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THE ROLE OF FARMERS' ORGANIZATIONS IN TWO PADDY FARMING AREAS IN WEST MALAYSIA

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PREFACE

This bulletin is a result of the joint research efforts of the Faculty of Economics and Administration of the University of Malaya and the Department of Rural Sociology of the Tropics and subtropics of the Agricultural University in Wageningen. It is a report on a study of a rural economist, Dr. L. J. Fredericks, of the Faculty of Economics and Administration, and two sociologists, Dr. G. Kalshoven and Ir. J. R. V. Daane, both from the Department of Rural Sociology of the Tropics and subtropics. Field work was carried out in Malaysia in 1977-1979; the final reporting took place in Wageningen during a visit of Dr. Fredericks in May 1980.

This publication wants to make a contribution to empirical research on a subject of considerable importance to the practice of rural development: the functioning of rural organizations and institutions. The research focuses on the role for Farmers' Organizations in two paddy producing areas in West Malaysia which have similar farming conditions, but which differ in the way they are administratively organized; particular attention is paid to the different levels of the organizational structure. By this method the characteristics and the problems of the institutional set-up are analyzed. Special attention is also given to the utilization by the farmers of the services of the Farmers' Organization. On the basis of their analysis the researchers make suggestions for the improvement of these rural institutions. Although the report is in the first place of relevance to the Malaysian situation, its conclusions may also find a wider range of validity and application by extension of the comparison to other areas inside and outside Malaysia.

Many agencies enabled or supported this study: the Socio-Economic Research Unit in Kuala Lumpur gave the official research clearance; the Ministry of Agriculture, the Farmers' Organization Authority and the Muda Agricultural Development Authority made the field work possible and assisted with providing valuable information. Research grants were obtained from the Agricultural University of Wageningen and the Netherlands Foundation for the Advancement of Tropical Research (WOTRO). On behalf of the Department of Rural Sociology of the Tropics and subtropics I wish to thank all agencies and persons concerned.

Prof. Dr. R. A. J. van Lier
SUMMARY

This bulletin analyses the role of Farmers' Organizations (FOs) in two paddy double cropping areas in West Malaysia. The main levels of analysis are threefold: institutional and policy aspects of FOs as vital elements at the federal level (macro); organizational features of FOs functioning within two double cropping areas (regional or meso level); and the utilization of services by farmers at the field level (micro).

This study begins with an analysis of the historical development of the agro-based co-operatives and farmers' associations in Malaysia. The establishment of the Farmers' Organization Authority (FOA) in 1973 served to integrate the activities of these farmers' institutions and spearhead a new policy towards rural institutional development. This analysis forms the backdrop to the regional and field-level studies which are the core of this study.

The FOs under study operate under two separate frameworks of government administration. The Muda irrigation scheme represents an environment where FOs have been established under the jurisdiction of the Muda Agricultural Development Authority (MADA), an agency with planning and implementing powers at the regional level. In the Krian irrigated area, FO services are supervised by the Farmers' Organization Authority, which is represented at the State and federal levels.

In both areas, FOs appear to function mainly as suppliers of agricultural credit and inputs to their members. Subsequent adoption of new farming technologies is left almost entirely to the farmers, who have also developed their own informal ways of exchanging new rice varieties. Despite better provisions for the co-ordination of services and closer supervision of FO personnel in the Muda scheme as compared to arrangements in Krian, levels of service utilization by member-farmers are almost equal in the two areas. In terms of project implementation, however, the regional approach as represented by MADA appears to be more effective than the FO approach under FOA. The present management skills of FO personnel seem inadequate to tackle the more complex problems of rural development at the area level. Farmers on their part do not show much interest in the day-to-day affairs of these institutions, and hardly know how to react to the opportunities for organizational entrepreneurship. This bulletin recommends a number of improvements in the FO approach so as to diversify the range of its activities to the farmers in a pragmatic manner.
1. INTRODUCTION

The manifold objectives of rural development in contemporary Asia, and the processes of social change at the village and area levels, present numerous policy and organizational challenges. In the efforts to raise agricultural income and living conditions of the rural people, public agencies are attempting to provide a wide range of services to the farming population. Although it is generally claimed that the organized efforts by the public sector are crucial in achieving the development of the rural areas, little is known about the administrative and the institutional structures involved.

A well-functioning public sector bureaucracy and the accessibility of the agencies to the farming clientele are regarded as fundamental to the development of the rural sector and in securing sufficient food supplies for the nation.

In this context, our major objective has been to examine the contribution of rural institutions to rural development, and in particular the role of the farmers' organizations in promoting paddy production in West Malaysia.

Scope of the study

In view of the limited time available for field work, the broad field of investigation was narrowed down by limiting its organizational component, level of analysis and geographical coverage. The Farmers' Organizations (FOs) studied in this project are the Farmers' Associations and agro-based co-operatives operating in paddy double cropping areas. The FOs chosen functioned under two organizational frameworks, exemplified by a regional authority and a federal authority, with state and local level offices. The main direction of analysis was the socio-economic conditions influencing farmers' perception and utilization of the services provided by these FOs. A second level of analysis related the organizational component of such FOs, including their structural features and processes of communication.

Geographically, the research was confined to two double-cropping paddy areas in the West Coast of Peninsular Malaysia. The Muda area (located in Kedah and Perlis) was selected as an environment where a regional approach to rural development is used, under the auspices of the Muda Agricultural Development Authority (MADA). The other research area is the Krian region in Perak, where FO services are provided by an agency represented at the State and federal levels, the Farmers' Organization Authority (FOA).
Within each of these double-cropping areas, research work at village level was concentrated in a selected sub-area covered by a single FO.

Research objectives

Against the limitations mentioned above, the objectives of the research project are as follows:
1. To describe and compare the structures, roles and activities of Farmers’ Organizations performing specific tasks in two paddy growing areas in West Malaysia.
2. To study the changing patterns of paddy farming and the effect of FO activities on these patterns within the context of specific institutional, physical and socio-economic conditions prevalent in the two study areas.
3. To identify factors influencing the level of farmers’ participation in and contributions to the development of the FOs and to assess the degree of utilization of these field units by farmers.
A fourth objective was to make available some findings derived from the study to interested agencies and FOs concerned.²

Plan of operation

After their arrival in Malaysia, the two Dutch researchers started their work by consulting faculty staff at the University of Malaya and a number of public agencies active in the field of rural development. Two field trips were made along the west Coast to visit double cropping paddy areas including the Muda region, Krian and Tanjong Karang. Field work in the Muda region started on 1st December 1977. The first phase of the study included discussions with officers at the Muda Agricultural Development Authority, field personnel of FOs, and farmers’ representatives. Explorative field work was undertaken in the areas near Pendang and Jitra.

The second phase of the study started on 10th August 1978 and included explorative field work in the area served by the FO at Gunong Semanggol in Krian. During the third phase of the study, a survey was undertaken comprising 400 farmers in the two research areas. During this period, extensive interviews were held with field staff of FOs in both areas.

As for the research methodology, a wide array of methods was used, ranging from unstructured to partly-structured and focussed interviews, formal survey methods, informal field observations, and the use of secondary sources of data. In line with the exploratory research objectives, the main emphasis was to describe and analyse the organizational features of FOs and the utilization of their services by the farmers.
Outline of this publication

In chapter 2, some major institutional and policy aspects or rural development in West Malaysia are presented. The historical antecedents of farmers' organizations are described including policy developments related to both the agro-based co-operatives and the farmers' associations. The establishment of the Farmers' Organization Authority in 1973 is discussed together with its role in co-ordinating and integrating the various efforts of farmers' associations and agro-based co-operatives. The structure and operations of the present Farmers' Organization Authority is broadly outlined and supplemented by a listing of its major objectives. Finally, a brief description is made of the various development programmes of the Authority.

Chapter 3 contains an analysis of the organizational features of FOs in two paddy double cropping areas situated on the West Coast of Peninsular Malaysia. The FOs described are field units operating within two contrasting structures of government administration at the regional level. As a consequence, special attention is given to the organizational structures and processes of intervention undertaken by the Farmers' Organization Authority and the Muda Agricultural Development Authority. Information is given on the role of other agricultural agencies and some aspects of their relationship with the FOs. FOs appear to function mainly as suppliers of agricultural credit and inputs to their members. The managerial capacity of field staff in the implementation of projects is broadly discussed. A summary of the internal lines of communication between the FOs and their headquarters is followed by a discussion of communication links with farmers as reflected in the approach adopted by rural extension workers.

Chapter 4 relates the broader dimensions contained in chapters 2 and 3 to the activities and impact of two selected FOs operating in the Muda and Krian paddy double-cropping areas. The perspective developed in this analysis is based upon the factors affecting the responses of farmer-members and non-member farmers in connection with (i) membership; (ii) utilization of services and the adoption of the new rice technologies, and (iii) the contribution and support of members to the administration and development of the FOs. The objective of the analysis is to identify those variables which are most significant in determining the quality of the farmers' responses to the existence of the FOs.

Some of the FO policy objectives which have received little official attention at the field level are also touched upon. Finally, a preliminary investigation of the major problems involved in the planning and implementation of these objectives at the field level is made.

Chapter 5 contains a discussion of the major implications of the research findings. In both paddy double-cropping areas, FOs can be perceived of as government-sponsored agencies with which farmers do not easily identify. It thus becomes a matter of prime importance that policy-makers arrive at some image - or Leitbild- of what will be the role of the FOs in the long run. Some pragmatic recommendations are made on how to promote far-
mers' interest in these institutions, and how to make rural extension work more meaningful to the farming population.
2. INSTITUTIONS AND RURAL DEVELOPMENT IN MALAYSIA

The introduction of institutional forms (co-operative societies, community development, farmers' associations, various types of group farming practices, etc.) into the rural sector is based on several policy rationalizations. Among the most important of these would be the inability of traditional rural institutions to facilitate the introduction of new technologies and strategies consequent upon the processes of rural modernization. This itself could be traced to administrative inadequacies (e.g., informal labour exchanges versus labour inputs under the aegis of a group farming organization) or to the need to prevent leakages of the gains from growth from accruing to elite groups in rural society. Rural institutions are also introduced in the perception that they represent a welcome decentralization and diffusion of planning and decision-making prerogatives to the grass-roots (Fredericks 1977). Such an involvement, moreover, is felt to be conducive to the creation of a dynamic and resilient farming community capable of building upon the technical and other resource inputs provided by government instead of being passive recipients of government aid and subsidies. Decentralization reflects not only the deconcentration of planning and decision-making prerogatives; it can be viewed at a deeper level as a tangible form of democratic participation in tandem with whatever variant of democratic philosophy is subscribed to by the government. Needless to say, this is a long-term goal whose realization is predicated upon an intelligent and consistent policy on rural institutions and their long-term development and growth.

In this section, then, the role of rural organizations, particularly the farmers' organizations, will be examined within the context of Malaysian rural development policies. The emphasis here will be primarily on rural development policy goals and strategies which have been formulated and implemented. The major part of this chapter will focus upon the historical antecedents of and the current role played by farmers' organizations in rural Malaysia.

2.1 RURAL DEVELOPMENT POLICIES, GOALS AND STRATEGIES

One of the major political repercussions of the Second World War was the focus upon the poverty of the rural Malays and the realization of the need to design policies and programmes for their upliftment. Its direct manifesta-
tion was the policy emphasis laid on rural development in the Draft Development Plan 1950-56, the then Malaya’s first economic development programme. Not unexpectedly, political factors loomed large in this policy decision as on the rural Malays lay the balance of electoral power. The orientation to rural development led to the creation of the Rural and Industrial Development Authority (RIDA) in 1950 as the government felt that “... the producers in the rural areas should enjoy a greater share of the proceeds of their labour than they obtain at present” (Federation of Malaya 1950: 1). As the twin operational principles of RIDA were self-help and an integrated approach to rural development, it was not surprising that rural co-operatives were utilized as instruments for the development of the Malay farming sector.

The support given to agricultural credit and marketing co-operatives provided the impetus for the expansion of the rural co-operative movement particularly in the period up to 1963. The First Malaya Plan, 1956-60, however, in its rural development strategy, concentrated more on the construction of infrastructural facilities in an attempt to correct the hitherto urban bias in their location. This bias, and the nominal priority given to agriculture, followed the World Bank-recommended strategy of developing infrastructure in order to generate and disseminate “backwash effects” among the rural population.

New dimensions in the rural development policy appeared in the Second Five Year Plan 1961-65, reflecting increasing pressures on the Alliance government to formulate tangible programmes and projects for rural upliftment. These became especially serious after the loss of rural electoral votes in the East Coast States during the 1963 elections. In consequence, an administrative bureaucracy to converge attention and resources to the rural sector was created. At its apex was the Ministry of Rural Development headed by the Deputy Prime Minister and advised by the National Rural Development Council and the Rural Development Executive Committee to attune agricultural policy to rural demands. Rural development committees were replicated at state, district and village levels; their functions were to be facilitated by the “operations room”, borrowed from the military to monitor the progress of development projects. As a counterpoint to this increasing bureaucratization of rural development, the involvement of the farmers was facilitated by their participation in village development committees and their contribution to village rural development projects through the “gotong royong” mechanism. In effect, the classic model of community development was initiated and supplemented by an adult education programme in order to promote the processes of rural growth.

The subsequent development plans (1966-70, 1971-75, 1976-80) have projected a rural development policy predicated upon a greater appreciation by the policy-maker of the complexities of rural development. A greater range of policy instruments were introduced, showing official vacillation to the role of the private sector in rural development (Fredericks 1974 A).

The racial violence of 1969 catalysed a mood for national introspection
whose effects spilled over into national development planning with the
enunciation of the New Economic Policy. Where poverty eradication had
been a policy significant only in the aggregate or national level, the New
Economic Policy clarified those groups, both in the urban and rural areas,
who were living below some pre-determined income level and for whose de-
velopment special policy instruments were required. The identification of
race with occupation was also to be eliminated in the New Economic
Policy.

Rural development policy in Malaysia has undergone several changes
over the development plan periods. Sectoral allocations have, with the ex-
ception of the First Malaya Plan, been largest to agriculture and have in-
creased from $ 227.5 million for the period 1956-60 to $ 4,735.5 million in
the Third Malaysia Plan. An examination of inter-sectoral allocations in
agriculture provide several dimensions of policy goals and strategies. A
consistent rural development goal has been to increase sectoral output and
productivity particularly in the paddy growing and smallholder rubber sub-
sectors. In the case of the former, the realization that traditional tech­
ology could not be improved led to the introduction of the new high yielding
varieties whose adoption was preceded by the construction of irrigation in­
frastructure (Trans-Perak, Muda, Besut, Kemubu, Tanjong Karang, Kri­
an, Sungei Manik). For the rubber smallholding sector, replanting and new
planting with the new high-yielding clones has been the major technologi­
cal innovation. Similar goals and strategies have been used for other agri­
cultural crops. Another major strategy used is land settlement and develop­
ment; allocations to it have been the largest among all agricultural develop­
ment projects since the Second Malaysia Plan. The objective in land settle­
ment and development has been to reduce population pressures in the tradi­
tional agricultural sectors and provide an economic land base for surplus
farmers in the virgin jungles cleared for this purpose.

It would appear from the brief discussion above that output/productivity
goals have been predominant in Malaysia’s rural development policies. Cor­
respondingly, the major strategy used has been modern agricultural
technologies supported by an extension network to facilitate their dissemi­
nation. To some extent, however, welfare goals have also been given some
emphasis, especially after 1969, in order to ensure that the gains from
growth are, to some extent at least, distributed equitably. The goal of ac­
cess (less so the goal of control over resources and the environment) has
been given somewhat less emphasis: the two main attempts to achieve them
have been the phase of community development outlined above and the at­
tempt to structure the rural economy on co-operatives which will be covered
in greater detail below. To this extent, Malaysia’s programme for rural
uplifting is more clearly agricultural development in concept and practice
than rural development.4

As this research project examines the role of farmers’ organizations in
two double-cropping areas (Muda and Krian), some further observations
on rural development policy to this sector are relevant. This policy, sup-
porting the flow of massive public resources to and intervention in the paddy growing sector, is based on a number of rationalizations. Firstly, the incidence of poverty (as measured by the minimum income of $210 per month), is widespread among paddy cultivators. In 1970, 123,400 households or 88.1% in this sector were considered poor but by 1975, this figure had been reduced to 77.1% (Third Malaysia Plan 1976). Secondly, the majority of paddy producers are Malays who form a significant percentage of the rural electorate, and, even more crucially, constitute an important power bulwark for the United Malay National Organization (UMNO), the most influential political party in Malaysia. A third rationalization is the drive to make Malaysia reasonably self-sufficient in rice, its staple food crop. Although the level of self-sufficiency has varied with policy changes, it is the aim of the government to produce enough rice to meet 90% of the domestic demand.

2.2 Historical Antecedents of Farmers' Organizations

Co-operative societies

The two major types of farmers' organizations in Malaysia are the farmers' co-operatives and the farmers' associations. The former reflect a longer history having been introduced in 1922 when the Co-operative Societies Enactment was promulgated. The latter were only introduced in 1958 and gained popularity when disillusionment set in which co-operatives as an instrument for rural development.

Co-operative policy has been defined as a "... consciously planned process utilizing the co-operative institution as a policy instrument in rural development" (Fredericks 1974 B: 260). In developing countries, the co-operative movement has formed an important instrument of rural development policy and, in some cases, played an important role in the overall growth process.

In Malaysia, the initiation of the co-operative movement closely paralleled the contemporaneous British colonial policy of introducing it into the agricultural and non-agricultural sectors of its colonies. The basis of colonial co-operative policy was one of non-involvement by the State in the financing of the movement in an effort to replicate the environmental conditions of 19th Century Britain and to ensure a "self-supporting, self-contained and self-governed" movement. Only a supervisory role was to be played by the State acting through the Department of Co-operatives.

The basis for the establishment of the movement in the then Malaya was economic; it was rooted in the limited perception of the policy-maker of the structure and working of the rural economy. Indebtedness of the farmer was deemed to be pervasive and acted as a brake on rural development. Rural indebtedness was related to cultural predilections much more
than for productive purposes and created the bonds of dependence upon rural market functionaries who exploited their role to great and long-term advantage. *De facto* debt bondage was common (Fredericks 1973) operating, as in the Krian rice-bowl, through the "padi-kuncha" system.

Rural credit co-operative societies thus became the policy instrument to ameliorate structural weaknesses in the rural economy. Such institutions were to provide, in the short-run, a badly needed competitive organization in the unorganized money market and transform primary producers into independent and capital-sufficient entities (Fredericks 1976).

Furthermore, the rural credit co-operatives would eliminate the market ties with middlemen and provide farmers with market alternatives, the choice among which would be dictated by maximum returns. It was for this reason that rice marketing co-operatives were not encouraged as credit was perceived to be the key to the marketing system. The long-term objective of this strategy was the monopolization of rural credit supplies by an institutionalized structure based on the credit co-operative.

As the cornerstone of colonial co-operative policy was financial non-involvement, the development of the rural co-operative credit movement was left to economic forces and the vagaries of nature (Fredericks 1973). Thus, in the paddy producing sector (particularly in Krian where the first rural credit society was formed), product prices and harvests affected the financial capability of members to repay loans to, the need to borrow from and the desire to deposit excess incomes in co-operative credit societies.

Unlike the paddy sector, it was envisaged that rubber marketing societies based on credit co-operatives would provide significant potential benefits particularly in terms of higher producer returns. However, the entrenched position of existing rubber dealers was acknowledged as was the greater degree of organizational and managerial problems inherent in marketing organizations. A cautious policy was thus adopted and few co-operatives were established in this sector.

The credit orientation in the co-operative movement envisaged itself in the urban and plantation sectors. Among government servants, indebtedness was rife and attributed to cultural affinities to overspend beyond the limits of income. Thrift and loan co-operative societies were thus actively encouraged to provide an alternative and cheaper source of credit and an outlet for excess income. Insofar as government funds previously allocated for the purpose of assisting debtridden government employees proved redundant, this credit movement proved a success. Moreover, excess liquidity in the movement was channelled into government bonds (Fredericks 1973).

In the rubber plantation sector, the initial reaction of the British planting community was negative and non-cooperative. It was widely believed that credit co-operatives among Indian plantation labourers would organize such labour and challenge the authority of the planters. Eventually, however, these prejudices were eroded and labourers' co-operative credit societies spread rapidly among the plantations. These societies provided a ready
outlet for savings which were channelled into the purchase of government bonds. Ironically, the hold of the estate managers over the Indian work force was consolidated rather than diluted as the latter often served as precedents of the labourers’ credit societies (Fredericks 1973).

Thus, the expansion of the co-operative movement during the colonial era was guided by a policy which would not remotely threaten the supremacy of British free enterprise (Fredericks 1976). Financial non-involvement was the cornerstone of this policy as much to re-create the conditions under which co-operatives developed in England as to conserve colonial funds and resources. While the rural credit societies, particularly in the rice sector, represented the primal attempt at Malay rural development, its fortunes became linked to the vagaries of the rural economy. The other efforts in the urban and estate communities proved more successful and provided unexpected spin-offs to the colonial government. The social impact of the co-operative movement in the rural and urban sectors cannot, moreover, be dismissed lightly (Fredericks 1973).

Post-war co-operative policy was shaped by several factors; chief among these was a re-direction of colonial government efforts towards national economic development. This, together with a series of studies commissioned by the Colonial Office in London, led to the realization that co-operative societies could play an active role in socio-economic development. On this basis, financial subventions by the State to the rural credit societies were to be permitted.

A second major factor was the widening perception of the policy-maker of the rural economic structure. Investigations by the 1953 and 1956 Rice Production Committees revealed the extent of the multilateral strategies of the rural middlemen. This, together with corroboratory analyses by Thomson (1955) and the International Bank for Reconstruction and Development (1956), provided the conceptual basis for an integrated credit-marketing strategy that evolved into the focal point of co-operative policy in the mid-fifties and early sixties. This period (1955-63) was politically significant for rural and co-operative development as it marked the transitory phase of self-government. Increasing pressure was being put on the government to rectify the urban and plantation-bias in the colonial economic policy and focus upon the rural smallholding and fishing sectors.

Co-operative societies and the co-operative movement were perceived of as viable socio-economic institutions linking grass-roots initiatives to the processes of rural development. A link-up strategy to co-ordinate the activities of different functional co-operatives was gradually evolved as a competing infrastructural system to that operated by the rural middlemen. In the rice sector, for example, the seasonal credit needs of farmers were met by a revolving fund operated by the Co-operative Apex Bank. The network of rice milling and marketing co-operative societies and unions were provided risk capital to facilitate the purchase of paddy from producers while in certain areas, monopsonistic powers were granted to large rice milling unions. To supplement these activities, a fertilizer distribution scheme was
launched in 1959 to promote input use by paddy farmers while technological advances in rice milling were disseminated by the provision of loan capital.

Similarly, in the fisheries sector, political pressure generated by an opposition party forced the government to appoint a parliamentary committee to investigate the fishing industry, particularly the economic situation of small-scale fishermen. This committee recommended an allocation of $3 million to finance the purchase of modern fishing gear in order to increase catches and productivity. The scheme was to be operated through fishing co-operative societies which were created rapidly in the East Coast States. Although fish marketing was not introduced into the scheme, it became an established feature of subsequent co-operative projects among fishing communities.

Similarly, although not on as extensive a base, co-operative rubber marketing societies were set up among rubber smallholders to improve the equality of output and obtain better returns.

The co-operative link-up strategy was to base the development of the rural sector on a network of inter-linked mono-functional primary co-operative societies to duplicate the multi-lateral marketing-merchandising-moneylending strategy of the rural middlemen (Fredericks 1976). In effect, the policy objective, not publicly declared but clearly intended, was the "co-operativisation" of the rural sector. This strategy was to be made complete by co-ordinating the role of rural consumer shops into it. However, several difficulties surfaced, resulting in the loss of political leadership that had forced the pace of co-operative development in Malaysia over the period 1955-1963. These difficulties included (Fredericks 1974 C):

i. Intra-cabinet conflicts between political personalities.

ii. The irrational expectation that the Co-operative Department bureaucracy, long used to performing supervisory functions, could undertake de facto rural development functions. It was unrealistic that it could perform the complex research, planning, implementation and executive functions required of a rural development agency. Apart from the insufficiency of financial allocations and the absence of a coherent educational programme, the lack of management ability was reflected in the limited success of the various co-operative schemes and, hence, the small impact of the various forms of co-operative societies.

iii. The hasty growth of the rural co-operatives which raised the problem of ideological commitment and identification of members to them. It is a plausible expectation 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.

The push for rural co-operativisation slackened after this and government policy emphasis on co-operatives as instruments for rural development was reduced. One notable manifestation of this disillusionment was the growing trend in the creation of para-statal agencies charged with specific rural development functions. Another, which eventually led to the creation
of the Farmers' Organization Authority, was the rising popularity of the farmers' association as an institution to initiate grass-roots level involvement in the process of rural development.

Farmers' associations

Farmers' associations were introduced as early as 1958 under the Societies Act. They were to undertake mainly agricultural extension activities and act in a role secondary to the agricultural co-operatives (Ahmad Sarji 1977). Their expansion in the post-1963 period was related to the events related above and the favourable impression the new Minister of Agriculture had of the integrated development framework of the Taiwanese farmers' associations. In 1967, the Farmers' Associations Act was passed and the Director of Agriculture in the Ministry of Agriculture and Co-operatives was assigned the position of Registrar of all farmers' and fishermen's associations.

The concept of the farmers' associations was linked to the "area development" strategy outlined by the Minister of National and Rural Development in 1963, to concentrate resources and effort in areas having a good infrastructural base and a high potential for sustaining economic growth after take-off (Abdullah Ujang 1971). Farmers' associations, unlike the agricultural co-operatives, would perform multi-purpose roles in agricultural development. Their major functions include the following:

i. Organize and harness the resources of the rural community for dynamic action through integrated programmes of agricultural and human resource development.

ii. Increase farm productivity and incomes through improvement in technical skills, know-how and managerial ability.

iii. Provide and organize essential farm services, render these services in an integrated manner and improve access of the farming community to these services.

iv. Harness and accumulate resource capital through the encouragement of savings and investment, encourage capital formation through programmed investment in agricultural and economic activities related to farm production.

v. Generate new economic activities, ancillary services and agro-business in the rural community.

vi. Increase the capacity for employment of excess rural labour, through a planned programme of agricultural-cum-business and economic operations.

vii. Develop rural leadership, social services, the spirit of participation, self-help, self-reliance, sustenance and community welfare through extension programmes.

Each farmers' association was managed by a general manager and five to six other officers, all seconded from the Department of Agriculture. A
whole range of service activities were co-ordinated by these officers, including agricultural extension, credit facilities, bulk purchase of farm inputs, marketing of farm produce and the provision of mechanization, transportation and storage facilities. Thus farmers' associations provided technoeconomic services in an integrated manner to their members; this strategy was well supported by the widespread geographical and administrative links of the Department of Agriculture whose head was concurrently Registrar of Farmers' Associations (Fredericks 1975).

Farmers' associations were created in areas covering 5,000-10,000 acres supporting 1,000-2,500 farmers in order to ensure a large turnover and to minimize the overhead bureaucratic inputs. The links to individual farmers were maintained through small agricultural units (SAU's), while upward affiliation was made to the State and national farmers' associations. By 1973, 109 area farmers' associations were formed consisting of 110,000 members drawn primarily from the small farm sector producing rice, rubber, coconuts, oil-palm, fruits and vegetables.

To match the co-operative societies, farmers' associations were granted legal exemptions from profit tax, stamp duties and the relevant sections of the trade union law and Companies Act.

It was becoming rapidly obvious that the agricultural sector and the farming community were being serviced by a dual, largely identical and competing institutional infrastructure. A government committee appointed in 1972 to investigate the areas of conflict identified the following problems (Ahmad Sarji 1977):

i. The existence of farmers' associations and agro-based co-operatives operating in the same farming locality, serving the same community, often having identical objectives yet subject to different ministerial policies and supervised and serviced by different departments, has created a sense of confusion and uncertainty among farmers with respect to government objectives and policies.

ii. Members of the agro-based co-operatives feel that they are being unfairly treated by the government while the farmers' associations, particularly in the initial period, are provided various subsidies and professional support which boost their image and attract farmers.

iii. Many co-operative societies feel insecure and uncertain of their future with the establishment of farmers' associations in their vicinity.

iv. Farmers' associations face difficulties in expanding the scope of their activities into areas already serviced by the co-operatives. In Sabak Bernam, for example, the paddy purchase licence granted to the farmers' association by the National Padi and Rice Authority has angered co-operative leaders who fear the loss of their clients. The farmers' association claims, however, that being the marketing agent is the only way to ensure repayment of credits granted to members.

v. At the ground level, farmers observe the serious conflicts between officials of the Department of Agriculture and the Department of Co-
operative Development in their attempt to project the image of their respective bureaucracies. Such conflicts serve to undermine the confidence of the farmers in government leadership.

vi. The involvement of district agricultural assistants and junior agricultural assistants in the administration of the farmers' associations affects their extension activities among non-members such as the farmer-members of the co-operatives.

vii. Many farmers are members of both farmers' associations and co-operatives and reap the advantages of dual membership.

viii. The continued existence of the two organizations will eventually weaken both of them and serve as a potential divisive factor in the farming community.

At a higher level, inter-bureaucratic rivalry between the Department of Agriculture and the Department of Co-operative Development was intense. In favouring the former, the Minister of Agriculture served to heighten the rivalries and erode the vitality and initiatives of the latter. Such conflicts did not pass unnoticed in Parliament when the Farmers' Association Act was being debated. Superficial attempts to resolve and patch-over the conflict were made by ministerial directives to delineate the areas of responsibility of the competing institutions. In 1972, another administrative ploy was undertaken: the Division of Co-operative Development was transferred to the Ministry of National and Rural Development. This, far from resolving the internecine conflict, served only to widen it. The whole situation was becoming rapidly unstable and the environment charged with disharmony and recrimination. The formation of Angkasa (the national co-operative body) brought new pressures to bear upon the conflict and, in 1973, the resolution to the conflict was provided by the creation of the Farmers' Organization Authority (Fredericks 1975).

2.3 THE FARMERS' ORGANIZATION AUTHORITY

The farmers' Organization Authority was formed in 1973 and, in attestation to the origin of its establishment, the agro-based co-operatives and farmers' associations were removed from their respective bureaucracies and placed under it. Initially, the FOA was placed under the Prime Minister's Department, but now is under the control, once again, of the Ministry of Agriculture. The FOA was created under the Farmers' Organization Authority Act to co-ordinate and integrate the efforts of the farmers' association and agro-based co-operatives and to place the focus of its manifold services on the farmer. Its major functions as given under Part II section 4(1)(a)-(d) are as follows:

(a) to promote, stimulate, facilitate and undertake economic and social development of Farmers' Organizations;
(b) to register, control and supervise Farmers’ Organizations and to pro­
vide for matters related thereto;
(c) to plan and undertake such agricultural development within a declared
Farmers’ Development Area; and
(d) to control and co-ordinate the performance of the aforesaid activities.

The policy-making body of the FOA consists of a Chairman, Deputy
Chairman, the FOA Director-General and six other members appointed by
the Minister of Agriculture. The Act also provides for the creation of a
Farmers’ Advisory Council to advise the Minister on matters pertaining to
the development of farmers’ organizations. The FOA has a bureaucratic
hierarchy spreading down to the various States in which all matters pertai­
ning to FOs are under the responsibility of the State Director. In the case of
the States of Kedah and Perlis where a major irrigation scheme and its
command area is under the control of the Muda Agricultural Development
Authority, the farmers’ associations are, by tacit agreement, responsible
only to this Authority and not to FOA (Fredericks 1975).

One of the initial problems faced by the FOA related to the recruitment
of its staff, some of whom were absorbed from the Departments of Agri­
culture and Co-operative Development. Apart from the professional expe­
rience demanded of them, the absorption of these staff has contributed to
another problem faced by the FOA earlier on. This was the image that it
would project: dominated or influenced either by the agricultural co­
operatives of farmers’ associations. This latter conflict has had its connec­
tions with the problem of co-ordination and integration of the co­
operatives and farmers’ associations at the grass-roots level.

Structure and operations of FOs

Together with the Farmers’ Organization Authority Act of 1973, the Far­
mers’ Organization Act was passed to promote the economic and social in­
terests or well-being of its members.

Under Part II, Section 6 of the Act, the powers of FOs are defined as fol­
lows:
(a) to provide extension services and training facilities to farmers so as to
equip them with technology essential for the advancement of agricul­
ture, horticulture, animal husbandary, home-economics, agri-business
and other commercial enterprises;
(b) to expand agricultural production amongst farmers and smallholders
so as to promote greater diversification and commercialization of agricul­
ture and to expand and promote agri-business;
(c) to make available farm supplies and daily necessities including other
facilities required for progressive farming and better rural living;
(d) to provide farm mechanization facilities and services necessary in
modernizing farming operations;
(e) to provide credit facilities and services and to promote greater investment in agricultural and economic pursuits;

(f) to promote, encourage, facilitate and offer services for rural savings;

(g) to provide marketing services, storage, drying complexes, warehousing and other facilities;

(h) to operate and provide transportation facilities to enhance agricultural marketing and related operations;

(i) to establish and operate processing plants and milling complexes necessary for processing of agricultural products;

(j) to facilitate capital formation and promote investment amongst farmers through equity participation in commercial and agri-business ventures;

(k) to assist members in acquiring land and to undertake land development projects for the benefit of members;

(l) to promote and stimulate group action through various community projects and facilitate leadership development;

(m) to provide social services, educational and recreational facilities to enhance the social advancement and wellbeing of farm families.

Among the major provisions of the Act, the following should be noted:

i. Members can either be individuals who are farmers and Malaysian citizens over 18 years or an agro-based co-operative of farmers' association which become member-units of the farmers' organization.

ii. Each farmers' organization is to be managed by a Board of Directors and assisted by a General Manager and other officers.

iii. All activities of farmers' organization come under the jurisdiction of the Registrar of Farmers' Organization who is concurrently Director-General of the FOA and Registrar of Co-operative Societies and Farmers' Associations.

iv. Farmers' organizations can be provided the usual exemptions given co-operative societies if so gazetted by the Minister of Finance.

v. The FOA is empowered to require any farmers' association or agro-based co-operative society to join a farmers' organization and regulate their entry and status.

Just as in the case of the farmers' association, FOs are promoted in areas having a high growth potential and in which intensive agricultural development is undertaken. In fact, several FOs (now called farmers' cooperatives) have been physically sited where area farmers' associations were located. The command area of the FO is 5,000-25,000 acres; thus each farmers' organization is responsible for the provision of services and inputs for about 1,000-6,500 farm families.

An area FO elects its own board of directors from the assembly of representatives of both farmers' associations and agro-based cooperatives. However, the Minister of Agriculture appoints four members to the Board. The activities of the FO are co-ordinated by the general manager and his
officers; in practice, all officials are employees of the FOA. The financial viability of FOs depend to some extent on the contributions of members (shares, members’ dues, grants, etc.) although much of the actual services provided are financed by the FOA with grants from the government.

The formation of the FO has not required the dissolution of either agro-based co-operatives or farmers’ associations. However, to avoid overlapping or duplication of functions, a rationalization of functions among the unit-members and the FO itself is co-ordinated by the Board of Directors acting on the advice and guidelines provided by the FOA.

Two dimensions have been stressed in the effort to make the area FO an integrated rural institution (Ahmad Sarji 1977). Firstly, as agriculture is a State and not a federal matter, the agricultural activities of the farmers’ organizations need to be co-ordinated with the agricultural programmes in each State. This is to be done by maintaining a close link with the State Director of Agriculture. Secondly, the farmers’ organization is an important element in the integrated rural development strategy of providing a package of comprehensive and integrated services to farmers. To this end, in each farmers’ development area, a farmers’ development centre is vital to co-ordinate the flow of services and facilities to the farming community: at its core is the farmers’ organization and the FOA. The range of these services and facilities to be supplied by the various government agencies within the framework of the farmers’ development centre is as follows:

<table>
<thead>
<tr>
<th>Activities and operations</th>
<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>Extension services and co-operative education</td>
<td>Department of Agriculture, Veterinary services, Fisheries; National Tabacco Authority; FOA; Muda Agricultural Development Authority (MADA); Keruabu Agricultural Development Authority (KA-DA); Rural and Industrial Smallholders’ Development Authority (RISDA).</td>
</tr>
<tr>
<td>Agricultural credit and capital formation</td>
<td>Agricultural Bank; Bank Rakyat; Credit Guarantee Corporation; FOA; RISDA; Unit Trust.</td>
</tr>
<tr>
<td>Agricultural marketing</td>
<td>Federal Agricultural Marketing Authority Food Industries of Malaysia (FAMA); RISDA; Malaysian Rubber Development Corporation (MARDEC); FOA; LPN.</td>
</tr>
<tr>
<td>Provision of input supplies</td>
<td>Department of Agriculture, Veterinary Services; Fisheries; RISDA; FOA.</td>
</tr>
<tr>
<td>Farm mechanization and transportation services</td>
<td>Department of Agriculture; RISDA; FOA.</td>
</tr>
<tr>
<td>Food processing and technology</td>
<td>FAMA; Malaysian Agricultural Research and Development Institute (MARDI).</td>
</tr>
</tbody>
</table>
Under part 2, Section 2(a)-(g) of the FOA Act, the FOA is empowered to undertake all aspects of agro-business in co-operation with other bodies and "... to request departments, governmental and non-governmental agencies carrying out or intending to carry out agro-based development for the benefit of farmers to submit report (sic) regarding their activities or proposed activities ... and to co-operate with the Authority in its efforts to develop Farmers' Organizations". The farmers' development centres thus provide the administrative infrastructure for the FOA to co-ordinate all rural development efforts. However, as pointed out by Fredericks (1975), the problem of inter-agency co-ordination is difficult to overcome especially in a situation where agency staff maintain line responsibilities to their headquarters and no executive powers over them are vested in the FOA. It should be emphasized that the general manager and his five section heads (responsible for extension, administration, credit, agri-business and accounts) operate not only the business and other activities of the FO, they are also responsible for the administration and operation of the farmers' development centres.

Finally, to consolidate the integration of efforts, the FOs can be appointed as agents of the FOA or other agencies in the distribution of inputs, collection of credit, marketing of farm produce, etc.

2.4 INTEGRATION BETWEEN FARMERS' ASSOCIATIONS AND AGRO-BASED CO-OPERATIVES

Farmers' organizations, with their strong orientation to small farmers and the commercialization of the small farm sector, have an important role to play in the implementation of the New Economic Policy with its twin goals of poverty eradication and re-structuring of rural society. Against this backdrop, a major policy objective of the FOA has been to create FOs in the small farming sector. The long term plan is to establish 210 FOs throughout Malaysia. However, since area farmers' associations and agro-based co-operatives already exist in many localities, much of the FOA's initial effort were directed at integrating these institutions into newly constituted FOs so as to reduce duplication and overlapping of functions and activities. The initial strategy adopted by the FOA was a loose integration between these institutions, maintaining intact their individual identities, assets and liabilities. Such a strategy, however, did not solve the existing problems as indicated below (Ahmad Sarji 1977: 85):

Farmers continue to retain their dual memberships; they contribute towards two organizations and therefore still have divided loyalty. They
are confused about the status and powers of the board of directors of the farmers' co-operative because the board of directors of the farmers' association and committee of management of their co-operative societies continue to have legal status. The board of directors of the farmers' co-operative does not have overriding powers over its counterparts in the farmers' association or the agro-based co-operative, the unit-members of the farmers' co-operative. The staff of the FOA assigned to each farmers' development centre are required to supervise three organizations simultaneously, namely the farmers' co-operative as the parent body, and the unit-members which are still governed by their own constitutions and by-laws. Joint activities particularly in regard to the utilization of facilities like transportation, etc., may not by possible in some cases because each unit-member continues to protect its own organizational interests. Further, it is not possible to mobilize and consolidate the financial reserves of the farmers' associations and the agro-based cooperatives. As a result, large scale activities cannot be planned. In case where each body has been granted certain privileges from the Government, a business licence, for example, it is extremely difficult to persuade the licensee to assign its rights to the bigger and more viable farmers' co-operative in order that large scale operations may be carried out.

In 1975, therefore, the policy of full integration between the agro-based cooperatives and the farmers' associations into FOs was enunciated. The strategy adopted was that where prior to November 1973, an area farmers' association existed in a farmers' development area, the association would form the nucleus of the new body. All existing agro-based co-operatives within the operational area could enrol as unit-members of the FO or be fully absorbed into it. However, where no farmers' association existed, the most viable agro-based co-operative could be the nucleus of the FO. If none were found suitable, a new FO could be registered if at least 50 farmers agreed. In such a situation, all agro-based co-operatives in the area can join as unit-members or be fully absorbed into it (Ahmad Sarji 1977). Where full merger could be achieved immediately because of technical reasons (e.g., valuation of assets and liabilities), pre-farmers' organizations would be formed as the forerunner of the FO. In order to avoid duplication or overlapping of functions, the FOA would provide the co-ordinating framework for the unit-members prior to the formation of the FO.

Full integration or merger as recommended in the new policy implies five characteristics distinguishing it from the earlier policy of loose integration (Ahmad Sarji 1977: 86-87):

i. The powers of the board of directors of the farmers' association and the committee of management of the agro-based co-operative will be transferred to the board of directors of the new body;

ii. The assets and other proprietary rights of the farmers' association and co-operative societies will be transferred to the new body;

iii. All responsibilities, liabilities and other contractual obligations relating
to the farmers' associations and the agro-based co-operatives will be transferred to the new body;
iv. All the functions and activities of the farmers' associations and the agro-based co-operatives within the area will be absorbed by the new body;
v. All eligible members of the farmers' associations and co-operative societies will become new members of the new farmers' organization.

Full integration can only take place in accordance with the constitution and by-laws of the farmers' associations and co-operative societies. In essence, this requires the agreement of two-thirds of the assembly of representatives of the farmers' associations and three-quarters of the registered members of the co-operatives.

Before full integration could be implemented, several measures had to be undertaken by the FOA. These include the following:

a. **Valuation of assets and liabilities**

i. To provide an up-to-date picture of the accounts of the farmers' associations and co-operatives, their accounts have to be audited up to the current year. This constituted a serious problem as, when the FOA was assigned responsibility for these institutions, the 1,535 co-operatives had an audit backlog of 2,906 audit years while the corresponding figure for the 109 farmers' associations was 401 audit years (Ahmad Sarji 1979). To date, however, most of these accounts have been updated;
ii. The assets and liabilities of the agro-based co-operatives and farmers' associations must be independently valued;
iii. Creditors of these institutions must give their consent to the transfer of institutional assets and liabilities to the new organization;
iv. Proprietary rights and share-capital held by each individual member of the co-operative and farmers' association must be determined, as well as his net worth and liabilities;
v. New shares must be assigned to each individual member of the farmers' organization.

b. **Liquidation of weak and small agro-based societies**

In 1975, the FOA had identified 607 agro-based co-operatives which were dormant, were beyond redemption or running at a loss because of poor management. The policy of liquidating these unviable societies was then formulated. By the end of February 1980, 487 co-operatives had been liquidated; a further 352 are scheduled for liquidation by the end of 1980 (Farmers' Organization Authority 1979). Most of the societies liquidated were credit co-operatives.
c. Schedule for the creation of farmers’ organizations

In 1973, 1,553 agro-based co-operatives and 119 farmers’ associations (including 9 State farmers’ associations and one national association) were assigned to the FOA. The long term plan is to create 210 farmers’ organizations in farmers’ development areas throughout Malaysia. By the end of 1979, 178 farmers’ organizations had been formed. Of these, four were based on agro-based co-operatives, 19 were formed with farmers’ associations as the nucleus and 32 by full integration. A total of 123 pre-farmers’ organizations were also formed in anticipation of full conversion into fully-fledged farmers’ organizations. In total, 278 agro-based co-operatives and 78 farmers’ associations have become unit-members of the farmers’ organizations.

Several organizational and administrative problems and constraints have confronted the FOA in the implementation of the integration policy (Ahmad Sarji 1979) including the following:

i. Stronger and more viable societies are not in favour of merging into farmers’ organization as their expectations of the latter’s performance and efficiency are low.

ii. There appears a conflict in the scheduling of priority areas and allocation of resources as perceived by the more viable societies and the farmers’ organization. This is especially in regard to the social and non-productive services to members and non-members.

iii. Legal provisions spelling out clearly the technicalities of the process of merger are not specifically provided to the Farmers’ Organization Act of 1973. The Attorney General has ruled (PN 3762/1 of 12.2.1979) that “there have to be express provisions in this regard covering all related matters, such as the manner in which the assets and liabilities of the merging bodies are to be dealt with, and the manner in which the rights of its members are to be safeguarded.”

iv. Non-farmer members who hold leadership position in the co-operatives or the farmers’ associations oppose integration for fear of losing their status and influence.

v. Some co-operative societies feel that the assignment of FOA staff to manage the farmers’ organizations is a curtailment of their decision-making powers.

vi. Re-valuation of the assets and liabilities and the merging of these institutions is a time-consuming exercise.

2.5 Development Programmes of the FOA

At the time of the establishment of the FOA, in 1973, the Second Malaysia Plan 1971-1975, was already underway. It was only in 1974 that it was allocated $ 4 million. A large part of the activities undertaking during this period
by the FOs were directed at the distribution of credit and inputs to paddy farmer-members. The FOs acted as the local credit centres (LCC's) of the Agricultural Bank of Malaysia and were responsible not only for the disbursement but also the collection of repayments of the short-term production credit given to members.

However, for the Third Malaysia Plan 1976-1980, $120,505,000 was allocated to the FOA to carry out various developmental activities. A summary of the achievements of the FOA since 1974 is provided below using unpublished data supplied by the Authority to the authors (see Table 1).

The development of infrastructural facilities has been emphasized by the FOA in keeping with its programme to set up 210 FOs. One important aspect of this programme has been the construction of farmers' development centres to house both the FO as well as other rural development agencies in a designated farmers' development area. Under the Second Malaysia

<table>
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<th>TABLE 1 FINANCIALAllocations UNDER THE THIRD MALAYSIAN PLAN, 1976-1980, FARMERS' ORGANIZATION AUTHORITY</th>
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<tbody>
<tr>
<td><strong>Revised Plan</strong></td>
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<td>---------------------------------------------------------------</td>
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<tr>
<td>I. <em>Infrastructure development</em></td>
</tr>
<tr>
<td>1. Construction of Farmers' Development Centres</td>
</tr>
<tr>
<td>2. FOA Headquarters</td>
</tr>
<tr>
<td>3. Staff quarters</td>
</tr>
<tr>
<td>II. <em>Farm Production</em></td>
</tr>
<tr>
<td>1. Commercial nurseries</td>
</tr>
<tr>
<td>2. Seed storage complexes</td>
</tr>
<tr>
<td>3. Farm production and crop diversification</td>
</tr>
<tr>
<td>4. Model farms</td>
</tr>
<tr>
<td>III. <em>Commercialization of Agriculture</em></td>
</tr>
<tr>
<td>1. Farm mechanization facilities and services</td>
</tr>
<tr>
<td>2. Transport facilities</td>
</tr>
<tr>
<td>3. Farm mechanization services centres</td>
</tr>
<tr>
<td>4. Market collecting centres</td>
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<tr>
<td>IV. <em>Joint farming</em></td>
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<td>V. <em>Revolving Fund</em></td>
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<td>VI. <em>North Kelantan Project</em></td>
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<td>VII. <em>Rice Mill Rehabilitation</em></td>
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<tr>
<td>VIII. <em>Training of farmers</em></td>
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<tr>
<td>IX. <em>FOA Reserve Fund</em></td>
</tr>
<tr>
<td>1. Tractor loan fund</td>
</tr>
<tr>
<td>2. Miscellaneous projects</td>
</tr>
</tbody>
</table>
Plan, 105 centres were completed by the FOA and the Department of Agriculture, while a further 94 are planned for completion by 1980. By the end of 1979, however, only 41 centres were completed. Other construction include the replacement of old centres and the construction of staff quarters for FOA personnel serving in the FOs. The record of the latter project has not been too satisfactory because of technical problems.

A second major activity has been the construction of seed nurseries, seed storage complexes and projects to increase and diversify farm production. Seed nursery projects have been encouraged to provide good planting material to farmers and other government agencies. In the Second Plan, only $100,000 was allocated for this purpose but this was increased to $1.7 million under the Third Plan. The majority of the seed nurseries specialize in groundnut seed production mainly for Trengganu and Kelantan. Related to this is the seed storage complex project to maintain seed quality during storage. During the Second Malaysian Plan, two such complexes were constructed while four more were completed under the Third Plan out of the eight planned.

The second largest allocation by the FOA has been earmarked for farm production and crop diversification to fully utilize idle farm land and to collectively cultivate (by joint land preparation, marketing and input supply) new land alienated by the State to members. Between 1976-1979, the acreage planted to cash crops and the number of farmers involved has increased from 8,393 acres and 6,171 farmers to 13,072 acres and 10,493 farmers. It is optimistically expected that by the end of 1980, 81,612 acres will be farmed by 56,000 members. The shortfall in targets has been related to climatic factors, late approval given by landowners and the loss of interest by members in this project. The use of model farms to introduce new farming methods and potentially viable cash crops has also been supported by the FOA. Up to 1979, a total of 531 acres were opened up under this project.

Under the programme to promote the commercialization of agriculture, $21,745,000 has been allocated under the Third Malaysia Plan. The largest single allocation has been used to provide farm mechanization services and facilities. Although 492 4-wheel tractors were earmarked for distribution under this scheme, only 325 were actually distributed up to 1979. The project allows the first tractor to be provided free while the second and third tractors allocated to the FO carry a 70% and 30% subsidy, respectively. This project began in the Second Malaysia Plan during which 39 4-wheel tractors and 14 2-wheel tractors were provided. As part of the farm mechanization package, service centres are essential to provide back-up services including repair, maintenance and sparepart supplies. Despite an allocation to this project under the Second Plan, no centres were constructed. Under the Third Plan, however, three centres were completed by 1979 out of a projected eleven.

Like the tractor services, the provision of transport facilities is meant to increase the supplies of such facilities in the market. This project to facili-
tate marketing, input supply and other services, was initiated under the Second Plan while under the Third Plan, 142 lorries, landrovers, vans and boats were assigned to the FOs. Market collecting centres facilitate the collection of small lots of farm produce before shipment to other market functionaries. Of the 110 market centres planned under the Third Plan 71 had been completed by 1979.

The largest single allocation under the Third Plan budget for the FOA is the creation of a revolving fund to promote the involvement of farmers who are capital-deficient in agri-business activities. The allocation of $ 4.8 million under the Second Plan was increased to $ 31,196,000 under the Third Plan. Under this plan, most of the loans given out were to finance input supplies, rice milling operations and marketing. The financing of input supplies such as fertilizers, agro-chemicals and planting materials on credit to members has accounted for more than $ 26 million up to 1979. The remainder has been used to finance the purchase of farm output such as groundnuts, tobacco, rubber, paddy and cocoa.

Other projects implemented by the FOA include such activities as joint farming, training of farmers, involvement in the North Kelantan Rural Development Project, rehabilitation of rice mills and other miscellaneous activities financed from the reserves of the FOA. Several joint farming projects have been started under the Third Plan to encourage the large scale cultivation of crops among several farmers and promote the joint use of machinery, bulk purchase of inputs and group marketing. Up to 1979, 1,198 farmers were involved in collectively farming 3,102 acres. The training of farmers is a new project to train such groups as members of the board of directors of FOs, unit chiefs, women board members and ordinary members, particularly in improving their management and supervisory skills. However, it reported that the lack of training resource personnel and training locations have affected this programme. The involvement of the FOA in the North Kelantan integrated rural development project has been in the construction of farmers’ development centres, storage and drying facilities, provision of tractors and vehicles and other inputs. An allocation of $ 6,451,000 has been provided for this purpose. Under the Mid-Term Review of the Third Plan, an allocation of $ 5 million has been made to replace or repair old rice mills and provide drying facilities. A total of 131 rice mills are expected to benefit from this project. Finally, the FOA has used its own reserves to finance projects not budgetted for under the development plans. Under the tractor loan fund, financial assistance to purchase pedestrian tractors can be granted to members provided certain conditions are met. Between 1976-79, 605 tractors were purchased under this scheme. Several other projects involving women-members of the FOs have been carried out.
Concluding remark on this research project

The impact of this ambitious programme by the FOA to increase the productivity and incomes of its farmer-members through the provision of various services and inputs can only be evaluated at the level of the farmer. This will form the basis of the discussion in the subsequent chapters of this study. At this juncture, it should perhaps be emphasized that the provision of development resources requires a professional and competent bureaucracy to formulate viable programmes and projects and schedule their implementation at the field level. To a large extent, the deconcentrated structure of the FOA bureaucracy (to the State and local levels) plays a pivotal role in the supply of services and inputs to the farmers. This assumes prime significance as local level or field conditions will determine the success of programmes and projects formulated at the centre. Furthermore, the implementations of individual projects depends much upon the managerial competence of the FOA officers assigned to the FO.

A second aspect relates to the relationship between the management of the FO on the one hand, and the Board of Directors and members of the FO on the other. As the weight of the FOA bureaucracy, its policies and resources converge on the general manager of the FO and his supporting staff, the problem of the independence of the Board of Directors and members in initiating programmes and allocating resources then surfaces. Where farmer-members have difficulties in identifying themselves with the FO, our earlier proposition relating the creation of farmers' institutions to the decentralization of the planning decision-making prerogatives of government then sharpens into focus. Finally, the relationship between the FO and its constituent members, the farmers' associations and the agro-based co-operatives, must also be analysed as must their connections with farmers who are not members of any of them or who remain outside their ambit of influence. If one perceives the creation of a self-reliant and dynamic farming community as the ultimate objective of the government's rural development policy in general and FOAs programmes in particular, then the above considerations must be given serious thought. This is provided in the following chapters.
3. ORGANIZATIONAL FRAMEWORK OF FARMERS' ORGANIZATIONS IN TWO PADDY FARMING AREAS

In the foregoing chapter, Farmers' Organizations have been described as rural institutions created by the Malaysian government to perform multi-purpose functions within the overall context of rural development. In this chapter, an analysis is given of FOs as organized field units operating within a specific agricultural environment, having an institutional component and a geographical component. On the one hand, FOs will be regarded as field units which reflect two contrasting modes of government intervention in rural development. On the other hand, FOs are perceived as rural institutions performing certain tasks within two paddy double-cropping areas. As the FOs under study operate under two separate agencies, special attention will be given to their specific organizational structures. A comparison will be made between FOs operating under a federal authority (Farmers' Organization Authority) and those functioning under a regional development authority (Muda Agricultural Development Authority). A description is given of the similarities and dissimilarities of these institutions operating within two organizational frameworks.

3.1 TWO ORGANIZATIONAL STRUCTURES

At the federal and State levels, the FOA acts as the policy-making and administrative machinery for FOs established at the area level throughout the country. Such is the case in the Krian irrigation area, where the FOs fall under FOA administration, which is represented at the State headquarters in Ipoh, the capital of Perak. Farmers' associations in the Muda irrigation scheme, however, have been established under the jurisdiction of the Muda Agricultural Development Authority (MADA). This authority has been created to plan and implement the development of the Muda area located in the States of Kedah and Perlis in the Northwest of Peninsular Malaysia. Thus, two organizational structures exist (see Figure No. 1). In the Krian area, FOs belong to a centrally conceived system of administration, with its headquarters in Ipoh, which reports to the federal FOA headquarters in Kuala Lumpur. The FOA can be typified as an agency with parastatal functions established at the federal level and supported by offices at the State and area levels. One may characterize this as a deconcentrated system of administration, in which the execution of day-to-day affairs is left to the State and area bureaucracy while policy and organizational matters are centrally formulated and controlled.
Figure 1  Fo organizational structure in two irrigated areas.
The same type of organization, officially called farmers' associations, operates directly under the Muda Agricultural Development Authority, with its headquarters in Telok Chengai, in the vicinity of Alor Setar, the capital of Kedah. The establishment of a regional authority can be interpreted as an organizational form of administration consciously chosen by the federal government to decentralize the programming of rural development to an agency operating in a regional context. In fact, MADA is a semi-autonomous agency responsible for the planning and implementation of rural development projects within the Muda area. According to the statutes, MADA is responsible to the Ministry of Agriculture. In practice, this authority has considerable independence in its planning and operations. By channeling all engineering and agricultural services through one agency, it has been stated that an integrated approach to rural development has been achieved at the regional level (MADA 1972).

To sharpen our research focus, it is hypothesized that the organizational framework of FOs in the Muda area is more effective in terms of project implementation and service utilization by farmers than the organizational framework of the FOs in the Krian area. Effectiveness can be broadly defined as the degree to which an organization attains its goals. It should, however, be pointed out that there are several problems in assessing the effectiveness of organizations. Hall (1974: 97) mentions one of them, "Since organizations generally pursue more than one goal, the degree of effectiveness in the attainment of one goal may be inversely related to the degree in the attainment of other goals." This may well be the case in our study of FOs with their multi-purpose design and functions.

It follows from our study outline that effectiveness should be assessed both from the organizational perspective and from the farmers' viewpoint. The following main aspects will be compared: organizational structure, utilization of services, and communication. In this way, both organizational structure and organizational processes can be taken into consideration.

In comparing the activities of FOs in the Muda and Krian areas, it should be noted that the former share basically the same organizational structure and provide the same kind of services to member-farmers. However, there are some minor differences in nomenclature and task components which will be dealt with later on. One basic assumption of our research project is that it is the wider organizational framework and the agricultural environment which contribute to differences in the organizational performance and effectiveness of FOs in the two areas.

3.2 ENVIRONMENTAL FACTORS

A short description is given below of the environment within which FOs operate in the double-cropping areas of Muda and Krian.
a. The Krian area

The development of modern methods of water control began in Peninsular Malaysia with the completion of the Krian Irrigation Scheme in 1906, which introduced irrigation facilities to some 23,000 ha of land on the northwest coast of Perak (see map 1). This irrigation scheme not only attracted settlers from the neighbouring States but also large numbers of Banjarese from the Banjarmasin region of Indonesian Kalimantan. Migrants settled along streams and canals thus giving Krian villages a linear settlement pattern. Under the Extension Scheme, the storage capacity of the Bukit Merah Reservoir was increased considerably and with the completion of the main works in 1966, it was possible to supply irrigation water for off-season paddy cultivation. With the construction of the Krian Pumphouse and other infrastructure, the paddy double-cropping area increased to 23,600 ha.

The area comprises roughly 20,000 padi farm families, all of the Malay race. The average farm size is 1.1 ha, the paddy area is 0.9 ha while the remaining area of 0.2 ha consists of the house lot and orchard surrounding it. Thirty-four percent rent all or part of their land; nearly all renting is on a cash basis. Paddy provides for 98% of farm income and 70% of family income.

Soils are mainly riverine clays in Krian Darat and marine clays in Krian Laut. Most of these soils are Class I paddy land, but poorly drained, and there are problems of load carrying capacity for agricultural machinery. Some 4,800 ha or 20% of the total area have acidity problems resulting in low yields (Kementerian Pertanian 1977).

One of the major problems with irrigation in Krian is that the flow of water from field to field is not adequately controlled. When drainage gates are closed and the off-take gates opened, the whole paddy area is simply flooded by gravity. Fields are therefore inundated rather than irrigated. The slow movement of water along the gradual slope leaves some paddy-fields waterlogged for long periods.

These circumstances have led to cultivation practices that differ from the projected double-cropping system. In fact, farmers often have only three crops in two years because of the lack of co-ordination of farmers’ planting schedules and absence of on-farm controls over water supply. Field conditions are often singled out by Krian farmers as the reason for their choice of paddy cultivated. The high water levels require a tall variety such as Mat Candu. The taste and cooking qualities of this long grain paddy variety also contribute to its traditional popularity. According to Sternberg (1977), new varieties introduced to the area may be less ecological appropriate than varieties which the local people have traditionally used, in that the new varieties are more sensitive to the level of water in the fields, are nutritionally inferior and subject to pest infestation and diseases.
GENERAL FEATURES OF THE KRIAN AREA.
b. The Muda region

The Muda Irrigation Scheme is located in the States of Kedah and Perlis in northwest Peninsular Malaysia. The Scheme occupies a flat alluvial plain, approximately 65 km long and 20 km wide, between the foothills of the Central Range and the Malacca Straits. Alor Setar, the capital of Kedah, lies at the centre of the scheme; the capital of Perlis, Kangar, is situated at its northern edge (see map 2).

The irrigated area occupies approximately 98,000 ha of paddy land, which is about one-third of all paddy land in Malaysia. The area comprises roughly 60,000 farm families, two-thirds of whom rely on paddy farming as their sole source of income. The average farm is about 1.6 ha
but there are considerable variations in farm size and income. More than 40% of the farmers are tenants, while rents are paid predominantly in cash (MADA 1972). Soils are mostly heavy marine clays, well suited to paddy production. There are, however, acid sulphate soils in natural depressions, comprising approximately 26,000 ha or 27% of the total area. Although these soils are used for rice production, yields are lower than those in other areas.

The climate is influenced by the southwest monsoon during May-October, and the northeast monsoon during November-March. About 85% of the annual rainfall occurs between May to November, the traditional rice growing season. Insufficient rainfall during the remainder of the year precludes the growing of a second rice crop without supplementary irrigation. Temporal and seasonal variations pose problems in managing the irrigation and drainage system. This was dramatically illustrated in 1977, when prolonged droughts during both monsoon periods seriously affected cultivation patterns and paddy production.

Projects works for the Muda area began in 1966 with World Bank assistance; the works included the construction of the Muda and Pedu dams with a tunnel connecting them; a headworks and main canal system; improvement of the existing, and construction of new distributor canals; and drainage construction (Muda Irrigation Project 1975).

Considerable changes in rice farming have occurred since the completion of the Muda Irrigation Scheme. Before its implementation, farmers cultivated a large number of indica rice varieties, mainly based on Malay and Thai stock. Most varieties were tall and susceptible to lodging, and matured in 160-180 days. Some farmers obtained yields of up to 3.5 ton/ha under favourable conditions. From 1964 onwards, new varieties were released but did not gain much acceptance by the farmers. As the irrigation works were in an advanced stage of implementation, there was concern about the non-availability of high-yielding varieties. Newly released varieties such as “Mahsuri”, “Ria”, “Bahagia” and “Murni” were not much in favour by the farmers because of low consumer demand. Another problem was the relatively short plant height, causing inconvenience during harvesting. Since 1973, however, wider acceptance was achieved with the release of “Jaya”, the local name of the Philippine $C_4 - 63$ variety. Its short maturity period (120 days), medium height and good yields proved very popular with the farmers. This was also the case with the “Improved Mahsuri” variety (Muda Irrigation Project 1975).

3.3 Role of other agencies and inter-agency relations

In both areas, several government agencies offer services to the farmers, but generally speaking, their scope, competencies and tasks are not sharply delineated, thus leading to overlapping of functions and activities.
In the Muda area, however, the Muda Agricultural Development Authority, which co-ordinates the activities of these agencies, is responsible for operating the irrigations system and supplying agricultural services to the farmers. The Krian area illustrates the case of a region where no established or formal co-ordination exists among the government agencies operating at the regional level. In the following, a brief description of their main functions is provided.

Department of Agriculture

This department is the main government agency for the implementation of Federal and State agricultural policies together with supporting activities. In Krian the various services are channelled to the farmers by Agricultural technicians (formerly called Junior Agricultural Assistants), headed by an Agricultural Assistant. These field personnel are usually housed in the FO office. The head office is located near Parit Buntar, where the Agricultural Officer and his staff are accommodated. The State headquarters staff in Ipoh is headed by the State Director of Agriculture.

The activities of the agricultural officers include the provision of lime subsidies (to improve the condition of acid sulphate soils), diversification of crops (rehabilitation of mango trees and the distribution of free planting materials) and farm family development. The last activity is mainly directed towards women and includes demonstration plots, vegetable cultivation and conducting cooking and sewing classes. According to the Agricultural Assistants, most of these activities are in an early stage of development and no evaluation has yet been undertaken.

A seed production centre is located in Titi Serong. This centre is meant to function as a source of paddy seed, but is apparently only conducting various experiments mainly involving fertilizers. While the farmers are advised to exchange seed among themselves, little interest is expressed as they have fully accommodated their farming practice to local conditions and grow their own rice varieties.

As was pointed out in chapter 2, one of the functions of FOs in the Krian area is to provide inter-agency co-ordination at the area level. In actual practice, however, it can be easily observed that such co-ordination is not very effective, if it is executed at all. FO personnel have to rely to a great extent on the knowledge and experience of the field staff of the Department of Agriculture. On their part, the agricultural staff carefully attend to their own responsibilities which they discharge quite competently. Any inter-agency relationship that exists depends mainly on personal relations between the staff of the two agencies.

In contrast, the situation in the Muda region is less complicated as all matters pertaining to the FOs are the responsibility of the Division of Agriculture of MADA. From the organizational point of view, it is an advantage that agricultural and institutional responsibilities are borne by one
unit only. The fact that many FO general managers in the area have earlier served with the Department of Agriculture accounts for their better appreciation of the agricultural problems connected with the introduction of new farming technologies. As in the Krian area, however, co-ordination problems arise in the important linkage between rural extension and agricultural research. Agricultural research comes under the Malaysian Agricultural Research and Development Institute (MARDI) which runs an experimental station at Bumbong Lima in Province Wellesley, to the south of Muda. There is also a field research station near Alor Setar. The main emphasis is placed on disease and pest resistance in rice varieties, as well as early maturation and nitrogen response. To arrive at an integrated approach in research and extension programmes, a special committee has been formed at the State Level involving Kedah and Perlis. One of the practical steps taken is the establishment of a pest surveillance system for paddy in the two States. The effectiveness of such a mechanism depends again on personal relations among the agencies’ staff.

**Drainage and Irrigation Department (DID)**

Like the Department of Agriculture, the Drainage and Irrigation Department is one of the oldest technical departments serving agriculture in Malaysia. This department is responsible for the operation and maintenance of the irrigation systems in both Muda and the Krian region. It holds a powerful position as it controls one of the most essential inputs to paddy farming, irrigation water. This can be illustrated not only by the fact that it is responsible for water resources, but its management of the double-cropping cycle. For example, during the serious drought of 1978, Muda’s off-season crop was officially abandoned owing to dangerously low water levels in the Pedu and Muda reservoirs. This control function shows that irrigated areas form ideal domains for government intervention in food production.

In the present irrigation system, a schedule is prepared by DID with the dates on which irrigation blocks of paddy land are to be inundated and drained. The schedule specifies the day on which water is to enter the fields in each block, the dates when farmers are expected to sow and transplant paddy, the date of drainage, and the beginning and end of the harvesting period. The duration of the season and length of cultivation periods have been standardized over the years. Only the dates on which the cycle start vary from irrigation block to irrigation block. In Krian, the schedule for the whole area is presented at a meeting of district government officials, headed by the District Officer. After approval by the meeting, the schedule is printed by the Land Office and copies distributed to every *ketua kampong* (village head). At meetings at the *mukim* level, chaired by the *penghulu* (officer at sub-district level), the *ketua kampong* are informed of the specific dates when irrigation water is to enter their respective areas.
In both areas, irrigation officers tend to deal with farmers in an authoritarian way. One of the reasons for this bureaucratic attitude is that the irrigation ordinance confers policing responsibilities to the irrigation field staff in inspecting and maintaining irrigation canals and drains.

The frequency of meetings between the FOs and DID officers is rather low, as compared to FO meetings with Department of Agriculture staff. Managers of the FOs do request DID staff to attend some meetings with farmers, and in most cases, an irrigation inspector is present. In the day-to-day affairs, however, FO personnel and DID officers adhere strictly to their own tasks and activities, without much consultation. Here one encounters an interesting example of clear demarcations of areas of work and responsibility of agencies; one deals with the operation and maintenance of a physical system, while the other looks after the affairs of the institutions, with its economic and social dimensions. Both agencies serve the same clientele from their own perspective and within their respective task roles.

**Agricultural Bank of Malaysia**

The Bank’s relationship with FOs is of particular importance as the latter act as local credit centres. The Bank’s formal objective is the promotion of agricultural development and for that purpose it provides loans, advances and other facilities to individuals or groups engaged in farming and related operations. In order to facilitate these operations, the Bank has established a working relationship with the FOA in appointing FOs as agents in providing agricultural credit to its members. Each season, a formal agreement is signed by both agencies specifying a number of operations to be undertaken including the processing of applications for loans and subsequent repayments. The FOs receive commission on all sums loaned or advanced; this commission forms an important source of their income. In recent years, this commission has amounted to 1.25 percent of the total loans disbursed.

Field observations indicate that the FOs’ role as an agent of the Agricultural Bank has created a number of problems. One problem is that the FO not only acts as a channel for the distribution of agricultural credit, but also supervises and administers the scheme. In performing this function, the conflicting roles of FOs as credit agents and as “agents of change” providing advisory and supportive services should be noted. Especially in the case of delays in loan repayments, this difficulty becomes apparent, and in many cases FOs refrain from taking any other action than sending reminders to loanees. Another problem relates to the risks involved in handling large sums of money. The resolution of these conflicts depend on the personal relationships and the ability and willingness of Bank officers to assist FO personnel in discharging this special function.
National Padi And Rice Authority

In 1967, the Malaysian Government intervened in paddy marketing by establishing the regional Padi and Rice Marketing Boards under the Federal Agricultural Marketing Authority. These functions were later incorporated into the National Padi and Rice Authority in 1971. The previous Board started its operations by providing drying and storage facilities in the Muda region. The National Padi and Rice Authority extended these facilities and, later, since drying was not considered adequate intervention in paddy marketing, it was decided to provide milling facilities as well. The authority also operates a licensing scheme in order to control the milling and marketing of paddy by private dealers.

The National Padi and Rice Authority currently has 17 operational complexes in the Muda area, nine of which have integrated rice milling units. One fully integrated unit has been in operation in Krian since 1976. The intensity of activity in these modern integrated complexes appears lower in comparison to the smaller private mills. Apparently, private millers have also installed driers working at a much lower cost than the imported equipment used by the Authority. Transport to the government facilities is also a problem for many farmers. Farmers appear to prefer to deal with the well-established millers in their immediate surroundings than to transport their paddy to the Authority’s complexes themselves.

Part of the farmers’ crop, however, reaches the complexes through middlemen, mainly in the rain season, when the paddy is wet and is less acceptable to the private mills. When paddy of 25% moisture content is delivered, 21% is deducted from a 100 lb bag of paddy. Government mills thereby suffer considerable losses as the extra drying time required for such paddy is expensive. Nevertheless, all paddy offered is accepted; the handling of wet paddy may be seen as a public subsidy to the farmers.

In order to promote agro-business through the FOs, the latter have been used as paddy marketing outlets. These experiments have been abandoned, however, as the management capacity of the FOs was inadequate. The general managers do not seem eager to undertake paddy marketing activities given their present staff and resources.

3.4 Organizational Features of Farmers’ Organizations

In both the Krian and Muda areas, management and day-to-day operation of FO activities are carried out by a team of government personnel, usually consisting of five to seven officers, headed by a general manager. The officers perform duties in the field of administration, credit, input supply, extension and economic diversification projects (see Figure no. 2). Each FO is housed in an office block, consisting of a general meeting room, offices, storage facilities and a workshop. Signboards at the roadside make the FOs clearly noticeable. At the lowest level of the organization, the ordinary
FORMAL ORGANIZATIONAL STRUCTURE OF A FARMERS' ORGANIZATION

Board of Directors

General Manager

Administration  Credit  Accounting  Economic/Input Supply  Extension

Small Agricultural Unit  Small Agricultural Unit  Small Agricultural Unit

FO MEMBERS

Figure 2
members are organized into Small Agricultural Units (SAUs) on a locality basis. SAUs hold a meeting at least once a year. During this meeting, staff members of the FO provide information about the state of affairs of the FO 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 Unit Chief, an Assistant Unit Chief and a number of representatives to the FO Representative Assembly. The number of representatives depends on the number of members, but they are usually three in total. At the same meeting, the SAU proposes candidates to sit on the Board of Directors of the FO.

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, audit report, activities for the coming year and its budget. This meeting also discusses the recommendations of the SAUs and selects a number of them for further action. Once in two years, the Assembly elects a new Board of Directors from among the candidates proposed by the SAUs. The board meets when there is a need to, 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 FOs' policy, formulate a plan of activities and budget and scrutinize membership applications. In some FOs the board has a special committee to approve credit applications from members.

In the case of Muda, a special provision has been made for the establishment of an assembly at the regional level, consisting of 27 chairmen of the Board of Directors of farmers' associations. This assembly has been installed in order to articulate farmers' interests at the level of MADA. The 27 chairmen elect an executive committee of 9 members from among themselves. The topics which are most discussed are of political and economic relevance and pertain to all matters affecting the farmers' interests in the Muda region. The creation of the assembly is also a convenient way for MADA officials to consult farmers' representatives at their headquarters.10

It is worth observing that members of the board of directors in both areas belong to the group of big farmers. It is through them that the government bureaucracy reaches the village people. They are used as the local contact while also performing a middlemen role between the people and the authorities.11

In this process the general manager plays an important role as he is responsible for FO affairs. However, while officially general managers are in charge of the daily activities of the FO and function under the board of directors, in actual practice they take the lead and act as initiators of FO policy. The FO directors serve more as a sounding board for their suggestions and plans than as the real source of policy-making.

Access to and delivery of services

In both regions, the main emphasis of the FOs is on the provision of agri-
cultural credit and inputs (particulars on utilization of credit and inputs are contained in Chapter 4.2). In providing these services, the location and coverage of FOs are important issues. Within the Muda region 27 farmers' associations have been established, each with a service area varying between 5,000-10,000 acres. Each area contains approximately 1,250-2,500 farm families.

In Krian, five FOs (now called farmers' co-operatives) have been created servicing areas of 10,000-14,000 acres, each containing 3,000-4,500 farm families. In terms of FO coverage, the Muda region shows a more concentrated service network; the FO personnel-farmer ratio is also slightly better.

In both regions, FOs are located along the main roads, in clearly marked locations. There are many areas, however, access is difficult because of insufficient feeder roads to the farms. This is especially true in Krian, where a very thinly developed road network impedes easy transport within the area. Here, farmers have to travel long distances along narrow paths alongside canals and drains serving the paddy area. FO personnel, on their part, experience difficulties in visiting farms. Typically, regular relations have been established with ketua yunits in the vicinity of the main roads; only occasionally is a visit made to ketua yunits in other areas.

In contrast, FOs in the Muda region display more systematic patterns of service distribution. There are, to be sure, some differences to be observed between well-established farmers' associations and some others with less developed clientele relations. On the whole, however, the service network of an project implementation by the farmers' associations are of a higher quality in this region. This can be attributed to the policy of MADA on the role of farmers' associations even at the stage where the MADA scheme was being planned (Afifuddin 1978).

In the following paragraphs, the various functions of the FOs under study will be discussed. In Table 2 the main features of these institutions in the two areas are summarized.

**FOs as centres for credit and input supply**

As compared with the officially stated objectives FOs in both areas confine themselves to a limited number of tasks and activities. From interviews with field personnel and member-farmers, FOs appear to function mainly as local credit centres and as distribution points for agricultural inputs. It is generally agreed that, for the present, the focus of the FO activities should be on the provision of short-term credit and inputs for paddy production. The provision of credit, with the FOs acting as agents of the Agricultural Bank of Malaysia, is the most time-consuming activity of field personnel. Almost all general managers of FOs declare that they have to confine themselves and their staff to duties related to the supervised credit scheme and the recovery of loans.
TABLE 2  ORGANIZATIONAL FEATURES OF FOs IN TWO AGRICULTURAL AREAS

<table>
<thead>
<tr>
<th>Form</th>
<th>MUDA (FOs under MADA)</th>
<th>KRIAN (FOs under FOA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>functional specialization</td>
<td>medium</td>
<td>low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>credit provision</td>
<td>strong</td>
<td>strong</td>
</tr>
<tr>
<td>agricultural inputs</td>
<td>strong</td>
<td>strong</td>
</tr>
<tr>
<td>rural extension</td>
<td>weak</td>
<td>weak</td>
</tr>
<tr>
<td>project implementation</td>
<td>medium</td>
<td>weak</td>
</tr>
<tr>
<td>marketing</td>
<td>absent</td>
<td>absent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regime</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>control</td>
<td>strong</td>
<td>medium</td>
</tr>
<tr>
<td>communication</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>co-ordination</td>
<td>strong</td>
<td>low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>routineness</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>technical support from headquarters</td>
<td>strong</td>
<td>weak</td>
</tr>
<tr>
<td>managerial capacity</td>
<td>weak</td>
<td>weak</td>
</tr>
</tbody>
</table>

Broader tasks in conjunction with other development activities, as envisaged by FOA policy-makers, cannot be undertaken for various reasons. Most of the supervising staff of headquarters level agree that the scope of activities at field level is limited to the provision of credit and inputs to member-farmers. Such other activities, that are carried out by specialized field staff, are of very limited scope and of short duration. In fact, the other FO sections, such as administration, economic development and rural extension, are mainly used for supporting the credit and supply functions.

Problems associated with supervised credit

As Bank officials feel that farmers generally are inclined to apply for more credit than they can use in actual farming operations, a system of supervision is regarded as indispensable. FOs are used for this purpose, as they are responsible for credit operations, assessing credit requirements in a particular area, repayment capacity of applicants and recovery of loans. All applications should pass through a screening committee consisting of members of the board of directors, the general manager, credit officer and the SAU chief. In practice, however, it is difficult to formulate objective screening criteria and to arrive at unanimous decisions. As FO personnel lack
first-hand information of farmers’ creditworthiness, they have to depend heavily on recommendations from board members and chiefs of the SAU’s to which the applicants belong.

Most informants agree that informal relations play an important role in approving credit applications. Another problem relates to the considerable overlapping of functions among several credit agencies operating particularly in the Muda area. Apart from credit supplied by the Agricultural Bank of Malaysia, rural co-operatives still act as credit agents of Bank Rakyat (the Co-operative Apex bank). Furthermore, a private institution, Insan Diranto, an agency of the Chartered Bank, provides non-supervised agricultural credit to its members. The United Asian Bank is another supplier of agricultural loans in the Muda area. It is therefore possible to make double and even triple loan applications, with all the problems related to supervised credit and loan recovery. The solution involving, for instance, an agreement to establish only one credit agency in a particular geographical area is hardly feasible. That notwithstanding, field personnel agree that farmers rely to a great extent on middlemen and shopkeepers, who operate informally and who have a better appreciation of the credit needs of their clients.

Recovery of loans

As with other institutions, the recovery of loans is one of the most vulnerable spots of the credit scheme operated through FOs in the two paddy areas under study. In the early years of this scheme, the rate of repayment was about 95%, which is a commendable record. Currently, however, FO in personnel complain about a growing slackness is repayment as indicated in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>1974/1 &amp; 2</th>
<th>1975/1 &amp; 2</th>
<th>1976/1</th>
<th>1976/2</th>
<th>1977/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muda</td>
<td>98%</td>
<td>97%</td>
<td>90%</td>
<td>84%</td>
<td>76%</td>
</tr>
<tr>
<td>Krian</td>
<td>100%</td>
<td>100%</td>
<td>95%</td>
<td>85%</td>
<td>69%</td>
</tr>
</tbody>
</table>

This sharp decline in repayment since 1975 is not an isolated case, but is prevalent in both the Muda and Krian areas. Overdue payments or downright failure to repay debts is felt by managers to be the most serious problem in the supervised credit scheme. For the Muda area, it is reported that for all 27 farmers’ associations unrecovered loans amounted to $244,333.00 in 1975/1, $634,954.80 in 1975/2, and $1,116,436.00 in 1976/1 (MADA 1976).

As to measures to recover outstanding loans, most managers indicated that FO staff constantly remind and advise to repay their loans during
farm visits. Some managers are trying to involve board members and unit
chiefs in the recovery process. The impression obtained is that loan reco-
very is not undertaken seriously and limited only to gentle persuasion.
When asked if any legal action was taken in the past, most managers re-
plied that "such action was under consideration". Only one Agricultural
bank officer remembered an instance when legal action was taken against a
recalcitrant borrower in the past three years. The dilemma encountered is
that the Agricultural Bank of Malaysia, assumes that recovery is the direct
responsibility of the local credit centres, while FO personnel feel it is solely
the Bank responsibility. There is strong evidence that both parties refer to
the role of the other in this matter and hence conveniently refrain from ta-
kling any positive action.

Excessive paperwork

In common with all supervised rural credit schemes, efficient book-keeping
and recording are essential elements in their administration. The present
system followed by the FOs involves seven steps, two of which have been
waived by the Bank in a actual practice. The steps include the filling in of
the application form, credit contract, a detailed credit card, coupons (for
obtaining inputs), bill for cash items, and an overall statement of the loan
obtained. According to the FOs, the routine formalities involved for far-
mers who apply for credit for the second or third time can be greatly re-
duced. Further it is generally felt that the application procedures could be sim-
plified, as many farmers do not understand them and are irritated by them.
Given the time spent on filling up forms and subsequent reporting, there is
little opportunity for field staff to actually supervise the proper utilization
of loans and provide guidance to the borrowers (Ho Nai Kin 1976).

The preoccupation with the credit scheme leaves little time for FO staff
to make field visits and meet farmers in the villages. When asked about
their division of work, most FO managers indicated that almost 70% of
official time was absorbed by office work and the remainder for other tasks
and field visits. In cases where FOs had succeeded in appointing additional
staff, the distribution was 60% to 40%. It is not clear, however, to what
extent field visits are being used for the benefit of the farmers. One can
even question if the personnel are fully occupied, especially outside the
peak seasons.

Managerial capacity and the implementation of projects

Although the authors are not in a position to evaluate the managerial capa-
city of FO staff, some preliminary observations based on interviews with
them are made. Most officers felt that their managerial capacity was very
limited. While some FO general managers appear to be development-oriented in their thinking, the lack of qualified personnel was felt to be a serious handicap in the implementation of activities at the area or local level. Furthermore, one could describe the manager's main function as administrative, and not as managerial, as their designation suggests. The officers who run the FOs have received an agricultural college education at Serdang or Bumbong Lima but have not received any training related to the management of rural development projects. It is argued, however, experience is gained and developed on the job.

The main issue here is what role they are expected to play by their superiors. If they have to perform duties as managers of vital development centres, this calls for a more dynamic role in managing rural development projects and activities. In reality, they perform administrative duties, related particularly to the agricultural credit programme. At headquarters, it is felt that the managers at primarily as officers in charge of agricultural development which emphasizes their role as government officials, assigning the managerial function to a secondary position. General managers have more occasion to exercise their administrative functions than to develop business-like characteristics or behaviour.

Implementation of projects

The implementation of any activity demands a business-like approach by FO managers. Indeed, in many official pronouncements the undertaking of agri-business and sound managerial practices are stressed (e.g., Ahmad Sarji 1977). On visiting the field offices of the FOs however, there was little evidence that these units are organised in a business-like manner. Few of the managers seem to have a practical knowledge of business principles and little experience has been gained in the application of these principles at the area of project level.

The agricultural or related projects undertaken by FOs may serve to illustrate the above observation. FOs are supposed to undertake a number of projects to enhance the income of these institutions and their members. Managers are free to choose any project in consultation with the FO board of directors. After agreement has been reached, a project plan is submitted to the State or Regional headquarters where the plan is scrutinized. In most cases, a small allocation is then obtained to start the project. It can also happen that an FO can undertake a project using its own resources.

Most projects are limited in scope and include poultry farming, and the cultivation of cash crops such as vegetables, cassava and corn. FOs within the Muda area also undertake non-agricultural projects such as the manufacture of furniture and sewing of school uniforms. These projects provide jobs to a limited number of FO members and their families. Although a few well-established FOs make some profit out of these undertakings, other units face serious difficulties in generating profits in the long run.
According to the staff interviewed, most FOs in the Krian area face serious problems in implementing such projects. There is much evidence that almost all these undertakings have not been very successful. Managers point out that all cultivable land is under paddy, and that, consequently, there is little scope for diversifying agriculture as advocated by headquarters. Also, farmers fail to show any sustained interest in participating in these projects, even when recommended by their own representatives.

**Internal communication and support**

In order to provide field personnel with information and practical knowledge, the support of staff and subject matter specialists is considered a vital component in the total communication and development process (FAO 1975). In this respect, the organizational structure of MADA offers more support to FOs than the FOA administrative system in Krian. From our observations in the Muda region, it is evident that meetings between staff officers and field personnel are held very frequently. Meetings and consultations are either convened at MADA headquarters or at the FO office at least once a month. During peak periods in the paddy cultivation cycle, meetings may even occur weekly. Some general managers even comment that they are held too frequently, as they interfere with their other duties.

In contrast, meetings between staff and field personnel in the Krian region occur less frequently; they are held on a monthly basis. All meetings are convened at FOA State headquarters in Ipoh. FO personnel are not inclined to consult their superiors as often as in the Muda region as, on previous occasions, they did not receive much advice from headquarters. Their reluctance to consult staff officers can also be attributed to the more formal relationships between administrative and field personnel. Vertical lines of communication may well coincide with the bureaucratic structure of this centrally conceived authority.

In comparing the two organizational systems, one should also take the wider geographical environment into view. In the Muda region, the average distance between FOs and their headquarters near Alor Setar is about 13 miles (20.8 km) as against 77.5 miles (124 km) in Krian to Ipoh. Transportation in Muda is also relatively easy because of the network of roads in the flat coastal terrain. In travelling from the FOs in Krian to Ipoh, a hilly stretch of road between Taiping and Kuala Kangsar is encountered. Moreover, one is confined to the main road, which is often congested with heavy traffic. This factor impinges on the frequency of meetings and easy consultations with FOA staff. On the other hand, long command lines impede staff from giving effective support and supervision to field personnel.

From these observations, one should not conclude that field personnel in Muda are more independent in their relations with MADA staff than their colleagues under FOA. MADA staff are clearly in command and control.
the FO personnel firmly. One can conclude in this respect that decentraliza-
tion is executed to the regional level and is not so much in evidence at the
FO area level. This results from the early conception of MADA with its
strong leadership and powerful position in the planning and implementation
stages of the Muda irrigation scheme. Farmers’ associations have been in-
troduced to execute service functions and not to act as independent field
units in the development process. There are, however, clear indications
that MADA’s Agricultural Division stresses the importance of active ma-
nagement by its local agricultural staff (Afifuddin 1975).

3.5 THE MISSING LINK OF COMMUNICATION

In theoretical terms, extension workers fulfill a linkage role, passing infor-
mation from their particular agencies to the farming community and vice
versa. From the structural perspective, these workers are not only posted to
a rural hinterland, but also work in a subordinate domain from an organi-
zational point of view. This has many implications for their position and
role in their respective working areas (Kalshoven 1978).

Role of the extension agent

The role of the extension agents is generally conceived as one being linked
to his farming clientele. At closer scrutiny, however, his role is related to
many other individuals as well, as may be seen in the following diagram
(Figure No. 3).

![Diagram of extension agent's role-set]

Although the roles making up the depicted role-set seem to be rather rigid,
in reality social relations between individuals can be described as loosely
structured. The extension agent’s role is sometimes adversely affected by
tensions and conflicts as well. Conflicts become manifest when the exten-
sion agent is aware that farmers in his unit urgently need a fresh supply of
paddy seed, at a time when he has received an urgent order to prepare a re-
port requiring some particular credit data. In this case, he may hurriedly arrange for the needed supply of seed in order to devote his efforts to comply with the request of his superior. Lacking specific guidelines on extension work, the agent tends to occupy himself with activities which conform to standard regulations. This in itself reinforces the bureaucratic role of the civil servant.

Field observations provide the impression that the extension agent projects the bureