would be even more so in the case of those who filled positions of leadership in these other organizations. He did obtain a modest positive correlation of formal leadership and membership in other organizations with membership participation. When controlling for education, it appeared that these relationships were generally stronger among the better educated groups and absent or weaker for the group with low formal education. A relatively high level of formal education appears to be a necessary condition for accumulating understanding and meaningful experiences through participation in other organizations.

Unfortunately, Harun does not provide a list of the "other formal organizations" considered in his study. For the purposes of the present research, an FO member was considered to occupy a leadership position in another organization than the FO if he sat on any or more of the following committees: the Village Security and Development Committee, the school committee, the mosque and *surau* committee and the committees of the local crockery society and burial funds. Experience in other organizations than the FO was measured by counting the number of the respondent's memberships in associations at village level, such as the parent-teachers' association and the local crockery societies and burial funds. Membership of other organizations or committees seldom occurred.

Member-contributions

As indicators of member-contributions I used those which were discussed in the foregoing sections. Table 7.3 shows the correlation coefficients (τ_c) among these various indicators in Krian and Muda. It is clear from these matrices that there is no justification for the development of one single scale measuring (willingness to make) contributions in general. The items measuring mental involvement (item 1 to 3) and attendance and participation in meetings (items 4 and 5) form separate subclusters. The items of each cluster are highly correlated with each other but do not correlate, or only weakly, with other items. The item measuring share purchases (item 6) is not correlated to any of these subclusters. The pattern is similar in Krian and Muda.

Apparently, mental involvement, participation in meetings and share purchases are sacrifices of a different character and cannot be combined into one scale. Each of the three forms of member-contributions might also be somewhat differently affected by the independent variables. However, for convenience of presentation it was decided not to review all these relationships. Instead, the statistical analysis will be confined to the correlations of independent variables with share purchases (as measured by a single item) and attendance and participation in meetings (as measured by a simple additive scale of items 4 and 5 in Table 7.3). I shall refer from now on to the latter dimension of member-contributions as "participation".

Table 7.3 Correlation matrices (τ_c) for items of member-contributions in Krian and Muda

	Krian (n=70)						Muda (n=60)					
	1	2	3	4	5	6	1	2	3	4	5	6
1. number of FO problems mentioned	-						-					
2. number of solutions for FO problems mentioned	0.77	-					0.86	-				
3. number of own proposals for improvement of FO	0.49	0.53	-				0.45	0.43	-			
4. participation in discussion during SAU meeting	0.06	0.01	0.08	-			0.09	0.00	0.00	-		
5. frequency of attending SAU meetings (last 2 meetings)	-0.10	-0.11	0.03	0.67	-		0.00	0.08	-0.11	0.60	-	
6. number of shares owned	0.14	0.21	-0.05	-0.01	-0.02	-	0.04	0.08	-0.04	0.01	0.08	-

The selection of these member-contributions rather than mental involvement was not totally arbitrary. Firstly, the selected indicators were expected to be more valid and reliable, because they actually measure a sacrifice of resources, whereas mental involvement only measures the result (knowledge, ideas) of a presumed sacrifice of time and effort to acquire this knowledge. A second reason for concentrating on share purchases and participation in meetings rather than on mental involvement is that the former variables could be easily transformed into variables with three classes, each containing approximately one third of the members, a convenient characteristic for cross-classification analysis. This was not the case with mental involvement (measured by a simple additive scale of items 1 to 3 in Table 7.3). Since, particularly in Krian, few members showed any mental involvement, all the "involved" members had to be combined into one class, so that the mental involvement scale formed a fairly skewed dichotomy, which is less desirable for cross-classification analysis.

The impact of Galjart's and Harun's variables on share ownership and participation

Table 7.4 shows the correlation coefficients of each of the independent variables discussed above with share ownership and participation for Krian and Muda. As appears from the upper part of Table 7.4, the variables which, according to Galjart's theory, promoted solidarity do indeed show positive and statistically significant correlations with share ownership and participation in Muda. In Krian, however, the correlations between these variables are not always statistically significant. For the latter area, it can be concluded that, whereas encouragement by FO leaders and belief in other members' solidarity to the FO have a positive effect on member-contributions, particularly on participation, these contributions are not affected by the instrumental value of the FO. The only exception is the significant correlation coefficient between share ownership and frequency of FO credit use, but this could be attributed to the *obligation* to buy shares when applying for FO credit and does not clearly prove a greater willingness to make a *sacrifice*.

The fact that some of the hypothesized relationships between variables derived from Galjart's theory and member-contributions to the FO could not be confirmed in Krian, whereas in Muda they were all confirmed, might be attributed to some conditions that caused a more unfavourable climate for the contributions in the Krian FO as compared to the one in Muda. Some of these conditions have occasionally been referred to in this chapter and are summarized in section 7.3.3 below. The more unfavourable climate for member-contributions in the Krian FO could have made even the more dedicated members hesitate to make sacrifices for the organization.

Table 7.4 Correlation coefficients (τ_c) of independent variables with member-contributions (share ownership and participation)

independent variables	Krian		Muda	
	share ownership (n=67)	participation (n=70)	share ownership (n=49)	participation (n=58)
hypothesized by Galjart:				
instrumental value as indicated by				
- size of paddy field	0.08	0.06	0.29**	0.30**
- frequency of FO credit use in last 3 seasons	0.42**	0.08	0.52**	0.23*
belief in other members' solidarity to the FO	0.10	0.25*	0.24*	0.31**
encouragement by FO leaders as indicated by:				
- regularity of invitation to SAU meetings by leader	0.20*	0.22*	0.23*	0.22*
- frequency of receiving information about board meetings	0.06	0.30**	0.14	0.20*
hypothesized by Harun:				
years of formal education	0.05	0.11	-0.12	0.14
standard of living index	0.02	0.00	0.02	0.26*
annual net income per household member	0.01	0.13	0.03	0.26*
age	-0.06	-0.08	-0.03	-0.03
number of memberships in village committees	0.03	-0.02	0.05	0.15
number of memberships in village associations	0.11	-0.02	-0.04	0.28**

* P<0.05 ** P<0.01

Concentrating on the lower part of Table 7.4, it is clear that only few of the various variables which Harun found to be correlated with membership participation, show statistically significant correlations with share purchases and my concept of "participation". The only significant correlations are found in relation to participation in Muda. The negative signs of the correlations of the variable age with share ownership and participation are in line with Harun's findings, but the correlations are too low to provide evidence of a negative linear relationship.

The absence, in most cases, of significant correlations for Harun's variables should be attributed to the difference between his concept of membership participation and my concept of member-contributions. The latter concept measures sacrifices of resources for the collective benefit, whereas the former is a much broader concept measuring various actions and attitudes of the member, including both actions which are a sacrifice of resources and actions aiming at obtaining direct material benefits. As indicated in section 7.1 it was expected that this would make Harun's variables less useful than Galjart's in explaining member-contributions which are a sacrifice of resources.

The analysis allows the cautious conclusion that Galjart's concentration on specific motives and incentives for member-contributions is a more promising approach than Harun's emphasis on characteristics of the social background of the participants. This conclusion is not only based on the outcomes of the tests of significance reported in Table 7.4, but also on the insight which Galjart's theoretical framework provides into the causes of the generally low level of member-contributions discussed in section 7.3.1. Galjart's theory not only explains more, but also has the advantage that some of the variables involved can be influenced at short notice. The theory indicates both the direction which concrete policy measures should take in order to strengthen the FO members' ability to act collectively and the formidable obstacles in the path of this objective. Harun's theoretical framework does not have this direct practical relevance.

Differences between FO leaders and ordinary members

So far the analysis in this section has focused on member-contributions in the form of share purchases and participation in SAU meetings. Contributions in the form of accepting and fulfilling a position of leadership in the FO have not been considered. The justification for this focus is, that the opportunity to make the latter contribution is restricted by the number of elected offices in the FO. Others, who might be willing to make this contribution are thereby excluded. Notwithstanding the much larger contribution involved in occupying an FO office, this exclusiveness makes it a less sophisticated indicator of willingness to make contributions than e.g. share ownership and participation in SAU meetings. The latter contributions can be made by all members alike. Furthermore, the fact that one occupies an FO

office does not only depend on one's own willingness, but also on acceptance by the other members. This acceptance is not necessarily based on the same set of characteristics that determines willingness to make contributions.

Nevertheless, it is interesting to review some of the characteristics possessed by FO leaders which were different from those found in ordinary members. In both Krian and Muda, FO leaders were found to:

- operate larger paddy farms,
- be more convinced of other members' solidarity to the FO,
- refer more frequently to common interests as reason for their FO membership,
- have received more education,
- have a higher standard of living and higher per capita net income,
- have more external contacts, including contacts with extension officers,
- have joined more village level associations,
- occupy various other positions of leadership in village committees.

All these differences are statistically significant at the 0.01 level. It is clear from this list that FO leaders are those who could function more effectively in this position than the average member. As operators of large paddy farms they are less occupied with off-farm work and have more time for the job, they maintain a number of strategic relationships both in and outside the village and have more organizational experience. As indicated in section 6.1, it is a qualitative finding of this research that an FO leader should be accessible to the members and willing to help them in their dealings with the FO.

7.4 DIFFERENCES IN MEMBER-CONTRIBUTIONS TO THE KRIAN AND MUDA FO

In section 7.2 it was found that, as compared to members in the Krian FO, the members of the FO in Muda owned more shares, attended SAU meetings more frequently and showed a higher mental involvement in the FO operations It is not possible to say whether this is an indication of a general difference between the FOs in Krian and Muda. Nevertheless, it is interesting to analyse the possible causes of the observed differences between the two FOs studied and to see whether the operations of FOA and MADA have contributed to the conditions which caused these differences. Several conditions were observed in the Muda FO that might have been responsible for the higher member-contributions than in the Krian FO. One is the dividend which was issued in Muda, but not in Krian. This dividend and the various visible diversification projects, such as the chicken farm, supermarket, sundry shop and burial fund, have created the impression that the Muda FO was a sound enterprise and thereby improved the climate for member-contributions. Secondly, the FO in Muda had had an exceptionally enterprising general manager, who had been able to motivate his staff, to develop a very good working relationship with the board and to stress with some success the impor-

tance of member-contributions to the board members and SAU chiefs. The attention paid to explaining the need for member-contributions to the FO leaders is probably one of the major reasons why the leaders in the Muda FO were more active in encouraging their members, e.g., to attend meetings (see section 7.2.4). Finally, a third condition which might have stimulated higher member-contributions in the Muda FO is the stricter selection of members which aimed at barring less dedicated peasants from membership.

The second and third of the above-mentioned conditions cannot be attributed to the different organizational settings of the FOs studied. The policy of restricting membership of the FO was a condition that was introduced and implemented by the board of the Muda FO, and to my knowledge did not occur elsewhere in Muda. Furthermore, the inspiration and initiative of the general manager of the Muda FO appeared to be exceptional. Managers of this calibre were seldom found in either Krian or Muda, so that it cannot be concluded that the organizatonal setting of the Muda FO was more favourable for the development of managers of this type than the Krian setting. It seems, however, that MADA has indirectly improved the climate for member-contributions by being more successful than FOA in stimulating the FOs to undertake business activities.

Some caution is needed in drawing the conclusion, that profitable diversification projects and a buoyant image of FO activities stimulate member-contributions. It might have been of crucial importance that these activities were combined with an attempt to obtain a more active involvement of FO leaders and ordinary members in the operation of the FO. Secondly, attention should also be drawn to the fact that, even under the comparatively favourable conditions in the Muda FO, member-contributions were still below the level required for a more independent development of the FO. In fact, the general manager of this FO was very disappointed at the limited results obtained after all his efforts. This indicates, that the promotion of solidarity and member-contributions will require much more attention of agencies such as MADA and FOA, at least if the FOs are to grow beyond their present state of "hothouse plant". In order to achieve this end, explicit policies and consistent implementation will be necessary.

8 UTILIZATION OF FARMERS' ORGANIZATION SERVICES AND ADOPTION OF IMPROVED PADDY CULTIVATION TECHNIQUES

This final chapter on the responses of peasants to FOs will focus on the peasants' adoption of changes in their paddy cultivation practices in response to FO farm support services. This aspect of the peasants' response has been selected because economic development of the members is a prominent objective of national policies concerning the FO. Official documents mention such objectives as: to promote the farmers' economic interests, advance their technical levels, increase their production and incomes, improve their living standards, et cetera[1)]. It is very clear that at present and in the not too distant future the business and agricultural diversification activities undertaken by the FOs, at the most, make limited contributions to these goals. The present FO activities mainly aim at the promotion of the use of improved paddy cultivation practices, at farm level.

So far, these efforts have been confined to the provision of services aiming at the adoption of new cultivation practices by individual peasants. Although the achievement of co-operation among the peasants aiming at more effective water control and co-ordination of production activities would have contributed to a fuller utilization and effectiveness of the new cultivation practices, the FOs studied had not done anything to achieve this co-ordination.

Thus, the analysis in this chapter is confined to the effects of FO credit and input supply, the provision of seed and extension advice to individual peasants. The conclusions in this chapter refer to the *present* influence of these FO services on the adoption of recommended techniques. Concerning the influence of these services in the period *preceding* this study no conclusions can be drawn. It appears that - by first demonstrating the advantages of the new varieties and proper management - extension activities have played a more important role in the initial stages of double cropping than they do at present.

At the start of this chapter, I pay attention to the extent of utilization of FO credit and extension services and to the factors which influenced the individual peasant's utilization of these services. The main part of the chapter then concentrates on the question: Did peasants who used these services make more intensive use of recommended paddy cultivation techniques? This question will be answered for the major elements of the package of new cultivation practices. For each of these elements, I also pay attention to the peasants'considerations in decision-making about its use.The analysis deliberately confines itself to the technical aspects of paddy production. Other important changes, as in the mobilization of labour, have been discussed in chapter 5.

The analysis also pays attention to differences in adoption of recommended techniques between Krian and Muda peasants. Since the provision of FO credit did not differ between the Krian and Muda FOs studied, and since extension services were weakly organized in both areas, differences in adoption should be primarily attributed to the different environmental conditions.

8.1 FO SERVICES AND THEIR UTILIZATION

Utilization of FO credit

As indicated in chapter 4, FO credit took the form of a package consisting of a variable amount of urea, compound fertilizer and crop protection chemicals as desired by the peasant, and a fixed amount of cash per unit of land. The purpose of the package was not only to provide fertilizers and crop protection chemicals at a reasonable cost to the peasant. By doing so and by providing cash to pay for mechanized land preparation, the credit programme hoped to overcome financial barriers to using these inputs at recommended levels. However, as indicated, apart from the provision of inputs and the administration of loans, the FOs undertook no special activities to ensure the proper use of these inputs. Extension activities, even when they were the task of the FO itself (as in Muda), were not directly linked to credit supply, but formed a separate activity.

Since access to credit was the main attraction of FO membership, it is obvious that the utilization of FO credit was largely dependent on the same variables which influenced affiliation to the FO discussed in chapter 6. However, as indicated in Table 8.1, only roughly half of the membership used FO credit in the crop season preceding the survey, whereas 52% of the Krian members and 40% of the members in Muda obtained their inputs on cash terms or on credit from local shops.

Table 8.1 Way of obtaining cash inputs for paddy production (% of FO members)

	Krian (%)	Muda (%)
cash purchase from shops[1]	29	23
credit from local shops	23	17
FO credit	48	55
co-operative credit/other	0	5
total FO members	100 (n=69)	100 (n=60)

[1] A very small number of peasants who borrowed cash from relatives or friends are included in this category

The major cause of this under-utilization of FO credit facilities by the members was the gradual increase since 1976 in the number of members who were excluded from FO credit because of an unpaid debt. Both in Krian and in Muda, for two thirds of the members who did not use FO credit the reason was that they were in debt to the FO, while most of the rest failed to apply for credit on time. Members with a debt either became dependent on cash purchase of inputs or on other sources of credit, particularly shopkeepers. In the latter situation, the new credit source became more important and overshadowed the need to repay the FO debt, especially since it had become apparent that the FO did not take action against bad debtors. For these reasons, FO debts tended to be long standing overdues and the number of bad debtors increased every season (Fredericks *et al.* 1980). At the same time, the number of loans showed a gradual decline.

There are several causes of the decline in repayment percentages since 1976. Firstly, both in 1976 and 1977 paddy crops in Muda suffered from exceptionally dry weather. The drought even forced MADA to cancel the supply of irrigation water for the off-season crop in 1978. But this explanation is not sufficient, since repayment in Krian shows a similar decline, whereas the latter area did not experience similar bad weather conditions.

A second cause was the continuous increase in production costs, which was not compensated for by a growth in productivity or higher paddy prices and gradually ate away the initial income growth, which followed the introduction of double cropping and improved paddy varieties. MADA, for example, reported cost price increases of 15% for the main season 1977/78 compared to the preceding off-season 1977 (MADA 1978b). These price increases were primarily due to a rise in the costs of hired labour, rents and engine fuel. Over a period of two crop seasons covered by the fieldwork for this study, labour wages for transplanting in both Krian and Muda rose by as much as 20%. In most cases, this cost increase did not lead to a direct inability to repay FO loans. But peasants were unwilling to give up income levels to which they had become used since the early seventies and looked to the government for compensation for the increased production costs. Unwillingness on the part of the government to give in to persistent requests from the peasants for a substantial increase in the guaranteed minimum price for paddy (some argued that it should be $ 580 per ton) might have made some peasants look for other compensations from government funds.

A third factor which certainly contributed to the decline in repayment was the lack of firm action against bad debtors. Various FO leaders reported that, once the FO's lenience had become clear, an increasing number of peasants were tempted to refrain from repayment. In both Krian and Muda, the data indicated that there was no correlation between farm size and the being in debt to the FO.

Apart from the members who used FO credit, a small number of non-members had access to FO credit through the *tumpang* practice described in chapter 6.

The aggregate outcome was that in Krian a total of 34% of all farm units used FO credit, while in Muda the corresponding figure was 26% (see Table 6.6 above).

Of the various elements contained in the FO credit package, fertilizers and cash were the most popular ones. In Krian 84% of the FO borrowers included fertilizers in the package used. In Muda this figure was even higher: 95%. Cash for mechanized land preparation was taken up by 82% of the FO borrowers in Krian and 78% of those in Muda. The cash element to meet the costs of hired labour for transplanting was only disbursed in Krian (57% of the FO borrowers). Insecticides, pesticides and herbicides were clearly less popular. In Krian only 38% of the FO borrowers took up these items, as compared to 33% in Muda.

The fertilizer and crop protection chemicals were normally used for the purposes for which they were intended. No benefits could be obtained from selling these inputs to others, since they were also for sale in private shops at prices comparable to or even lower than in the FO. Also, very few peasants had other crops for which they could have used the fertilizer inputs obtained on FO credit. However, the cash element for land preparation in the FO loan was seldom used for the intended purposes. As indicated in chapter 5, practically all peasants who contracted power tiller or tractor services to prepare their land, paid the contractor after harvest. Thus this element of the FO loan was always used for consumption or non-paddy production purposes, which is contrary to the intention of the loan. Cash loans to pay the wages for transplanting were only used for this purpose by roughly half of the peasants who took them up. The other half transplanted with household labour and unpaid exchange labour. The latter peasants used the loan for consumption. However in this case, this is not contrary to the intention of the loan since the cash represents an accelerated payment for the peasant household's own labour.

Access to agricultural extension advice

The various organizations involved in the provision of agricultural extension information to the peasants and the various extension methods used by these organizations have been outlined in chapter 4. Some of the main problems have been discussed there, such as shortage of staff, the tendency to assign non-extension tasks to extension workers, lack of support for field workers who were not provided with locally useful recommendations, et cetera. These problems have obvious consequences for the number of peasants reached by extension services.

Table 8.2 shows what proportions of the peasants in Krian and Muda were reached by the various extension activities. Generally, these proportions were very small, whereas on the other hand a total of 68% of all peasants in Krian and 69% in Muda were not reached by any of these extension activities at all. It is interesting to note that not only in Muda but even in Krian,

Table 8.2 % of peasants reached by various extension activities

type of extension activity	Krian (n=114) (% of peasants reached)	Muda (n=102) (% of peasants reached)
rice technology course	1	3
excursion	7	4
local/one-day course	7	6
demonstration	8	7
advice in DOA office[1]	12	7
advice in FO office[1]	25	22
farm visit[1]	2	4
any extension activity	32	31

[1] At least once in last 3 years

where agricultural extension was no longer an FO task, the extension activity which reached far more peasants than all other activities was the advice given in the FO office. This is in sharp contrast to the statements of FO staff in Krian, who said that they did not provide any extension advice and felt incapable of coming up with useful recommendations. One might conclude that peasants generally have no idea what agricultural extension advice is about. Most of the peasants who said that they received advice in the FO office, referred to the standard recommendations which they obtained when filling in credit application forms.

In Muda, there was a statistically significant correlation between FO membership and an index "extension contacts", measuring the number of extension methods (0, 1 or 2 or more) by which a peasant was reached[2)]. This is not only because most peasants who were reached by extension activities obtained their information in the FO office, which was seldom visited by non-members. All other extension activities in Muda were also associated with the FO. For instance, the audience at a local course or extension demonstration was mobilized through FO channels. FO staff contacted the SAU chief and the latter invited peasants to attend. Because he considered the activity as an FO affair, the SAU chief invited mainly FO members. Most of the non-members were not invited and did not attend. In Krian, the village level contact person, of the Department of Agriculture may often also have been an FO leader, but because the one-day course or demonstration was not associated with the FO, the latter invited both members and non-members of the FO. It could be expected, therefore, that in Muda extension contacts were more strongly correlated with FO membership (τ_c=0.34; P<0.0001) than in Krian (τ_c=0.11; P<0.11).

Both in Krian and Muda, the index measuring extension contacts was also correlated positively with *paddy farm size, level of formal education, literacy, external contacts* and *participation in village level committees*. *Female* peasants had significantly less extension contacts than *male* peasants. The coefficients (τ_c) obtained for the correlation between extension contacts and these various variables were statistically significant at the 0.05 or 0.01 level. The identified correlates of extension contacts are well known from the extensive literature on the diffusion of innovations (see e.g. Rogers and Schoemaker 1971). However, some other correlates of "change agent contact" mentioned in many of these studies, such as living standard, per capita income, tenure status and relative deprivation were not verified by my statistical analyses. Nevertheless, my findings are in line with the general conclusion of the diffusion of innovation studies that change agents (e.g. agricultural extension workers) are most likely to be sought for information and advice, by those peasants who have a similar background both in education and knowledge of and contact with the society outside the village.

8.2 THE IMPACT OF FARM SUPPORT SERVICES ON PADDY CULTIVATION TECHNIQUES

The discussion should now focus on the question whether peasants responded to extension advice, seed supply and FO credit by making more use of recommended cultivation techniques. The officially recommended package of paddy cultivation practices in the Krian area was almost similar to that in Muda. In both areas, standard recommendations consisted of the following elements:

1. Use of officially recommended varieties;
2. Regular replacement of seed when using the same variety for several seasons;
3. Removing infertile seeds by the salt water technique;
4. Use of 25 kg of seed per ha to be planted;
5. Field preparation by rotavating twice;
6. Synchronized sowing at a date set by the irrigation authorities;
7. Application in the nursery of 0.7 kg ammophos (N:P=11:48) per kg seed;
8. Use of crop protection chemicals such as Sevin 85 or Thiodan in the nursery;
9. Application of compound fertilizer (Krian: 200 kg/ha; Muda: 140 kg/ha) as a basal dressing just before transplanting;
10. Transplanting of seedlings when 25 days old;
11. Planting density of 2-3 seedlings at about 1 foot by 1 foot intervals;
12. Application of urea (Krian: 100 kg/ha; Muda: 70-140 kg/ha) as a top dressing, half of which to be applied just before tillering and the rest at panicle initiation;
13. Use of crop protection chemicals and curative measures in case of pests;
14. Use of lime on acid sulphate soils.

With the exception of areas with acid sulphate soil, the recommendation was not differentiated according to sub-areas within the Krian or Muda irrigation schemes. The most important difference in the recommendations for the Krian and Muda areas was found in the amounts of compound fertilizer and area per unit of land. In kg of nutrients per ha the recommended fertilizer application in Krian contained 90 kg N, 35 kg P_2O_5 and 20 kg K_2O. For Muda the corresponding amounts are 55-85 kg N, 22 kg P_2O_5 and 14 kg K_2O per ha. The problems involved in the static character of the package of recommendations and the lack of adaptation to local variation in agricultural conditions, have been outlined in chapter 4.

Only some of the above-mentioned recommended practices could be expected to have an important effect on yield. These include the use of recommended varieties, the application of the right amount and type of fertilizer at the right time, synchronization of production activities and the use of crop protection chemicals. As indicated above, the recommendation to synchronize production activities is not adopted because the discipline required for this collective action cannot be achieved. However, the other recommendations can be adopted by peasants individually. In the following I discuss the effect of seed supply and extension activities on the use of recommended varieties and the effect of extension advice and FO credit on the application of fertilizers and crop protection chemicals. One should remember that the activities of FOs were only one of the various sources of change in production techniques. The main source of accelerated change has obviously been the construction of irrigation and drainage facilities and the development and release of new paddy varieties. FOs only played a complementary role in this process

In order to test whether the present FO services made a substantial contribution to the present use of recommended paddy cultivation practices, I compared the cultivation techniques of peasants who used FO credit or obtained extension advice, with those of peasants who did not. A statistically significant higher rate of adoption of recommended techniques by peasants who received FO services would indicate that these services indeed supported the use of new cultivation practices.

The method of analysis employed here has the drawback that if the nul-hypothesis (=FO services have no effect) is not rejected by the data, it can only be concluded that *at the time of the survey* FO services did not have any impact on the use of recommended cultivation techniques. This does not rule out the possibility that FO credit and extension advice had played a role in stimulating adoption of recommended techniques *in the years preceding the survey*, the adoption of new techniques by peasants to whom FO services were not available might have been the result of a process of copying these techniques, in the course of time, from the peasants who had received the services of the FO.

To my knowledge a similar comparison of peasant's actual cultivation techniques with the recommended practices, relating the observed adoption or non-adoption to FO membership, has only been attempted by Fujimoto (1976a, 1976b) in a village study in Kelantan. This study is based on a small sample (55) however, and does not analyse the effect of specific FO services such as FO credit and extension advice. The study also does not provide details about the reasons for adoption or non-adoption of the recommendations. Various other studies of the adoption of recommended paddy cultivation techniques, in response to FOs, have focused exclusively on FO members and, for instance, compared the latter's fertilizer use per unit of land over a number of years. An observed increase was then considered to be due to the impact of the FO (see for example Harun 1976: 124-125). Since these studies failed to include a control group of non-members in their research design, they did not rule out the possibility that non-members had likewise increased their fertilizer applications per unit of land. Therefore, their conclusions are not completely warranted.

8.2.1 The impact of farm support services on the use of recommended varieties

The method of distributing seed of recommended varieties in Krian and Muda has been discussed in chapter 4. As noted earlier only a small section of the peasants obtained seed directly from the seed farm either via the Department of Agriculture (Krian) or via the FOs (Muda). These peasants multiplied the seed and supplied, their neighbours, relatives and friends, on an exchange basis. By this method at the start of double cropping, practically all peasants had seed of the officially released new varieties, even though the seed farms in both Krian and Muda could only supply 5% of the seed requirements of the irrigation schemes.

The use of these recommended varieties increased rapidly, particularly in the initial stages of double cropping. The percentage of Muda peasants planting new varieties for their main season crop increased from 43% in 1969 (just before the start of double cropping) to 90% in 1972 (FAO 1975). For Krian no data on the spread of new varieties was available. However, in both areas the various official new varieties released have met with different rates of adoption depending on their particular characteristics and performance under farm conditions. As usual with modern paddy varieties, it has been a recurrent pattern that even widely adopted varieties lose the peasants' favour after a few years and are replaced with other new varieties, either those grown previously or newly released ones. Thus "Malinja" (Pebifun x Siam 29) and "Mahsuri" (Taichung 65 x Mayang Ebos 80, a local variety, released in 1965) both maturing in 135-140 days, lost popularity because they proved susceptible to blast (*Pyricularia oryzae*) causing "rotten neck". For Mahsuri this problem could be remedied by a backcrossing programme. Since

its re-release in 1969 under the name "Improved Mahsuri" it has been grown continuously, be it at present by a very small fraction of the peasants.

Subsequently released varieties, such as "Ria" (the IRRI variety IR 8, maturing in 120-125 days) and "Bahagia" (the Malaysian version of the IRRI variety IR 5, maturing in 137-140 days) had much higher yield potentials than Malinja and Mahsuri (5-6 ton/ha for Ria and 4.5-5 ton/ha for Bahagia, compared to 3.5 ton/ha for Malinja and Mahsuri), were much more responsive to nitrogen and moderately resistant to blast. Because of its short stature, however, Ria (IR 8) proved unsuitable to deep water conditions such as in Krian. Cultivation of Ria also involved higher costs for labour inputs. Labourers demanded higher wages because Ria required closer planting and because its short stature made harvest a back-breaking operation. Finally, it was in low demand on the local market because of its poor grain quality. Within a period of one or two seasons, most of the peasants had rejected Ria. Despite its medium height and better grain quality, Bahagia (IR 5) also lost much of its popularity within a few years after its release. A majority of the peasants did not obtain higher yields than with other varieties which tasted better.

Other still earlier maturing varieties which were released later, such as "Murni" (a Bahagia x Ria cross) released in 1972, the University of the Philippines variety C4-63, released in 1973, "Sri Malaysia" 1 and 2 (a sister line of Bahagia and a cross between IR 8 and an Indian variety) both released in 1974, have not been permanently accepted either. Reasons were dwarfness (Murni), susceptibility to blast (C4-63) and poor grain quality (Sri Malaysia) (Muda Irrigation Project 1975, Bhati 1976).

Since the middle of the 1970's there has been a tendency for peasants to grow non-recommended varieties of their own choice. In the Muda area the use of these non-recommended varieties has increased from 7% of the total area in 1973, to more than 90% in 1977 (MADA 1976, 1978b). For Krian, no such time series were available but a similar pattern emerged from peasants' reports during interviews for this study. In the main and off-season of 1977, 74% and 88% respectively, of the Krian area was planted with the non-recommended variety Mat Candu (Kementerian Pertanian 1977). These non-recommended varieties were not traditional *indica* types, but non-photosensitive short- and medium-duration varieties, of unspecified origin, obtained from relatives, friends or neighbours and usually originating near an experimental station (Bumbung Lima; Telok Chengai). It is likely that these seeds originated from MARDI's experimental plots and were selected by peasants for particular characteristics which are favoured by them (Fredericks *et al.* 1980).

These non-recommended varieties were named "Apollo", "Filipina", "Mat Candu", "Seribu Gantang", "Anak Dara Perlis", et cetera. As Bhati remarks about these varieties: "Naturally, there is considerable confusion about these unofficial varieties because within a single region one such variety may have more than one name. Also, a single name may designate different

paddy varieties for different regions. It is therefore really difficult to say much with certainty about these unofficial varieties. However, it appears that the yields per acre and agronomic requirements of these varieties are roughly comparable to those of approved varieties such as Mahsuri and Bahagia. In some cases (e.g. Mat Candu and Apollo) they have also fetched better prices because of the superior quality of their grain" (Bhati 1976: 32).

Some of these non-recommended varieties have been adopted on a much wider scale and have retained their popularity for a much longer period than the officially recommended ones. Examples are Seribu Gantang in the Muda area and Mat Candu in Krian, but even popular non-recommended varieties were sometimes replaced by new non-recommended ones. Peasants were constantly on the look-out for new varieties and were ready to try them out if they were recommended by relatives or friends. Thus, in the Muda FO-area studied, I noted that Seribu Gantang was being replaced by Anak Dara Perlis, which was essentially an adaptation to recent drought conditions in the area. The change was hidden in official statistics which showed a decrease of the percentage of peasants planting Seribu Gantang from 86% in the main season 1976/1977 to 71% in the off-season 1977, corresponding with an increase in the category of "other long grain varieties" from 7% to 21% (MADA 1977a, 1977b). My own sample shows that in the main season 1978/1979 Seribu Gantang was grown by 63% of the peasants and Anak Dara Perlis by as many as 71%. Many peasants grew both varieties at the same time.

The tendency to experiment with new varieties measured by the total number of non-traditional varieties which a peasant had tried out on his own farm, was particularly strong among Muda peasants. On average, the latter mentioned 3.3 varieties, whereas the same figure for Krian was only 2.7 The difference, which was statistically significant at the 0.2 level, should be attributed to the deep-water conditions in Krian which precluded experiments with many of the varieties being tried in Muda.

The combinations of varieties planted by the survey respondents in the main season 1978/1979 is shown in Table 8.3. The popularity of the non-recommended new varieties is immediately apparent from the table. In Krian, almost all the peasants considered Mat Candu as their favourite variety. Those peasant who grew other varieties, practically always planted Mat Candu as well. For them, the other variety formed a second choice. (I will return to the reasons for growing a second variety in due course.) In Muda on the other hand, some peasants still favoured Seribu Gantang, others the new variety Anak Dara Perlis, and again others were still trying out which of the two was best. Generally, however, each peasant had his favourite variety. Other varieties than Seribu Gantang and Anak Dara Perlis were almost always grown as a second choice, in combination with one or both of the former varieties. The "other" varieties comprised a wide diversity of names of mainly non-recommended varieties, all grown by a limited number of peasants.

Table 8.3 % of peasants planting various combinations of paddy varieties in the main season 1978/1979, excluding glutinous rice

Krian (n=114)		Muda (n=102)	
combinations of varieties	% of peasants	combinations of varieties	% of peasants
Mat Candu only	63	ADP + SG	36
Mat Candu + other	29	ADP only	26
other variety(ies)		SG only	21
than Mat Candu	8	ADP + other	7
		SG + other	1
		ADP + SG + other	7
		other variety(ies)	
		than ADP or SG	2
total peasants	100		100

ADP = Anak Dara Perlis
SG = Seribu Gantang

Most of these were non-traditional varieties, but in a few cases peasants planted a small portion of their main season crop with a traditional photosensitive variety, exclusively for home consumption. The only recommended varieties included in the category "other varieties" in Table 8.3 were Improved Mahsuri (still grown by 6% of the peasants in Krian, in most cases as a second variety next to Mat Candu) and Murni (grown by a very small fraction in Muda).

Criteria for selecting paddy varieties

The fact that in both areas under study so many peasants favoured one and the same variety was not due to some collective decision. The choice of a particular variety or combination of varieties was an independent decision of the individual peasant. From unstructured interviews and from discussions among peasants which went on in my presence when I was a resident in the village, it appeared that the popularity of Mat Candu in Krian and of Seribu Gantang and Anak Dara Perlis in Muda was due to a number of characteristics. Since even small farms sold a very substantial part of their crop, a most important consideration for peasants, in judging a variety, was the gross income which they obtained from their paddy. The varieties which gave higher gross incomes also provided higher net incomes, because both in Krian and Muda production costs were fairly similar for the various varieties considered; under the present double cropping conditions even traditional varieties could not be grown at significantly lower costs than the modern va-

rieties. Peasants were convinced that they obtained higher gross incomes with their present favourite variety, than with any other varieties with which they had experience, including such relatively successful recommended varieties as Bahagia, C4-63 and Improved Mahsuri. Apparently, these official varieties have not proved themselves superior under actual farm conditions.

The gross income obtained using a particular variety was not only determined by yield, which was usually expressed in local units of volume per unit of land, but since payment was by weight, the weight to volume ratio was also of importance. Because, the price per kg varied with the grain size and milling quality, gross income was also dependent on these factors. What counted for Krian peasants was that, although the yield performance and weight to volume ratio of Mat Candu were not very much better than those of other varieties such as Improved Mahsuri, the price for Mat Candu (a long grain variety) was usually much higher (a difference of 7%) than for Improved Mahsuri (a medium grain variety). Apart from this, Mat Candu has a number of other distinct advantages, such as its tall stature which is a very suitable characteristic in the deep-water conditions prevailing on most Krian peasants' fields.

In Muda, the characteristics of the most favoured varieties, Seribu Gantang and Anak Dara Perlis do not differ very much except that Anak Dara Perlis was said to be still better under drought conditions. Peasants did not agree as to which was the best. Compared to other varieties, however, both Seribu Gantang and Anak Dara Perlis yielded better and had slightly higher weight to volume ratio. Being medium grain varieties, however, their price was lower than that for a variety like Mat Candu.

Of course, when peasants discussed the advantages and disadvantages of various varieties, they mentioned many more characteristics than those listed above. But most of these characteristics were only brought up when one of the varieties considered either performed much better on any of these aspects or much worse than the present favourite variety. These characteristics included the morphology of the plant, susceptibility to lodging, uneven flowering, proportion of empty grains, susceptibility to diseases and pests (=expenditure on crop protection required), ease of hand threshing and growth duration. Subjective judgments of peasants concerning some of these aspects could vary considerably.

It is notable that taste, fragrance and cooking qualities were not a very important factor in the choice of a variety. Seribu Gantang, for instance, despite its wide popularity, was generally regarded as a variety with inferior cooking qualities, because its rice becomes hard when it cools after cooking[3)]. This characteristic is a nuisance since the women cook rice only once for each meal, whereas household members come in and eat their meals at different times. Still, many peasant households eat Seribu Gantang and very few take the trouble to grow an extra variety for home consumption. Mat Candu was regarded more favourably for its eating qualities, but here too the taste and cooking qualities have not been decisive.

In their discussions about various varieties peasants never mentioned risk and yield variability as criteria for judging and choosing a variety. They simply differentiated between varieties which provided lower or higher gross incomes, and the latter *always* gave higher gross (and net) incomes than the former. It follows that the more profitable varieties were regarded as the best guarantee of meeting minimum subsistence requirements. Apparently, in the peasants' eyes, risk did not increase with profitability. This observation is in line with the results of studies in other countries. Various authors have found that the most profitable varieties and techniques do not necessarily increase the objective probability of obtaining a net income which is below a specified "disaster level". Whether using the more profitable varieties and techniques is either more or less risky than alternatives appears very much dependent on particular environmental conditions, for instance availability of irrigation (Huang 1973, Roumasset 1976, Rosegrant 1977, Luning 1978).

Reasons for growing more than one variety

As indicated above, some peasants grew a second variety, (not counting glutinous rice) besides their favoured variety. In Krian and Muda this applied to 31% and 60% of the peasants respectively. But there were only a few who grew more than two varieties (5% in Krian, 14% in Muda). Besides this, some peasants grew a small plot of glutinous rice for home consumption (cakes, ceremonial meals).

There were several reasons for growing more than one non-glutinous variety. Firstly, some peasants grew a second variety for the purpose of experimenting with a new cultivar. Thus, the higher percentage of peasants growing more than one variety in Muda as compared to Krian, was mainly due to the fact that many Muda peasants were trying out Anak Dara Perlis, growing this new variety as well as the well established Seribu Gantang. In Krian on the other hand, there was no variety which could compete with Mat Candu.

Apart from such experiments, however, some peasants grew a second variety on a more permanent basis. Their main purpose was to spread labour demands by staggering transplanting and harvesting activities. To achieve this, they selected a variety with a slightly longer or shorter growing period than the favourite variety. Varieties with a longer growing period could be sown and transplanted earlier and harvested later than the main variety. Those with a shorter growing period could be sown and transplanted later and harvested earlier than the main variety. By seeing to it that not all their paddy would have to be transplanted and harvested within a few days, peasants could either make a better use of household labour, thereby sparing wages, or reduce the risk that not enough wage labourers would be available at the crucial moment. Similar results could be obtained with a single variety, however, by sowing at different dates, a practice which was also widely used. A combination of both methods (a second variety and sowing at

intervals) allowed a still greater spread of labour demands over time. Obviously, the peasants with large paddy farms made more use of these methods than those with small farms. In Krian as well as in Muda the use of these methods was strongly correlated with farm size.

Exceptional agronomic conditions on a part of a peasant's paddy field could form a third reason for growing a second variety when this variety was more adapted to these conditions than the variety favoured by the "normal" conditions prevailing in the area. In Krian not all the fields were deep and in Muda deep-water conditions were occasionally present, although they were an exception. Finally, as noted earlier, a few peasants grew a second variety for home consumption.

Summarizing the discussion in this section, it can be stated that peasants in Krian and Muda have responded favourably to the new paddy varieties. The spread of the new varieties following the provision of a limited amount of pure seed to a few enterprising peasants is a good example of an agricultural development which was initiated by the FOs (Muda) and the Department of Agriculture (Krian), but then took a direction which was mainly determined by the peasants themselves. Both FO members and non-members have quickly adopted the new varieties. There has been a continuous process of switching from one new variety to the other. Initially, this was in response to newly released recommended varieties. But since the middle of the 1970s peasants have started to grow their own selections of new varieties and have lost interest in the officially recommended ones. According to the peasants, the former are superior and yield higher gross incomes than the latter.

8.2.2 The impact of farm support services on the use of fertilizers

With very few regional exceptions, the use of manure was not a traditional part of Malay paddy-farming systems (Jackson 1972). This observation is true for Krian. The Muda area, however, is one of the exceptions. Peasants in the latter area, traditionally applied bat guano (*tahi kelewar* or simply *baja bukit*) once every three years (Kuchiba *et al.* 1979b). Some 42% of them still followed this practice at the time of this research, applying the guano in the period between harvest and land preparation for the new season. But chemical fertilizers play a much more important role at present. In both Krian and Muda, these fertilizers were first introduced in the middle of the 1950s and have gradually been adopted by all peasants. For the Muda area it was reported that there was a marked increase in the use of urea as improved paddy varieties were introduced. The use of nitrogen increased from an average of 8.8 kg/ha in 1966 to 45.6 kg/ha in 1973 (Muda Irrigation Project 1975). My survey in 1979 showed an average of 83 kg N/ha with a standard deviation of 21. For Krian, no such time series were available, but peasants reported that they gradually increased their fertilizer use each season when they learned about the effects on yield. The 1979 sample average in Krian was 69 kg N/ha with a standard deviation of 28.

The official recommendation on fertilizer use in Krian and Muda concerned the types of fertilizer to be used (urea and compound), amounts of each type per unit of land and the time schedule for their application. In current prices, the use of these recommended amounts of fertilizer involved a cash outlay of roughly $ 130 kg/ha in Krian and $ 90-125/ha in Muda. In order to promote adoption of this recommendation, the credit package of both FOs contained the recommended amounts per ha of each type of fertilizer. As mentioned before, FO borrowers could obtain any amount of fertilizer below the recommended rates per ha, and were not forced to take the full fertilizer package. The fertilizer component of the loan was the most popular element. Fertilizers were taken up by 84% of the FO borrowers in Krian and 95% of those in Muda, but not always to the maximum allowance.

In assessing the impact of FO credit and extension advice on fertilizer use, it should be clear that the fertilizer recommendation summarized above was only one of the considerations in the peasant's decision-making on fertilizer use, and usually one of minor importance. There were no peasants who simply copied this schedule. Each peasant had his own ideas about the quantities and types of urea and compound fertilizer to be used, the ratio of compound to urea and the order and timing of their application. He followed a recipe which he developed himself from experience and continued to use this recipe as long as his results were comparable to those of others in similar conditions. Only when he was no longer satisfied, did he try to improve his recipe by making use of the experiences of other peasants. In ordinary conversations, neighbours, friends and relatives regularly exchanged information on the advantages and disadvantages of the various techniques which they had tried out. Those peasants who did not want to obtain fertilizers on credit also had to adapt their recipe to their financial circumstances each season. When they were very short of cash they postponed fertilizer application until a yellowing of the leaves indicated that earlier applications had been used up. Thus there existed a multiplicity of fertilizer recipes which, in most cases, bore only a vague resemblance to the official recommendation and were constantly being adapted to new personal experience and information obtained from other peasants.

Peasants differentiated fertilizers according to type, form and brand. The types differentiated were urea (*baja yuria*) and compound fertilizers (*baja campuran*). The latter could be obtained in powder form (*debu*) as well as in granular form (*biji*). Various brands of both urea and compound fertilizers were available from local retail shops. These were referred to by local names such as *cap kepala ayam* (ICI) and *cap Jerman* (Hoechst). Peasants related the performance of various sorts of urea and compound fertilizers to their form and brand and not to the active ingredients of which they were often not aware. Sternberg (1977), who also reported this, mentioned an example of a peasant who classified various brands of urea (all containing 45%N) according to quality. There might be a rational element in such clas-

sifications, however. For instance, in my interviews with peasants, the latter often complained that the urea distributed by the FO (*cap peladang*) became hard when kept for some time, whereas other brands such as Hoechst did not. An example of the importance of form in the selection of a suitable fertilizer was the preference for granular compounds rather than powder types. This was because the peasants believed that, since granules sink to the bottom of the field, this type of compound could not flow over to neighbouring fields just as easily as powder types which float on water.

In the following I will first discuss the extent of adoption of the *amounts* of urea and compound fertilizer recommended. Later in this section, I will return to such aspects of fertilizer use as *order* and *timing* of the application of correct proportions of various fertilizers.

8.2.2.1 Amounts of fertilizer used

Table 8.4 shows that in the Muda area, the recommended amounts of urea and compound fertilizer had been more widely adopted than in Krian. In the latter area 31% of the peasants used less than the recommended amount of urea, against only 1% in Muda. Compound fertilizer was used at lower than recommended amounts by 83% of the Krian peasants compared to only 27% of their Muda counterparts. On average, Krian peasants applied 77% of recommended amounts of nitrogen per ha, against Muda peasants 98%. One should take into account here, that recommended amounts of urea and compound fertilizer in Muda were lower, so that adoption was less costly than in Krian. But even then, the average expenditure on fertilizers in Muda ($ 149/ha) was significantly higher than in Krian ($ 109/ha). The lower fertilizer applications in Krian could be due to lower yields, even using high applications of fertilizer (see section 8.3), the differences in varieties grown, the deep-water conditions which strongly dilute fertilizers and sometimes cause part of the fertilizer to float over to neighbouring fields during heavy rain. The literature provides several examples which indicate that inter-regional differences in fertilizer use due to differences in the yield potential of the environment are not uncommon (see e.g. Barker and Anden in IRRI 1975: 23,27-28,39).

Table 8.4 also indicates that in both areas the recommended amounts of urea were accepted on a wider scale than those for compound fertilizers. This higher popularity of urea is due to its highly visible effect on plant growth. In Krian, there were even 47% who used more than the recommended amount of urea.

For most peasants in Krian and Muda, the current amounts of urea and compound fertilizer used were the highest levels that they had ever used. Some 34% in Krian and 32% in Muda, however, had tried out the effects of 20-30% more fertilizer than their current level, occasionally with some success, but because of a temporary shortage of cash they used less fertilizer in

Table 8.4 Adoption of recommended amounts per ha of urea and compound fertilizer (% of peasants)[1]

amount applied is	Krian (n=114)		Muda (n=102)	
	urea (% of peasants)	compound[2]	urea (% of peasants)	compound[2]
below recommended amounts	31	83	1	27
equal to recommended amounts	22	8	80	54
above recommended amounts	47	9	19	19
total peasants	100	100	100	100

[1] Recommended quantities per ha were different for Krian and Muda (see text)

[2] This includes various compounds of other than recommended N:P:K ratio

the season 1978/1979. As mentioned below, there are indications that peasants have reached a point on the production function where no spectacular marginal returns could be expected from extra expenditures on fertilizers.

FO fertilizer credit was primarily intended to guarantee that a shortage of cash did not play a role in decision-making about the amount of fertilizer to be applied. Thus, in measuring the effect of FO credit on fertilizer use, the important question is whether this credit enabled FO borrowers to use more fertilizer than others. This was most adequately indicated by comparing the cash equivalent of the fertilizer inputs which each of these categories used per ha. This was a relatively unambiguous indicator of fertilizer use, since FO borrowers bought their fertilizer inputs for more or less the same price per kg, as other peasants. Other possible indicators of fertilizer use, such as the amount of N/ha or the total kilogrammes of urea plus compound fertilizer per ha were more ambiguous. Because a kg of urea was more expensive than a kg of compound fertilizer[4)], peasants who preferred a high ratio of urea to compound would score lower on total kg of fertilizer per ha and higher on total kg of N per ha than peasants who spent exactly the same amount of money per ha, but favoured a high ratio of compound to urea. The peasants' scores on these two indicators would not be completely due to their financial ability to apply fertilizer, but also to their preference for a certain type of fertilizer.

Independent variables

A regression analysis was used to test whether extension advice and FO credit encouraged and enabled peasants to make higher expenditures on fertilizer per ha. Access to extension advice was measured by the variable "extension contacts" discussed above. Use of FO credit was indicated by a variable which differentiates peasants who used FO credit (FO borrowers)

and peasants who used shop credit or did not use credit (non-borrowers) and peasants. Apart from these two independent variables, I included a third one: FO membership. The latter variable does not measure use of a specific FO service. It was nevertheless included because the per ha expenditure on fertilizer of FO members, even when they did not use FO credit in the season to which the survey applied, might have been higher than that of non-members, because the use of FO credit in the previous seasons accustomed them to the use of more fertilizer.

Control variables

Before testing for the impact of FO membership, FO credit use and extension contacts on the per ha expenditure on fertilizer, it was necessary to eliminate the possible independent effect of other variables on this expenditure, particularly when the latter variables might be correlated with access to FO credit and extension advice. In this way one could avoid obtaining so called "spurious" correlations. The variables in question are paddy farm size and net income per household member.

Both the results of the anthropological fieldwork for this study and the survey outcome showed that, in Muda, large paddy farms spent more on fertilizer per unit of land than small farms (see Table 5.8b). The difference remained significant ($P<0.05$), even when the possible effect on fertilizer use exerted by the large farms' better access to FO credit was eliminated. In Krian, however, no such relationship between paddy farm size and expenditure on fertilizer per ha was found. In an earlier publication (Fredericks *et al.* 1980), I attempted a preliminary interpretation of these findings. It was hypothesized that fertilizer use per ha was primarily dependent on the available net income per household member, a variable which had not yet been calculated from the data at that time. Thus the fact that fertilizer applications on large farms in Muda were higher than on small farms was attributed to the higher net incomes earned on large farms. The absence of a relationship between paddy farm size and expenditure on fertilizer per ha in Krian was attributed to the much lower net incomes earned in Krian than in Muda. It was later calculated that, even on the large Krian farms the average annual net income per household member ($ 313) was lower than on small Muda farms ($ 477). This would have made practically all Krian peasants hesitate to spend much money on fertilizer, whereas in Muda this hesitation would be confined to the smaller farm size categories.

Before I discuss the reasons for the above-mentioned hypothesis, its implication for the analysis in this section will have to be clear. Since farm size and net income per household member were supposed to affect the per ha expenditure on fertilizer the tests for the significance of the influence of FO services on this expenditure have been done while controlling for the possible independent impact of farm size and net income per household member. These controls were exercised both in Krian and Muda. If these ef-

fects had not been controlled, it would have been possible to find a positive correlation of FO credit use with the per ha expenditure on fertilizer, even if FO services did not have any effect at all, simply because large farms with higher net incomes per household member were over-represented among the FO borrowers and under-represented among the peasants without access to FO credit.

There were two reasons for the above mentioned hypothesis relating the per ha expenditure on fertilizer to net income per household member. Firstly, peasants themselves suggested that they would use more of these inputs if they had higher incomes. Peasants generally used fertilizer at levels which they themselves regarded as sub-optimum. (In the following discussion the term "optimum" refers to the peasants' subjectively defined optimum level of fertilizer application, which differs for each peasant and is not always equal to recommended amounts.) In Krian, 70% of the peasants believed that using more fertilizer than their present levels would increase their income. The corresponding figure for Muda was 51%. When, subsequently, I asked these peasants why they still did not use optimum amounts of fertilizer, the majority answered that they did not have enough cash and were afraid to borrow more fertilizer. Moreover, the potential yield increase was not considered as very substantial, indicating that, from the peasants' subjective point of view, the theoretical optimum production level where marginal returns equalled marginal costs had practically been reached (see section 8.3). They considered that if the expected slightly higher yield did not materialize or if the cash value of the yield was substantially reduced because of rain during harvest, the higher debt obligation would force on them more rigid economies or greater dependence on consumer credit.

Apparently, even though conscious of the relationship between extra fertilizer and higher yield, peasants were acutely aware that - given their already substantial current levels of fertilizer application - this relationship was subject to uncertainties and, more important, that the effect was often not visible. This does not mean that risks would be substantially increased by raising fertilizer use to the optimum level. The extra expenditure of raising the fertilizer level to the optimum over the total farm acreage would be no more than the earnings of a few days of wage labour. What peasants meant is that, given their present income levels and the uncertain and relatively low marginal return on the extra expenditure on fertilizer, they preferred to spend their cash or credit facilities on the satisfying of more pressing needs. Only if they would have enough income to satisfy the latter needs first and then still have cash left, would they take the chance of applying more fertilizer.

A second reason for the hypothesis relating the large farms' higher per ha expenditure on fertilizers to higher per capita net incomes than on small farms was that this interpretation was found frequently in the literature on the socio-economic aspects of changes in paddy production. In his analyt-

ical summary of a series of UNRISD studies on the "Green Revolution", Pearse observed that with the advent of the new technology (high yielding varieties, increased fertilizer use, irrigation) large farmers, even more frequently came to surpass the smallholders in intensity of husbandry and fertilizer use, in production costs and in yield (Pearse 1980). The various studies, cited by Pearse, attributed the observed trend to the fact that "cultivators holding less than a certain minimum of land are liable to diseconomies of scale (e.g. in obtaining institutional production credit) and are more vulnerable to risk than cultivators with larger holdings" (Pearse *op. cit.*: 119). This greater vulnerability to risk was seen as a direct consequence of the lower incomes obtained by smallholders (Pearse *op.cit.*: 111-112, citing Bhalla 1972: 35).

These findings of Pearse and others create the impression that the new technology is causing a reversal in the traditional inverse relationship between farm size and intensity of cultivation, including the application of manufactured fertilizers, which was so often observed in Asia. (For evidence of this relationship and for various explanations of its existence see for example Bardhan 1973, Roumasset 1976, Pearse 1980.) Whether or not a development as suggested is indeed occurring in Asia in general and in Malaysian paddy growing areas in particular has not been proved conclusively. The literature shows that this trend is by no means general. It is most consistent in studies done in optimum wheat-growing areas. The six UNRISD studies in paddy producing areas cited by Pearse did not present a clear picture. Only two of them gave data about input costs by size of holding. One of these studies, concerning commercial paddy production in a district of the Punjab shows that inputs of fertilizers per unit of land increased with farm size (Kahlon and Singh 1973). The other, a village study done in Province Wellesley, Malaysia, shows a U-shaped curve: expenditure on fertilizers per unit of land is highest on the very small farms (<1 acre), lowest on farms of 1.01-2.00 acres and then gradually increases with increasing farm size (Bhati 1976). The four other UNRISD studies on paddy only give data on yield by size of holding, which is at best a very rough indicator of intensity of fertilizer use. Half of these studies show a positive correlation between farm size and yield per unit of land, the other half a negative correlation (Pearse 1980).

Similarly inconclusive results were obtained from a series of 36 village studies on changes in paddy farming in six South and Southeast Asian countries published by the International Rice Research Institute (IRRI 1975). Summarizing the results of these studies, Barker and Anden conclude that significant differences in access to fertilizer between large and small paddy farms were only found in those villages with a relatively unequitable distribution of farm sizes (as indicated by the Gini coefficient). In villages with a more equitable distribution, the effect of farm size in obtaining fertilizer was not statistically significant. They also found that

farm size had a stronger effect in South than in Southeast Asia (IRRI 1975: 37-38).

The picture for Malaysia is not much clearer than that, that emerged from the various UNRISD and IRRI studies. Among the various socio-economic studies done in Malaysian paddy-growing areas, such as those by Narkswasdi and Selvadurai (1968), Selvadurai *et al.* (1969, 1969, 1972) and the World Bank/FAO study on the Muda area (FAO 1975), there are very few studies which relate expenditures for various inputs per unit of land to farm size. The lack of data prevents a dynamic analysis of possible developments in the last two decades. Moreover, those studies that provide the required data on fertilizer expenditure per ha are usually based on small samples (40-80 respondents) and seldom provide information on the statistical significance of the observed differences. Three to five years after the introduction of modern varieties and double cropping in the Kelantan plain, Moktar Tamin and N. Hashim Mustapha (1975) found a negative correlation between farm size and fertilizer applications per ha. Two years later Fujimoto (1976a) also found a statistically significant negative correlation in a village study in the same area. For the West coast, I found only three studies which related the expenditure on fertilizer per ha to farm size. One of these is Bhati's study of a village in Province Wellesley, Penang. The results of this UNRISD study have been mentioned above. Another study in Province Wellesley which covered four villages, found a n-shaped curve for the relationship between expenditure on fertilizer inputs per ha and farm size (Purcal 1971). A final study relating input use per ha to farm size is a survey study by Fredericks and Wells (1977) in Tanjong Karang, Selangor. The latter study showed a U-shaped curve for the relationship between farm size and the per ha expenditure on fertilizers. In all these studies on the West coast, the differences in expenditure per ha between the various farm size categories were small and, in most cases, probably not statistically significant. Unfortunately, no comparative data is available for the Krian and Muda areas. More research will be required to determine whether there is indeed a trend that large farmers surpass smallholders in intensity of input use. It should be noted here that even if such a trend could be verified empirically, one need not expect dramatic consequences for the income distribution[5)]. Although statistically significant, the differences between large and small Muda farms in the total per ha expenditure on fertilizers should not be exaggerated: on average, small farms (<1.0 ha) spent $ 133/ha, medium farms (1.0-1.5 ha) $ 151/ha, and large farms (>1.5 ha) $ 170 ha. The pattern remained similar when farms were sub-divided over five farm size categories based on 1 acre (0.4 ha) intervals. Still more important from the point of view of effects on income distribution was that yield per ha did not increase when more was spent on fertilizers. The net return per ha (=gross production per ha minus per ha expenditures for fertilizer) was negatively correlated with expenditure on fertilizer per ha (see section 8.3).

Tests of significance

It follows from the foregoing discussion that the regression analysis to test for the effect of farm support services on the per ha expenditure on fertilizer involved the following variables:

independent variables:	1. use of FO credit
	2. extension contacts
	3. FO membership
control variables:	4. farm size
	5. annual net income per household member
dependent variable:	6. expenditure on fertilizer (in $/ha)

The regression analysis was used to perform an analysis of variance in a number of steps. The first step involved the testing of the statistical significance of interaction effects between the various independent and control variables. These (two-way) interaction effects were represented by dummy variables which were constructed by multiplying each of the independent or control variables with each of the others. Both in Krian and Muda, the joint effect of the total set of interaction effects was not statistically significant at the 0.05 level. The second step was to test whether the control variables did indeed have a statistically significant effect on the per ha expenditure on fertilizer, independent from the effect of FO membership, use of FO credit and extension contacts. Those control variables that had an independent significant effect were retained in the third and final step. This step involved the separate testing of the addition that each of the independent variables made to the variation in the dependent variable explained by the other two independent variables and the retained control variables. The regression analysis was performed on the basis of all cases in the stratified random sample discussed in chapter 2 (Krian: 177; Muda: 185). As mentioned there, the stratification criteria were primarily chosen for the purpose of this regression analysis.

For Krian it was found that the joint effect of the total set of the independent plus control variables on the expenditure on fertilizer per ha was not significant at the 0.05 level. The percentage of variation in the dependent variable explained was small (R^2=0.06). In Muda the joint effect of the total set of independent plus control variables was statistically significant at the 0.05 level. However, the percentage of variation in the dependent variable explained was not much more impressive than in Krian (R^2=0.10). It appeared that the significant joint effect was only due to the independent influence of paddy farm size. The other control and independent variables did not make a statistically significant contribution to the variation in fertilizer expenditure explained by farm size (at 0.05 level)[6].

It can be concluded from these findings that FO borrowers did not spend more money on fertilizer per ha than non-borrowers, and that the per ha expenditure on this input of FO members and peasants with extension contacts did not differ from those of non-members and peasants without extension contacts. These findings hold in both in Krian and in Muda. Apparently, these farm support services did not (or no longer) have any impact on the intensity of fertilizer use.

8.2.2.2 Timing and order of fertilizer applications

The recommended practice of spreading the total amount of fertilizer over three applications was followed by 32% of the Krian and 37% of the Muda peasants. Almost all others used two applications. The reasons for this practice will become clear in due course. Concerning the order of application of various fertilizers, it was found that a majority (Krian: 66%; Muda: 75%) followed the recommended practice of applying compound fertilizer before the application of urea. The rest either did not use any compound fertilizer (Krian: 6%; Muda: 10%) or applied compound and urea in the reverse order (Krian: 28%; Muda: 15%).

The survey data indicated that similar percentages of FO borrowers and non-borrowers, of FO members and non-members, and of peasants with and without extension contacts had adopted the recommended order of application of compound fertilizer and urea. The differences in adoption between these various categories were not significant at the 0.05 level.

Even though a majority of peasants in both Krian and Muda applied compound fertilizer before urea, this was practically never done *before* transplanting, which was the practice officially preferred. The main reason for this general non-adoption was high water levels. The absence of water control at farm level and the unco-ordinated nature of plot to plot irrigation meant that peasants in both FO-areas studied, either could not drain water from their fields when these were low-lying or were unwilling to release water when their plots were slightly elevated. Peasants in the latter situation feared that they would not be able to obtain new water when they needed it. As a consequence the water level in the peasants' fields was usually much higher than it should have been for the proper application of fertilizers. In Muda, water dephts of 15 cm were normal, whereas in Krian they were frequently still deeper. In these circumstances fertilizer flowed over to neighbouring fields during heavy rains. When applying a compound fertilizer before transplanting, peasants were afraid that the fertilizer would be lost due to rain, before the newly transplanted paddy would be able to absorb it. These problems concerning the application of compound fertilizer before transplanting were also reported by Ouchi *et al.* (1977) and Bhati (1976). Another reason for the non-adoption of this practice was that it would cause much more weed-growth should the paddy field fall dry within a short period after transplanting.

When compound fertilizer was not applied before transplanting it could not be broadcast earlier than one or two weeks after transplanting. The reason was that one could not walk through a freshly transplanted field without disturbing the seedlings, particularly in the soft and swampy fields in Krian. Thus of all peasants who applied compound fertilizer as the first dressing in Krian only 15% applied this within 10 days after transplanting compared to 49% in Muda. Cumulatively, in Krian 65% applied compound fertilizer within 15 days and 92% within 20 days after transplanting. The corresponding cumulative percentages for Muda were 91% and 99%. The timing of this basal dressing was not positively affected by extension contacts or other FO services.

As a consequence of this late application of compound fertilizer, the first application of urea which should be broadcast about three weeks after transplanting (i.e. in the early tillering phase) was normally postponed until later. Peasants considered it to be uneconomical to use urea shortly after the application of compound fertilizer. They preferred to wait until the earlier application had been completely absorbed. Of those peasants who used compound fertilizer for the first application, only a very small fraction (Krian: 11%; Muda: 20%) applied urea within 30 days after transplanting. The rest either waited until later in the tillering phase - and only applied urea 30-39 days after transplanting (Krian: 24%; Muda: 24%) or still later (Krian: 29%; Muda: 26%) - or did not apply urea during tillering at all (Krian: 36%; Muda: 30%). The latter confined themselves to a single application of urea at the time of panicle initiation, whereas the peasants who applied urea late in the tillering phase often left out the urea application at panicle initiation. Thus the late application of compound fertilizer did not only lead to a postponement in the timing of urea applications, but often also led to a skipping of one of the two recommended urea applications. This explains why so many peasants practised two instead of the recommended three fertilizer applications.

In both Krian and Muda the timing of the urea application in the tillering phase and the practice of skipping this application altogether were chiefly determined by the question whether a peasant used compound fertilizer as a first application or not. Those who used compound fertilizer postponed the timing, or skipped the application of urea, whereas those who did not use compound fertilizer generally managed to apply urea at the recommended time. In Krian, 33% of the latter used urea within 2 weeks after transplanting and, cumulatively, 87% within 25 days. The corresponding figures for Muda were 55% and 90%. FO services appeared to have no effect at all on the timing of the first urea application.

8.2.3 The impact of farm support services on the use of crop protection chemicals

The traditional ways of preventing or curing diseases and pest attacks were to choose propitious dates for sowing and transplanting with the help of the Muslim lunar calendar, to placate the "soul of the paddy" (*semangat padi*) or to chase evil spirits through rituals such as *kenduri tolak bala*. Sternberg who studied some of these practices in the Krian area found that these beliefs were still prevalent among some old people, but only in particular parts of Krian. These practices were no longer followed by younger peasants who considered them unsuitable for double cropping (Sternberg 1977) For the Muda area, Affifudin observed that modern chemicals have eradicated some of the traditional rituals in pest control. In 1972, only less than a quarter of the peasants still adhered to these traditional practices (MADA 1973). At the time of the fieldwork for this study practically no one in the Krian and Muda FO areas under study followed these traditional methods.

The disappearance of the old practices did not mean, however, that modern chemicals were used on a wide scale. Here I will confine myself to the practices used at present to protect the paddy crop in the field from pests. As these have not been serious occurrences hitherto, most peasants in both Krian and Muda did not use crop protection chemicals for preventive purposes, but considered it cheaper to undertake curative measures when there were signs of pests. The preventive doses recommended, costing $ 45 per ha, were generally regarded as a waste of money. Most extension workers were aware of this and confined their recommendations to the kind of chemicals to be used (Sevin 85, Thiodan) without mentioning specific amounts. Even peasants who regarded their own measures as preventive spent only a small sum per ha (Krian: $ 6/ha; Muda: $ 14/ha). This category comprised less than 40% of the peasants in both Krian and Muda. For curative use, peasants almost always first tried out the effectiveness of cheap chemicals available from local shops. But if this proved ineffective, they were willing to buy the more expensive chemicals. In cases of serious damage, they contacted the FO or the Department of Agriculture for advice and subsidized chemicals. Therefore, the low average per ha expenditures on crop protection chemicals in the main season of 1978 (Krian: $ 4/ha; Muda: $ 9/ha) should be primarily attributed to the relative freedom of insect pests.

Crop protection chemicals were the least popular element in the FO credit package, taken up by 38% of the FO borrowers in Krian and 33% in Muda. Nevertheless, both in Krian and Muda, many more FO borrowers did use some crop protection chemicals in the main season of 1978. Most of them obtained these inputs from local shops. The reason why this element of the FO loan was little used is obvious: At the time of the loan application, peasants did not yet know whether the input would be necessary. Since both in Krian and Muda most chemicals were used for curative purposes, the total per ha

expenditure on crop protection chemicals was mainly determined by the occurrence of insect pests and not by access to FO services. Still, it appeared that FO services did promote the *preventive* use of crop protection chemicals. In Muda, this practice was positively correlated with the use of FO credit (τ_c=0.22; P<0.02). In Krian, however, FO credit did not stimulate the preventive use of crop protection chemicals. In both areas, the practice did not show a statistically significant correlation with extension contacts and FO membership.

8.3 EFFECTIVENESS OF FO SERVICES IN KRIAN AND MUDA

In concluding the discussion in the previous sections, I will make some final remarks about the peasant's response to the various FO activities intended to encourage the use of improved paddy cultivation techniques. This section also pays attention to the limited possibility of further increasing fertilizer use. The final part of this section then focuses on the differences in adoption of new paddy cultivation practices between Krian and Muda.

The peasants' response to FO services

It appears that, although the credit and agricultural extension activities of both FOs studied (and of the Department of Agriculture in Krian) may have contributed to the adoption of certain techniques in the past, their *present* contribution to a further improvement of prevailing paddy cultivation techniques was very limited. This should not be attributed to unwillingness of the peasants to adopt innovations. Peasants generally responded to the new opportunities created by double cropping and the introduction of new types of input and recommended techniques by trying out these innovations. Practices which clearly proved advantageous were retained and have since been commonly used even by the majority of the peasants who never obtained any FO credit or extension advice at all. On the other hand, those techniques which did not work were rejected. Therefore, the present lack of impact of credit and extension activities should be primarily attributed to the static character of the package of officially recommended paddy cultivation techniques, which has not changed for several years. It contained nothing new for the peasants. Similar indications that the present impact of FO activities is very limited were found by Fujimoto in a village study in Kelantan (Fujimoto 1976a).

The current situation was, that in both Krian and Muda, each peasant had developed his own individual package of production techniques which he regarded as the most appropriate to his circumstances. This package was still constantly being improved as new experiences were added or new information became available from other peasants. Although the various individual packages of cultivation practices showed only a very vague resemblance to the officially recommended package, the peasants nevertheless obtained substan-

tial yields. As indicated in chapter 4, in Krian main and off-season yields were in the order of 2.9 and 3.0 tons of paddy per ha respectively. For Muda, the corresponding figures were 3.8 and 4.1 tons of paddy per ha. In the peasants' eyes these yields could stand the test of comparison with those obtained by the more expensive and cumbersome recommended practices used on official demonstration and trial plots. Very often, peasants claimed they obtained even more using their own methods.

These findings indicate, that the presently available package of officially recommended cultivation techniques did not really prove itself superior to that currently used by the peasants. For the Muda area, the contention of the peasants is supported by the results of experiments in the Tanah Merah Pilot Project area during the main seasons of 1977/1978 and 1978/1979. This pilot project was undertaken to test the feasibility of the proposed construction of tertiary canals and improved water control facilities under the Muda II project mentioned in chapter 4. For the first season, extension officers persuaded all 27 peasants in a sub-block of the pilot project area to participate in an experiment with improved cultivation techniques. This experiment also involved the co-ordinated implementation of farming activities (the so called Irrigation Service Unit concept). In the second season, several adjacent sub-blocks were involved in the pilot project. Peasants received all necessary inputs and were closely supervised. A collective nursery provided seedlings of a newly released variety (MR 7) for all participants. The results of a crop cutting survey to compare project yields with those obtained with "peasant techniques" outside the pilot project area showed slightly higher yields for the project participants in the first season, but considerably lower yields in the second season[7)]. No suitable explanation was available for this outcome. In view of the more intensive use of cash inputs, the project participants would have obtained a lower net income per ha if these inputs had not been subsidized.

Similar evidence to support the peasants' claim that their own cultivation techniques were not clearly inferior to the officially recommended package was available for Krian. Sternberg (1977: 69-70) provides data on inputs and yields for the seed station of the Department of Agriculture in Krian at Titi Serong, which could be compared with similar data for the peasants in my sample. The seed farm obtained average yields of 3.1 tons of paddy per ha, which was 14% above the average of 2.7 tons obtained by the peasants, representing a marginal increase in gross output of $ 183/ha. However, this marginal increase was obtained at the cost of much higher investments in labour and cash inputs. The seed station's investment of $ 309/ha for fertilizer and crop protection chemicals was $ 196/ha above the peasants' average of $ 113/ha (and also much higher than the recommended amounts which cost about $ 175/ha). It is clear that the marginal increase of $ 183 did not even compensate this extra cash expenditure, not to mention the extra labour inputs. Thus the average peasant obtained a higher net return per ha than the seed station.

One must conclude then, that both in Krian and Muda, peasants used a fairly efficient mix of paddy cultivation techniques, given the lack of suitable recommendations adapted to the local circumstances. At the same time, however, this demonstrates that there is a great need for such recommendations based on scientific experiments. It should also be noted that whereas peasants individually made an efficient use of available technical opportunities, this cannot be said of the peasants as a group. The lack of co-operation in production activities made it possible to obtain the full benefits of the new technology.

Possibility of further increasing fertilizer use

Although not all peasants used the recommended amounts of fertilizer, there seems to be no possibility of further increasing fertilizer applications as long as the present social and technical constraints remain unresolved. These increases would require that higher per ha expenditures on fertilizer under the present conditions give a sufficient marginal return. The question whether this is the case is difficult to answer, since one does not know the production function of each individual peasant. My data can only answer this question if it were assumed that all peasants in one particular area were on the same production function. This assumption might not be completely justified, however, if only because of differences, in soil conditions and in water depths, on individual peasants' plots. Other assumptions which had to be made were: (1) that there were no substitutes for fertilizer, (2) that the effect of other inputs did not interact with the effect of fertilizer, or, (3) that such other inputs were similar for all peasants (*ceteris paribus*). Because these assumptions were not tested, the results of the statistical analyses presented below should not be regarded as conclusive evidence, but merely as indications which raise questions for further research.

For Krian, it was found that the total expenditure on fertilizer per ha was positively correlated with yield per ha ($r=0.16$; $P<0.04$). Apparently, those who spent more obtained higher gross incomes per ha. The question is whether the marginal increase in gross income obtained was sufficient to compensate the higher costs. One could test this by correlating the cash expenditure on fertilizer per ha with the gross income per ha from which this cash expenditure has been deducted[8)]. A positive correlation would indicate that the higher expenditures were more than compensated for by the marginal increase in gross income. The absence of a correlation would mean that marginal returns were just enough to compensate the higher costs. Finally, a negative correlation would mean that higher expenditures were not fully compensated by the marginal returns or that there were no marginal returns or even negative returns. When one computes this correlation coefficient for Krian, one finds an r of 0.09 ($P<0.18$). Apparently, when the cost of fertilizer was deducted from gross incomes per ha, the peasants who

spent more did not earn significantly higher incomes per ha than those who spent less. Because of the above-mentioned restrictions, I cannot draw firm conclusions from this data. Nevertheless, it is an indication that encouraging peasants to use more fertilizer than they do at present might not improve their incomes at all.

For Muda, the findings were even more critical. It was found that the total per ha expenditure on fertilizer was not significantly correlated with yield per ha ($r=0.07$; $P<0.23$). Those who spent more did not obtain higher gross incomes per ha than those who used their cash inputs more sparingly. It is not surprising, therefore, that there was a negative correlation between the cash expenditure on fertilizer per ha and the gross income per ha from which this cash expenditure had been deducted ($r=-0.15$; $P<0.07$). Again, the restrictions outlined previously do not allow that this finding is taken as proof. But it does form an indication that the prevailing view, that simply stimulating the use of more fertilizer per ha will improve the peasants' incomes, might well be a faulty one, at least as long as fertilizer is not used more efficiently than at present.

These findings indicate the great need for further research to assess the productivity of the recommended fertilizer levels and to develop more adapted packages of cultivation techniques which take account of the various constraints under which the peasants labour. This research should also try to assess to what extent the effectiveness of fertilizer could be improved through co-operation in water control and production activities. Such research should be multi-disciplinary in nature with contributions from agricultural economics, rural sociology, agronomy, soil science, and irrigation engineering. This type of research is already being tried in some other South and Southeast Asian countries under the aegis of the Irrigated Rice Agroeconomic Network (see IRRI 1977).

Differences in adoption in Krian and Muda

The foregoing sections showed that the pattern of technical change in Muda was much more dynamic than the one in Krian. However, my findings indicate that this difference should be attributed to the favourable *environmental* conditions prevailing in Muda as compared to Krian, rather than to the different *organizational* setting of the Muda FO compared to the one in Krian. In the latter area, the environment was not suitable for many of the new varieties which were tried out successfully in Muda, and mechanization in Krian was hindered by unfavourable soil conditions. Furthermore, the Krian area's deep-water conditions precluded early transplanting and affected the amount of fertilizer applied per ha. The organizational setting on the other hand, did not lead to great differences in the way in which FO credit and extension services were supplied to the peasants. As shown earlier, in both areas FO credit supply was an almost identical administrative activity involving no other service than the processing of loan applica-

tions, disbursement of cash and inputs and their delivery to the farm. Despite the fact that the organizational set-up in Muda offered better opportunities than in Krian to link credit supply to extension activities, this was not capitalized on in actual practice. The activities of MADA's Training Unit were no more integrated with FO credit supply than those of the Department of Agriculture in Krian. Furthermore, the distinct advantage of the availability of an extension worker among the FO staff in Muda, which was not the case in Krian, did not have much effect. This staff member tended to become absorbed in other activities and agricultural extension work did not have high priority. Both in terms of quality and in terms of the number and type of peasants reached, the credit and extension services provided by the Muda FO were not clearly superior to those of the FO in Krian.

9 *CONCLUSIONS AND RECOMMENDATIONS*

In this final chapter, the conclusions that can be drawn from this study are summarized and some recommendations are made. The first section discusses the overall effects of government intervention on paddy production and incomes. The actual role of the FOs in this process is compared with the goals that the FOs were expected to achieve. This is followed by a brief comparison of the effectiveness of FOA and MADA in stimulating the FOs.

The second part deals with recommendations for the improvement in the performance of FOs and solutions to the problems identified. As indicated, some of these recommendations have already been communicated to the agencies concerned, via a seminar, fieldwork reports and an earlier publication, to which I have contributed (Fredericks *et al.* 1980). It is hoped that these recommendations will help to put the FOs on a more solid footing and stimulate further practical research that could contribute to this end.

9.1 CONCLUSIONS

Developments in paddy production

In the foregoing I have analysed the responses of Malay peasants in the Krian and Muda areas to government intervention in paddy production. The focus of the study was on the peasants' responses to the government's attempts to stimulate them to organize themselves in Farmers' Organizations (FOs). Government activities in paddy production in these areas were the construction of large scale drainage and irrigation schemes to enable the double cropping of paddy, the development and introduction of new paddy cultivars, and a large scale agricultural extension campaign to popularize the new paddy cultivation practices in the years before double cropping was introduced. Other government activities involved the provision of inputs and short term production credit and a price support programme for paddy.

I have shown that double cropping, the use of new paddy cultivars and cultivation techniques, including chemical fertilizers, have been quickly seized upon by peasants regardless of the size of their farm. The fact that "big" peasants in Muda used more fertilizer than "small" ones does not affect this conclusion; my findings suggest that the lower applications on small farms represented a more profitable use of the new techniques.

Peasants have continuously experimented with new paddy varieties, fertilizers and mechanization, adapting their package of cultivation practices to new experiences. The Muda area, as compared to that of Krian, proved to be a more suitable environment for these experiments. Soft soils in Krian prevented large scale mechanization. Furthermore, in Krian the risks of flooding

precluded the use of varieties with a short stem. Instead, peasants favoured the use of tall varieties usually with a relatively long growth period (e.g. Mat Candu). Under these conditions fertilizer was probably less effective than in Muda, where water depths were lower and the risk of flooding less thus allowing the use of varieties with a relatively short stem. Due to these conditions, fertilizer use and yields in Muda were higher than in Krian, and the pattern of change was more dynamic. Nevertheless, fertilizer use in both areas can be considered as relatively high given the prevailing physical conditions.

Further improvements in cultivation techniques and paddy incomes appear constrained by the absence of on-farm water control and the fact that co-operation to control water and co-ordinate production activities was difficult to achieve. One of the consequences was a non-adherence to cropping schedules and the consequent inability to obtain two crops per year.

Higher yields, increased cropping intensity and higher paddy prices have been the major causes of increases in the real annual net incomes of paddy growing peasant households in the Krian and Muda areas, since the introduction of double cropping. These developments have made paddy a still more important source of income than it was before, particularly for small peasants who could now shift their labour inputs from poor man's side activities, to the more attractive production of a second crop. It can be stated that peasants in all farm size categories benefitted from increased opportunities for employment and productivity, leading to higher incomes.

Recent research in the Muda area has revealed indications of an increased polarization in the paddy area operated per farm. This is attributed to two developments. One is the large scale mechanization which made it more attractive for enterprising peasants to rent extra land. The second development is that increased net incomes per ha have induced the heirs of very small plots who formerly would have left the area, to remain. The results of these developments are difficult to predict because of the piecemeal information available. In the short term, the predominance of close kinship ties between landlords and tenants is a guarantee against the large scale eviction of tenants.

Planned and actual role of the FOs in the development process

In each of the areas of research, FOs were established as an initiative of the government and their number was quickly extended to cover the whole irrigation scheme. FOs were intended to perform a number of functions within the complex of developments outlined above. Firstly, they were supposed to increase the peasants' productivity by providing farm support services to individual peasants. Secondly, the FOs were expected to promote co-operation between the peasants in order to co-ordinate paddy production activities with a view to increasing cropping intensity, reducing damage from pests and improving water control and cultivation techniques. Thirdly, FOs were in-

tended as a focal point for the co-ordination of the activities of various government agencies related to paddy production. A fourth function was the development of diversification projects in the small scale industries sector, using the members' capital resources contributed in the form of share purchases.

The role of the members in the selected FOs

The FOs were supposed to function as associations administered by their members rather than as government agencies. However, in establishing FOs both the FOA (in Krian) and MADA (in Muda) gave priority to a quick increase in the number of these organizations, which meant that there was no opportunity for the time consuming process of training FO members and leaders and building up member solidarity and ideological commitment. The initiative, buildings, funds and the manpower to run the FOs came almost exclusively from the FOA or MADA. This tendency of government agencies to act on behalf of the peasants rather than help the peasants to act for themselves, is understandable in view of the formidable problems involved in the development of permanent co-operative organizations in a loosely structured society, and in view of the electoral pressure on the government to provide tangible benefits and to divide them relatively quickly and equally over the rural areas. However, the ensuing reliance on government initiative and resources, and the neglect of the need to build a solid organizational commitment among members had important negative consequences. The ultimate object of creating organizational structures, which would enable the peasants to use available economic opportunities through collective effort and give them a larger influence in the development process, was almost completely lost sight of. The members' involvement in the administration of the FO was further restricted by the fact that communication between the FO staff and FO leaders on the one hand, and the ordinary members on the other was limited and inadequate. A large section of the FO members regarded the present government support and guidance as a permanent phenomenon. The result was that most members had a very passive conception of their role as members. If this is not changed, this creates a vicious circle in which the government is continuously forced to make up for the lack of support from the members.

In this respect parallels could be drawn with the postwar co-operative movement which was also extended very quickly by government agencies without much attention to the need to build up the behaviour patterns required to make co-operative organizations a success. Very few of these co-operatives have become viable economic enterprises which could count on their members' support.

Within the general pattern of emphasis on government initiative, there was a slight difference between the two FOs studied. In Krian there were no indications of systematic efforts to increase the solidarity and commitment of the members. However, the general manager of the Muda FO had paid some

attention to the need to stimulate member-contributions and to improve communication with the members. There had also been a relatively strict selection of members with a view to their reliability. This was not the case in Krian. However, although these efforts met with some success, the results were far below the level required for a more independent development of the FO. In order to reach this level, the economic benefits of FO membership should be increased, while simultaneously taking consistent measures to increase member-contributions. I will discuss these measures in the next section.

At the time of fieldwork for this study the FOs functioned primarily as government supported channels to provide services to the peasants, and as communication channels between peasants and government agencies. This communication sometimes resulted in certain adaptations of the activities of centrally directed government agencies, to the wishes of the members, but this does not make the FOs into *farmers'* organizations.

The economic functions performed by the selected FOs

The actual role which the selected FOs in Krian and Muda played in the development process was very limited when compared to the role expected of them. The main function of FOs in both Krian and Muda, taking up most of the staff's time, was the provision of short term production credit and the related supply of chemical inputs. The emphasis on this single function has a number of limitations and affects the peasants' response to the FOs in a negative way.

An important limitation of the credit function is that at present it does not have an effect on productivity. My findings indicate that FO borrowers and non-borrowers do not differ significantly in their use of the major aspects of the new paddy technology. It seems therefore that the present concentration on the provision of credit is on uneconomic use of resources, unless it could be proved that the discontinuation of this function would lead to a scarcity of credit or to a situation in which shopkeepers would have a monopoly of the credit market. However, in my view, neither of these propositions are likely. It can be concluded that FO credit in the selected areas had no other effect than the provision of an income subsidy in the form of a cheap interest rate.

A further disadvantage of the emphasis on the provision of credit and the related inputs is that it has contributed to the prevailing image of the FOs as a channel for government subsidies, rather than an organization which could help the peasants to develop themselves as a group. Most of the members only joined the FO to get access to the cheap production credit and easy cash loan facilities. The FO credit was primarily advantageous to the peasants who operated relatively large acreages, so the FOs in both Krian and Muda appealed mainly to the "big" peasants. Although, as indicated this did not have the effect of excluding small peasants from the benefits of

the new technology, it did however mean that the low interest rate subsidized a group other than the target group intended by the New Economic Policy.

The above shortcomings of the credit programme and lack of attention to the training of members and FO leaders in performing organizational roles have contributed to the main problems facing the FOs, i.e. the non-repayment of loans and the inability to solve this problem. The lack of action against bad debtors, despite the consensus of opinion favouring this action, is a consequence of the fact that peasants have not been trained to assume that it is a normal task of an elected board and the members to enforce regulations and control each other, for the protection of their own mutual interests. This behaviour pattern, required to make permanent goal-oriented organizations work, does not exist in their own society and has to be acquired through training and internalisation, provided that these behaviour patterns have clear economic advantages. At present, the members and the board pass the responsibility for the exercising of this control to the staff, FOA or MADA, and accept that the matter will be retarded by them, probably because these officers fear that opposition parties might take advantage of the government's harsh attitude if legal action is taken against the thousands of bad debtors in the Krian and Muda areas.

Apart from the credit task, only the FO in Muda had been able to develop other activities of some economic importance. The FO operated a poultry farm, an urban supermarket and a village retail shop. However, these business activities undertaken by the Muda FO remained limited in scope. The present activities do not exceed the scale of the many ordinary Chinese family businesses in the area. This makes it difficult for the FO to compete, since it has to rely on paid labour, whereas most family businesses do not. FOs, as formal organizations, also incur extra costs for administration, as a written record has to be kept of all money transactions. More sophisticated economic activities would require specialisation and the exploitation of economies of scale.

Other tasks assigned to the FOs, either received very little attention, such as the provision of extension advice on paddy production, or were not undertaken at all, such as the promotion of co-operation among peasants in the production process.

The relative effectiveness of the Krian and Muda structures

In both Krian and Muda, the co-ordination of activities of government agencies, involved in the development of the paddy sector, was done at the project level either via a project authority (MADA) or a loose co-ordination at District level (Krian). At the area (FO) level, many activities were carried out without much co-ordination, even in Muda, where conditions were more favourable for the co-ordination of activities, as all agencies were responsible to MADA.

The main advantage of the organizational set-up in the Muda area compared to that in Krian, was that the MADA project authority covered a much smaller area than the state office of the FOA supervising the FOs in Krian. This facilitated communication between FO staff and their supervisors. The latter could also give the field staff more support. This may have given the Muda FO an advantage when undertaking business activities. However, these factors had no effect on the operation and results of the credit programme which were no better than those in Krian. This is because the routine character of the latter activity in its present form made it less dependent on support and frequent consultation with supervisors. This observation, based on a study of a single FO in each of the research areas, is in line with the observations made by Kalshoven based on interviews with a significant proportion of the FO general managers in Krian and Muda (see Fredericks *et al.* 1980).

9.2 RECOMMENDATIONS

It appears that the selected FOs have only made limited contributions to the development of the local economy and have served primarily as a government operated means of providing subsidies (low interest credit) to the peasants with larger farms. There are several reasons why this unsatisfactory situation needs to be changed. Firstly, the FOs were established to achieve more. Secondly, a continuation of the way the FOs operate at present involves certain risks. Should the growth of the national economy slow down, the large subsidies inherent in the present FO activities might be difficult to maintain. Therefore, it is essential, to make FOs serve a more directly productive purpose. Certain measures are also required to help the members play a more meaningful and significant role in the FO. A number of possible solutions are presented below.

Improvement of agricultural extension

At present extension in Krian and Muda is not very effective, primarily because the task is seen as the giving of advice to peasants, i.e. as a one-way flow of information. The content of the advice is rather static and not adapted to variations in local conditions. Peasants have of their own accord already tried out these recommendations and incorporated them in their cultivation practices, if they were found to be useful. They also experimented continuously with new cultivation practices in response to experiences of other peasants. This tendency of the peasants to experiment on a wide scale is praiseworthy, but from a national economic point of view, it is probably a very expensive way of finding the best cultivation techniques.

If these experiments were co-ordinated, this would be a more economic way of using resources. In this respect, extension officers could play a more significant role, than just repeating a relatively static message. This

could be achieved by concentrating their efforts on the identification of local constraints experienced by the peasants, the communication of this information to MARDI and the development, in consultation with MARDI, of a plan of simple research activities that could be carried out with the help of peasants in the FO-area and be directly of practical relevance to the local situation. This requires a two-way flow of communication between peasants, extension workers and researchers. With some improvements in the internal communication, the FOs could be organized to fulfil this function. In order to facilitate communication with MARDI, peasants should be given some insight into the possibilities and impossibilities of research and development.

Another way in which the costs of experimenting by peasants could be reduced, is by making them aware of the active ingredients of fertilizers. This could prevent them from repeating unsuccessfull experiments using a certain brand of fertilizer, with another brand, containing exactly the same ingredients. Peasants regard this type of information as too theoretical but, their interest can be aroused if the considerable practical advantages of this theoretical knowledge is explained to them properly.

Stimulating co-operation of peasants in paddy production

Although FOs were expected to play a role in co-ordinating and synchronizing the production activities of peasants on large scale irrigation schemes, at least within certain limits set by labour constraints, in actual practice, they do not fulfil this role. In order that the maximum benefits are obtained from the construction of tertiary facilities under the Muda II and Krian/Sungei Manik projects, the planners once more propose to co-ordinate production activities and water distribution, by organizing the peasants in Irrigation Service Units (ISUs) as sub-units of the FOs. These ISUs are considered to be important instruments to improve the yields per ha, reduce water losses and increase crop intensity.

It seems worthwile to make some comments on the possibilities of establishing ISUs. The problems involved are easily underestimated. A necessary condition to obtain the peasants' co-operation, is that they would get a significantly larger net income than without co-operation. If this is not the case, they will not be willing to give up their individual freedom. This means that the government agencies responsible should be certain of the potential yield increases resulting from the construction of tertiary facilities and co-operation in ISUs. At the time of fieldwork for this study the results obtained in pilot projects were in this respect as yet not convincing. No ISUs should be established, before methods have been found to solve the technical and organizational problems involved.

The organizational problems require some extra attention. It is obvious that all the peasants in an irrigation unit have to co-operate, because the non-co-operation of even one peasant in an ISU would threaten the benefits

to all the other peasants. His field would attract pests, he could block the water from flowing to other fields, et cetera. This means that all peasants have to be willing to accept a considerable curtailment of their individual independence and that they carry out the required operations at the agreed time. When peasants are mobilized into ISUs the problems should be explained to them clearly. They should be aware that these sacrificies, although in the common interest do not benefit each and every individual peasant in the irrigation unit to the same extent. This means that solutions have to be worked out to compensate those peasants who do not benefit sufficiently from co-operation, but whose participation is essential. Apart from this, peasants have to be willing to exercise and accept control of each other's activities and to apply formal sanctions to peasants who do not fulfil their obligations. All this will not be easy since this type of behaviour is frowned upon in the village society. The teaching of these behaviour patterns will require continuous efforts by the government agencies responsible for the introduction of ISUs.

Co-ordination of FO tasks with the role of other agencies in paddy production

The establishment of ISUs does not only mean that the peasants must co-operate, but also requires the co-ordination of the activities of FOs and various government agencies such as the Department of Irrigation and Drainage (DID) and the Department of Agriculture (DOA) in Krian, or the Division of Agriculture and Engineering Division in Muda. This task is far too complex to be left to the relatively inexperienced FO staff, who furthermore miss the required authority. Nevertheless, it appears advisable to combine at the area level the field staff of these various organizations under a common management, with a co-ordinating authority. In Krian the co-ordinating manager at area level, should be directly responsible to the proposed project co-ordinator for the Krian/Sungei Manik project. Much will depend on the authority that the project co-ordinator will be able to establish over the FOs and the DID and DOA. This will depend primarily on the extent to which he receives ministerial backing. In Muda, the co-ordinating manager at area level should fall under MADA's general manager. Co-ordination here, will probably be more easily achieved than in Krian, as MADA controls all the organizations involved.

For each production season, the combined staff at area level should work out a plan of action for every ISU, in co-operation with the peasants. This plan should show the various activities undertaken by the separate agencies at each phase of the production process and the connection between these activities.

Small scale industries

Official project papers expect yield increases of up to 30%, with improved water control, peasants co-operation and inter-agency co-ordination under the Muda II and Krian/Sungei Manik projects, However, even if these yield increases could be realized, the income growth would still be far too small to satisfy the high aspirations of the peasants. Therefore, efforts will have to be made to identify business and industrial activities, that can be undertaken by FOs or a combination of several FOs, and that significantly improve income and employment in the FO-area. The identification of such activities is a difficult matter and cannot be left to the FO staff. The main products of the Krian and Muda areas, paddy and straw, provide only limited opportunities for processing industries. It is also unlikely that the processing of raw materials imported from outside the areas could be a profitable enterprise. The costs of the products of these industries will probably be lower if produced in the nearby industrial and port centre of Penang.

Thus the identification of more meaningful industrial activities to be undertaken by FOs, requires specific research and development activities. Only small scale industries should be undertaken, that can become viable enterprises within a relatively short period and will not always have to depend on subsidies. If suitable activities could be identified, the implementation of these activities by FO staff requires a high standard of supporting services. In this respect a regional authority such as MADA offers specific advantages. Firstly, in stimulating research into the opportunities for small scale industries and in selecting particular industries, a regional authority can take into account typical aspects of the region. A second advantage is that it provides better backing because of the shorter communication links when compared to those of FOs under FOA.

These small scale industries have more chance of success if experienced managers, with a business background can be appointed for this work. The job requires a training which is totally different from that of the present FO staff and general managers. Another important condition for success is that the responsibility for these activities and all decisions related to them is primarily with the FO and not with MADA or FOA. The latter should confine themselves to the provision of advice and supporting services.

Increasing the members' role in the FO

The foregoing recommendations mainly concerned measures to increase the impact of the FO on the incomes and employment of their members. Parallel to these measures, steps should be taken to increase the influence of the members on the FO and their willingness to make the sacrifices that are necessary to make the FO work. It should be noted, firstly, that a substantial increase in the economic benefits of FO membership is a prerequisite for the development of this willingness. However, this increase in economic

benefits is not a sufficient condition in itself. Besides this there should be sufficient incentives for the members to make these contributions. This means that those who make larger sacrifices should receive more benefits, i.e. the benefits of co-operation should not be a "collective good". Furthermore, the members should be helped to develop, accept and internalise the norms relating to their roles in the organization. This is not a matter of simply explaining what is expected of them. Apart from the FO, there are many others who make demands on the limited resources of the individual. The norms defining the members' obligations to the FO should take account of these other demands and of the fact that the FO has to compete for the resources of the individual member. This means that the members themselves have to reach an explicit consensus about what priority should be assigned to obligations to the FO. Another requirement which has already been mentioned in connection with the plans to establish Irrigation Service Units is that members are taught to exercise and accept mutual control and to apply sanctions to those who do not keep to the negotiated norms.

It is realized that the role of government agencies in promoting these various developments through training programmes and other activities is essential. At the same time it should be noted, that these various measures cannot be successful if the government does not make its own support for the FO conditional upon the support given by the members.

Apart from the above-mentioned measures, an improvement of the members' role in the FO, requires that they are given a much larger say in the administrative decision-making process in the organization and that the influence of agencies like FOA and MADA is reduced considerably. This does not only mean a transfer of decision-making power from these agencies to the boards of directors of the FOs. It also requires that the influence of the members on the board is greatly increased, e.g. by formally organizing the consultation of ordinary members by FO leaders on a regular basis, and by providing more information on the activities of the FO via a regular and simple information bulletin, distributed to all members.

Functional differentiation

The improvement of agricultural extension, the promotion of co-operation in the paddy production process, the running of small scale industries and the training of FO leaders and ordinary members are very different tasks, requiring different skills. It is obvious that the present staff who are trained in agriculture only could not perform all of these tasks. This means that staff with a more diverse educational background and work experience need to be employed. Furthermore, a proper performance of these various functions, means that a certain functional differentiation should be adhered to within the FO. There have to be guarantees to prevent extension workers or staff involved in small scale industries being forced to neglect their work, because their help is required for the performance of other tasks. In

order to achieve this end it is essential that each sub-division in the FO formulates clear targets and a detailed schedule of activities for reaching these goals.

Further socio-economic research

The present study has highlighted a number of problems that constrained the involvement of peasants in organizational structures intended to increase their productivity and give them more influence on their own development. In this final chapter, I have suggested the direction in which solutions for these problems could be found. More detailed plans of action aiming at the achievement of this end have to be worked out by the agencies and peasants concerned. It is essential, however, that this process is accompanied by socio-economic research activities with a view to identifying the most effective organizational measures and activities needed to achieve the intended goals. These research activities will have a more experimental character than the present study and compare the effectiveness of various alternative approaches to the suggested solutions as these are tried out in the field.

A detailed study of the attempts to mobilize peasants into Irrigation Service Units (ISUs), the various practical solutions of the problems that crop up in the process of co-operation, and the effectiveness of these solutions can be expected to produce interesting results. Based on this information, widely applicable models could be worked out so that ISUs could be organized and operate more effectively. Another interesting topic requiring experimental research is the development of training programmes and other measures aiming at increasing the members' role in the FO, developing norms, and establishing roles with which the members can identify.

Apart from these various research activities, the need for research aiming at the identification of more meaningful economic activities to be undertaken by the FOs, e.g. in small scale industries has already been indicated. Indeed the identification of such activities is a prerequisite for many of the experiments indicated above. Finally, developments in farm size and income distribution and their social effects should receive continuous close attention, with a view to adjusting the policy to take into account the possible negative consequences, particularly for small tenants who rent from non-relatives.

GLOSSARY OF MALAY TERMS AND ABBREVIATIONS

bumiputera	"son of soil": one who belongs to the indigenous population
CPR	Centre for Policy Research
derau	labour exchange in paddy production
DID	Department of Irrigation and Drainage
DOA	Department of Agriculture
FA	Farmers' Association
FO	Farmers' Organization
FO-area	the area covered by a Farmers' Organization
FOA	Farmers' Organization Authority
GMP	Guaranteed Minimum Price
gotong royong	form of co-operative activity in which villagers work together for a common purpose (usually not lasting more than a few days)
haji	Muslim who has made the pilgrimage to Mecca
imam	Muslim official
IRRI	International Rice Research Institute
ISU	Irrigation Service Unit
kampung	village
kati	local weight measure (0.6 kg)
kenduri	social occasion related to significant events in life (birth, marriage, death) and celebrated by a communial meal
kenduri arwah	communial meal in commemoration of a deceased relative (usually only close relatives and good friends are invited)
kenduri tolak bala	communial meal to chase away the evil spirits
ketua kampong	village chief
ketua kampong area	administrative sub-division headed by a village chief
khairat kematian	burial fund
LCC	Local Credit Centre operating as agent for the Agricultural Bank
MADA	Muda Agricultural Development Authority
MARDI	Malaysian Agricultural Research and Development Institute
MCE	Malaysian Certificate of Education
NAPRA	National Padi and Rice Authority
NEP	New Economic Policy
owner-operator	a peasant who works his own land
owner-tenant	a peasant who is part owner and part tenant of the land on which he works
pajak	to rent land for more than one season, with payment of the total rent for all seasons at the start of the first season

penghulu	sub-district officer
pikul	local weight measure (60.5 kg)
PMIP	Pan-Malayan Islamic Party
poverty line	an officially determined income level which is just sufficient to provide for the basic requirements of food, clothing, housing and transport
SAU	Small Agricultural Unit, or sub-division of a Farmers' Organization
SAU chief	chief of Small Agricultural Unit
sewa	to rent land for a period of one season with a fixed rent paid at the beginning of the season
sewah hidup	to rent land for a period of one season with a fixed rent paid after harvest; the rent is often adjusted in case of a very high or low yield
SPSS	Statistical Package for the Social Sciences (Nie *et al.* 1975)
surau	small Muslim prayer house
syarikat pinggan mangkok	crockery society
tumpang	literally: to be a guest, passenger. Here: obtain FO credit via a relative or close friend
UMNO	United Malays National Organisation
VSDC	Village Security and Development Committee
zakat	a tithe required of Muslim grain producers (amounting to 10% of gross yield per crop season)

NOTES

Chapter 1

1) The term Farmers' Organization (FO) is used as a general classifier throughout this book to refer to, Farmers' Associations (*Persatuan Peladang*), Farmers' Co-operatives (*Pertubuhan Koperasi Peladang*), and Farmers' Organizations (*Pertubuhan Peladang*).
   The proliferation of names is confusing. There is formally a difference between these various organizations, as will be explained in chapter 3, in actual practice this is of minor importance.
2) FOs were also established in other parts of the country where peasants depend on crops other than paddy. However, this study deals specifically with FOs in large scale irrigation schemes where paddy is double cropped.
3) The only function not integrated into MADA is the marketing of paddy, which is at present the concern of the federal National Padi and Rice Authority (NAPRA).
4) In various MADA publications (Afifuddin 1975, 1977a, 1977b) reference is made to work groups of peasants co-operating in paddy production, but in the FOs studied these work groups did not exist.

Chapter 2

1) Another reason for matching the Krian FO with that of Jitra, rather than with the Pendang FO is because the latter was not particularly successful, whereas both the Jitra and Gunong Semanggol FOs were regarded by MADA and FOA staff as being among the better ones in the Muda and Krian areas respectively.
2) A copy of the questionnaire (in Malay) may be inspected at the Department of Rural Sociology of the Tropics and Subtropics of the Agricultural University of Wageningen, Hollandseweg 1, Wageningen, Holland.
3) The following were reasons for not responding: (1) refusal (Krian: 2; Muda: 3), (2) illness (Krian: 1) and (3) temporary migration to another state as contract labourer (Krian: 1; Muda: 3).
4) Strictly speaking the results of siginificance tests based on the samples of 114 households in Krian and 102 household in Muda can only be considered valid for the population of Malay paddy farming households in the *ketua kampong* areas sampled. However, since the samples are a fair representation of the total population of the *ketua kampong* areas in the FO-area, the results can be considered as being valid for the total population of Malay paddy farming households in the whole FO-area.

Chapter 3

1) Actually Malays, Chinese and Indians are not races, but ethnic groups. However, both in ordinary conversation and in official publications these ethnic groups are often referred to as races (see e.g. Third Malaysia Plan 1976).
2) All amounts mentioned are given in Malaysian dollars. Rates of exchange on 1 January 1982 were as follows:
   1 M$ = US $ 0.44
   1 MS = Nfl. 1.13.

Chapter 4

1) The floating nursery technique which I observed confirms other recent descriptions by Sternberg 1977 and Kuchiba *et al.* 1979b, but differs from earlier descriptions (Pratt 1911, Jack 1923, Grist 1959). The latter describe how the seedlings were transplanted one or two times more to wet nurseries before they were finally planted out in the fields. This indicates that there has been a change from multiple to double transplanting. This change, however, was not due to the introduction of double cropping and must have occurred earlier.
2) Low repayment rates are a general problem of credit programmes for small peasant farmers (Agency for International Development 1973). In South-east Asia the BIMAS programme in Indonesia and the Masagana 99 programme in the Philippines are examples in question (Asian Development Bank 1977).
3) The mobilization of members and the formation of FOs is discussed in more detail in chapter 6.
4) Actually, some of these co-operatives had used foreign capital but the bank that provided these funds had gone bankrupt seven years prior to the start of the fieldwork for this study. Since then interest payments had stopped.
5) In June 1978, FOA introduced a zonal system in Perak, whereby a regional office was established at Parit Buntar serving the five FOs of the Krian area. As indicated in an earlier publication, it was too early to make observations on the frequency of meetings under this new provision. The same restrictions apply to the Muda region, where sub-regional offices to facilitate supervision have recently been created (Fredericks *et al.* 1980).
6) These combines were developed jointly by MADA and the Japanese Tropical Agricultural Research Centre.

7) It should be noted in this respect that, whereas in all other FO areas in Krian the DOA and FO shared the same office buildings, this was not the case in the Gunong Semanggol area. In the latter area the DOA had a separate office at some distance (3 km) from the FO office.
8) The general manager concerned was transfered because, at the instigation of his personal enemies, UMNO had applied political pressure. The manager was said to be opposed to political activities in or via the FO.

Chapter 5

1) Enrolment in primary schools in the rural areas in Malaysia is 90-100% and a large proportion of the children in the 12-14 and 15-18 age groups (lower and upper secondary) are enrolled in secondary schools. In one village study in the Muda area enrolment percentages were 77% in the 12-14 age group and 55% in the 15-18 age group (Murata 1978). Kuchiba (1978) who studied a village in the Muda area in 1964, 1968 and 1976, reports that the great importance that peasants in that village attach to schooling, is a development of the last decade.
2) Unmarried children with jobs were only found in 5% of the Krian and 7% of the Muda households.
3) MADA (1973) reports that in a survey of villages in the Muda area more than 75% had Village Security and Development Committees that had not met for three years.
4) When a non-Malay is converted to Islam, this is normally referred to by saying that he or she "became a Malay" (*masuk Melayu*). Apart from the Malays and a few converts from the other ethnic communities, the Islamic community in Malaysia also comprises a small group of Indian Muslims.
5) Sahlins (1972) differentiated various types of reciprocity. "Generalized reciprocity" refers to the exchange of goods and services for which the "giver" does not expect an immediate and equivalent return. The flow of goods from one partner in the exchange to the other can be unbalanced for a long period and is not stopped by the absence of a return. A good example is the flow of goods between parents and children.
6) The term "balanced reciprocity" is also derived from Sahlins (1972). It refers to the exchange of goods or services for which the "giver" expects an equivalent return within a relatively short period.
7) This data was obtained from the census used in constructing the sampling frames for this study.
8) A share tapper is someone who taps someone else's trees in exchange for 50% of the output. This type of share cropping is the normal way of renting rubber land.

9) Permanent jobs are the only exception. Peasants with permanent jobs employ wage labour or mechanized services for land preparation, transplanting, harvesting and transport. The rest of the work is done in the week ends. On work days the wife might perform some minor tasks.
10) Most peasants were only willing to answer this question after some discussion. They considered that mentioning a preference would mean an unpermitted interference in their offspring's individual decision-making. Ultimately, only 82% of the peasants in Krian and 94% of those in Muda answered the question.
11) The difficulties involved in selling land are outlined in section 5.4.
12) Other forms of transferring usufructuary rights to land such as share cropping (*pawah*), the conditional sale (*jual janji*) and mortgage (*gadai*) are extremely rare (Wilson 1955, Jegatheesan 1976). I found no cases and do not discuss these forms.

Chapter 6

1) The board of directors had the power to reject potential members but in reality selection did not take place at this level. In both FOs studied, no membership application had ever been refused by the board, who followed exclusively the recommendations of the leaders in the SAU which the applicant wanted to join. These leaders tried to prevent formal applications from peasants who were not acceptable to them, by discouraging the latter from applying on their own initiative. This is a delicate matter, however, and the rare applicant who persists would not be rejected.
2) The term was introduced by Simon (e.g. Simon 1970).
3) The margin of surplus income is defined as the margin of total per capita net income over the sum of per capita subsistence requirements and unavoidable cash expenditure for consumption.
4) The disadvantages of FO credit mentioned are similar to those which have been found by studies of other institutional credit programmes. Examples can be found in studies such as the A.I.D. Spring Review of Small Farmer Credit (1973) and Adams and Graham (1979).
5) The latter argument is also reported by Afifuddin (1975: 31).
6) Information provided by the Head of MADA's Evaluation Unit, Mr. S. Jegatheesan.
7) Most peasants (Krian 72%; Muda 67%) believed that their incomes would remain stable. Those who believed that their incomes would decrease referred to such reasons as physical deterioration due to old age, depossession of rented land and, in some cases, increasing input prices.

Chapter 7

1) FOs are complex in comparison with most of the earlier co-operative societies and other organizations which rely fully on peasants. Their complexity does not, however, exceed that of a family-based business firm. They employ between 10 and 25 workers, including the staff.
2) Note the similarity with the quote from Gullick (1965) in section 5.2 (the part on co-operation and the solution of common problems).

Chapter 8

1) Farmers' Association Act, 1967.
2) This appeared a better indicator than the frequency of contact with one particular method; it seldom happened that peasants obtained advice by the same method more than once.
3) Chandler (1979) notes that this characteristic is also judged to be important in various other Asian countries.
4) In both Krian and Muda, the price of compound fertilizer was about 40 cts per kg, whereas urea cost about 50 cts per kg. There were, however, several more expensive compounds. The highest price recorded in both areas was 65 cts per kg.
5) If changes in income distribution occur in the future, they are much more likely to be due to other developments, such as the mechanization of transplanting, which might lead to a further polarization of farm size.
6) The absence of a correlation between net income per household member and intensity of fertilizer use indicates that the large number of peasants who said that they would use more fertilizer per ha if they had more money were apparently thinking of much larger incomes than those found within the existing income range. Given the present income range, even the peasants who were in the highest income category apparently had too many pressing needs to fulfil to warrant expenditure on extra fertilizer and other inputs which have an uncertain influence on yields. It is possible that the hypothesis would not have been rejected if there had been a greater differentiation in incomes, but this is mere speculation.
   This leaves the difference in intensity of fertilizer use between various farm size categories in Muda unexplained. *Ex post*, I hypothesized various other variable that could have explained this difference. These were variables which might have been correlated with farm size and might also have affected intensity of fertilizer use in one way or another. These variables included the quality of water control, soil fertility, available household labour per unit of land and, finally, the relative importance of paddy income versus other sources of income. A discussion

of the various theoretical viewpoints which led to this selection of variables would be out of the context of the subject of this chapter. In order to test whether any of these variables was indeed the "true" cause of the relationship between farm size and fertilizer use per ha, I used each of them as a control variable while calculating the partial correlation coefficient between farm size and intensity of fertilizer use. The correlation of farm size and fertilizer use was not affected by these controls. Apparently, none of these variables could provide an *ex post* explanation for the observed relationship of farm size to intensity of fertilizer use per ha.

7) This information was provided by MADA's Evaluation Unit.

8) Since an increase in gross income also meant increased payments of *zakat* (10% of gross yield) and, in Krian, increased labour costs for reaping and threshing (each 10% of gross yield), one should take account of these factors while assessing the marginal return to the peasant. In the calculations, I took into account the influence of *zakat* by setting the gross income to the peasant at 90% of the gross production value. The influence of increased labour costs on marginal returns was not removed.

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SAMENVATTING

Deze studie gaat over de reacties van de Maleise rijstboeren op de inspanningen van de Maleisische overheid om hen te organiseren in zogeheten Farmers' Organizations. In West-Maleisië (het schiereiland) is de verbouw van rijst geconcentreerd in enkele kustvlakten waar rijst het voornaamste - en voor de meeste boeren het enige - gewas is en de belangrijkste bron van het gezinsinkomen. Door de kleine omvang van de bedrijven en de lage produktiviteit vormen deze gebieden "eilanden van armoede" in een land dat vergeleken bij zijn buurlanden in Zuidoost Azië betrekkelijk welvarend is.

In de zestiger en zeventiger jaren heeft de Maleisische overheid een aantal maatregelen genomen om het inkomen van de kleine rijstboeren te verbeteren en de binnenlandse rijstproduktie te verhogen tot het niveau van de binnenlandse vraag. In het kader van deze maatregelen werd de rijstteelt zwaar gesubsidieerd. De middelen voor deze subsidies kwamen uit de welvarender sectoren van de economie, zoals mijnbouw en de plantage sector. Deze overheidssubsidies moeten begrepen worden vanuit de pogingen van de overheid om de armoede te bestrijden en de inkomensverschillen tussen de inheemse Maleise boeren en de voornamelijk in de steden geconcentreerde Chinese immigranten te verminderen. Praktisch alle rijstboeren zijn Maleiers.

De belangrijkste ontwikkeling in de rijstsector was de aanleg van grootschalige drainage en irrigatie projecten in de op rijst geconcentreerde kustgebieden. Doel hiervan was om twee rijstoogsten per jaar mogelijk te maken. Daarnaast werden maatregelen genomen om de boeren te helpen volledig profijt van deze maatregelen te trekken. Hiertoe werden Farmers' Organizations (FOs) opgericht waarvan zij op vrijwillige basis lid konden worden. Doel van de FOs was de levering van een aantal diensten, zoals de verschaffing van zaaizaad van nieuwe rijstvariëteiten, kunstmest en gewasbeschermingsmiddelen, krediet, landbouwvoorlichting en de opkoop van rijst. Daarnaast was het de bedoeling dat FOs zouden bijdragen tot coördinatie van de rijstverbouw-activiteiten van de boeren en versterking van hun positie ten opzichte van andere economische belangengroeperingen.

De voornaamste reden om voor deze taken een nieuwe organisatie op te richten, in plaats van ze toe te vertrouwen aan de bestaande boerencoöperaties, was dat deze coöperaties zeer klein van schaal waren en niet over de managementcapaciteiten beschikten om deze complexe taken te vervullen. Vele coöperaties bestonden alleen op papier. De FOs waren groter van schaal en de bedrijfsleiding was in handen van overheidsambtenaren die bij de FO gedetacheerd werden. De activiteiten van de FOs werden ook ruimer gesubsidieerd dan die van de coöperaties. Als gevolg hiervan waren de FOs, hoewel formeel een vereniging bestuurd door gekozen vertegenwoordigers van de leden, zeer afhankelijk van de overheid en werden zij sterk door haar beïnvloed.

Deze studie had als hoofddoel de sociologische factoren te identificeren die de reactie van de rijstboeren op de vorming van FOs beïnvloedden. Het ging om drie aspecten van deze reactie:

1. het lid worden van de FO;
2. de bijdragen van de leden aan de ontwikkeling van de FO;
3. de benutting van de diensten van de FOs en de adoptie van verbeterde rijstteeltmethoden.

Een tweede doel was een vergelijking van de boeren-reactie op de FOs in het Krian-irrigatieproject met die in het Muda-project. In elk van deze projecten was het overheidsingrijpen in de rijstteelt op een andere manier georganiseerd. Het Muda-project werd geleid door een project-organisatie, de Muda Agricultural Development Authority (MADA) die zowel verantwoordelijk was voor de FOs als voor de andere dienstverlenende organisaties op rijstgebied als ook voor het beheer van het irrigatiesysteem. Hierdoor bestonden goede mogelijkheden om op FO-niveau de diverse diensten met elkaar te coördineren. In het Krian-irrigatieproject bestond geen projectorganisatie en werden de diverse diensten geleverd door onderling onafhankelijke organisaties. Daardoor waren er minder mogelijkheden tot coördinatie. De FOs in het Krian-project stonden onder toezicht van de vertegenwoordiger van de federale Farmers' Organization Authority (FOA) op deelstaatniveau. Deze laatste ging over alle FOs in de deelstaat Perak, waarvan die in het Krian-project slechts een klein aantal vormden.

Door het explorerend karakter van de studie kon in elk van de twee irrigatieprojecten slechts een FO bestudeerd worden. Het bleek dat de FOs eigenlijk veldafdelingen waren van de FOA (in het Krian-project) of de MADA (in het Muda-project). In beide gebieden hielden ze zich voornamelijk bezig met het verstrekken van kortlopend krediet en kunstmesten aan de leden. De FOs verstrekten deze kredieten als agent van de Landbouw van Maleisië. Hierbij beperkten zij zich tot de routinematige verwerking van kredietaanvragen en het uitbetalen van de leningen, deels in de vorm van kunstmesten en deels als contanten. Na aanvankelijk goede resultaten ging in beide gebieden het terugvorderen van het krediet steeds moeilijker. Andere dienstverlenende activiteiten op rijstgebied waren van weinig betekenis. Het bleek dat de in het Muda-project aanwezige betere organisatorische mogelijkheden tot coördinatie van kredietverlening met bijvoorbeeld landbouwvoorlichting in de praktijk niet benut werden.

Uit het onderzoek bleek dat het voornaamste voordeel van de organisatorische structuur in het Muda-project vergeleken bij die in het Krian-project was, dat de MADA projectorganisatie een veel kleiner terrein bestreek dan de vertegenwoordiger van de FOA waaronder de Krian FOs vielen. Dit vereenvoudigde de communicatie tussen de bij de FO gedetacheerde overheidsambtenaren en hun superieuren. De laatsten konden hun veldwerkers ook beter begeleiden. Dit maakte het eenvoudiger om activiteiten te ondernemen die buiten de normale routine vielen en waarvoor frequent overleg met superieuren noodzakelijk was. Alleen de onderzochte FO in het Muda-project ondernam zulke activiteiten: een pluimveehouderij en een kleine supermarkt in een nabijgelegen stad. Deze activiteiten waren echter van gering belang vergeleken bij de tot

routine geworden kredietverlening. Daardoor was het verschil in resultaat tussen de bestudeerde FO in Krian en die in Muda niet zo groot als men zou verwachten.

Om leden te winnen nam het FO-personeel in zowel het Krian- als Muda-project contact op met de boeren die al nauwe relaties met diverse overheidsinstanties onderhielden en andere boeren hielpen bij hun zaken met deze instanties. Het winnen van leden werd aan deze locale contactpersonen overgelaten. Slechts een deel van degenen die voor lidmaatschap in aanmerking kwamen, werd door hen uitgenodigd. Een groot deel van de niet-genodigde boeren beschouwde het lidmaatschap van de FO als een privilege over de verdeling waarvan alleen de contactpersoon kon beschikken. Slechts de beter opgeleide niet-genodigde boeren traden op eigen initiatief tot de FO toe als ze dit in hun eigen belang achtten.

Zowel leden als niet-leden waren van mening dat het verkrijgen van goedkoop krediet het voornaamste en vaak enige motief was om lid te worden van de FO. Het voordeel van de lage rente woog echter alleen op tegen de kosten van verwerving van FO-krediet voor boeren die grote hoeveelheden kunstmest nodig hadden. Degenen met een klein rijstbedrijf konden hun kunstmest gemakkelijker betrekken van lokale winkels. De grotere boeren waren dan ook sterk oververtegenwoordigd in de FOs. Zowel in het Krian- als Muda-project was slechts ongeveer de helft van de in samenwerking komende boeren lid van de FO.

Om de FOs uit te laten groeien tot werkelijke boerenorganisaties is het noodzakelijk dat de leden een zekere verantwoordelijkheid voor de FO aanvaarden en bijdragen leveren in de vorm van tijd en geld door deel te nemen aan vergaderingen en door aandelen van de FO te kopen. In beide onderzochte FOs stonden deze bijdragen van de leden op een laag peil. Een van de redenen was dat het leveren van deze bijdragen niet direct noodzakelijk was om de voordelen van het FO-lidmaatschap deelachtig te worden. Ten tweede waren deze voordelen beperkt en daardoor mogelijk een te geringe stimulans. Een derde oorzaak van de geringe bijdrage van de leden was het "loosely structured" karakter van de maatschappij op dorpsniveau. Dit bemoeilijkte de ontwikkeling van het voor deze bijdragen noodzakelijke gevoel van voortdurende verplichting ten opzichte van de organisatie. Een vierde oorzaak was tenslotte de nadruk die de overheid legde op een snelle groei van het aantal FOs en het gebrek aan besef bij de overheid van de noodzaak om een gevoel van binding met de FO te ontwikkelen. Dit heeft geleid tot de algemene neiging van de betrokken overheidsorganisaties om veeleer op te treden ten behoeve van de boeren dan de boeren te leren hoe ze voor hun eigen belangen op kunnen komen. Het heeft ook bijgedragen tot de algemene neiging onder de boeren om op de overheid te steunen in plaats van te trachten op eigen benen te staan.

Het bestuur en de ledenvergadering lieten veel van de verantwoordelijkheid voor het beleid van de FOs over aan de gedetacheerde ambtenaren. De be-

stuursleden aanvaardden ook dat activiteiten die zij voorstelden de goedkeuring vereisten van de superieuren van het FO-personeel alvorens uitgevoerd te kunnen worden. De vertegenwoordigers van de leden fungeerden dan ook niet als het bestuur van de FO, maar veeleer als een platvorm om de wensen van de leden door te geven aan overheidsinstanties waarover ze geen controle hadden. Deze wensen werden welwillend behandeld en dit leidde vaak tot aanpassingen in de activiteiten van deze instanties.

De inspanningen van de FOs om de rijstteeltmethoden van de boeren te veranderen bleven zowel in het Krian- als Muda-project beperkt tot het verschaffen van diensten aan individuele leden. Er waren geen pogingen ondernomen tot coördinatie van de rijstverbouwactiviteiten van de leden. De diensten van de onderzochte FOs waren in beide onderzoeksgebieden slechts aan een klein deel van de boeren ten goede gekomen, voornamelijk degenen met grotere bedrijven, hogere opleiding en meer contacten met de buitenwereld. Toch heeft dit niet geleid tot een ongelijke adoptie van de nieuwe teeltmethoden. Niet-leden hadden evenzeer de beschikking over de benodigde inputs als leden. Zij konden deze op krediet of à contant kopen in lokale winkels. Omdat het landbouwvoorlichtingsadvies erg algemeen was en van seizoen tot seizoen nauwelijks veranderde waren niet-leden evenzeer op de hoogte van de voornaamste punten van dit advies. Er werden geen statistisch significante verschillen in teeltmethoden gevonden tussen de leden en niet-leden. De boeren hadden de aanbevelingen uitgeprobeerd en de methoden die bruikbaar bleken overgenomen. Daarna hadden zij nog voortdurend verder geëxperimenteerd met methoden die zij overnamen van vrienden of familie. Ook hadden ze een eigen keuze van nieuwe rijstvariëteiten gemaakt. De werkelijk gebruikte teeltmethoden van zowel leden als niet-leden vertoonde slechts een vage gelijkenis met de officiële aanbevelingen.

De studie beveelt een aantal verbeteringen aan waardoor de FOs een functie van meer betekenis zouden kunnen vervullen. Deze aanbevelingen betreffen onder andere verbeteringen in de landbouwvoorlichting en in de rol van de FO bij het coördineren van de rijstteeltactiviteiten van de leden. Naast deze maatregelen op het gebied van de rijstteelt zouden andere passende activiteiten voor de FOs gevonden moeten worden, bijvoorbeeld kleinschalige industriële projecten. Tenslotte wijst de studie op een aantal problemen die opgelost moeten worden om de verantwoordelijkheid voor de FOs aan de leden over te kunnen dragen.

CURRICULUM VITAE

Johan Robert Vincent Daane (born 24-12-1950 in The Hague) received his secondary education (gymnasium β) at the Rijswijks Openbaar Lyceum in the period 1963-69. In 1969 he enrolled at the Agricultural University of Wageningen where he graduated in 1977 (cum laude) majoring in rural sociology of the tropics and subtropics with minors in agricultural credit and rural co-operatives in developing countries and the sociological aspects of development planning in rural areas. During the period 1973-76 he was attached to the Department of Rural Sociology of the Tropics and Subtropics of the Agricultural University as a part time student assistant. As such he took an active part in both the research and teaching activities of the Department. During his studies he was involved in research work among the land Dayak in Sarawak (East Malaysia).

After graduating in 1977, he became a research associate of the Department and participated in a research project concerning the role of rural institutions in rural development in West Malaysia. This thesis is a result of these activities. From September to December 1981, he lectured in economic sociology and anthropology at the Department of Rural Sociology of the Tropics and Subtropics. Since January 1982, he is once again a research associate of the Department participating in an interdisciplinary research project on irrigated rice farming development in West Malaysia financed by a research grant from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO).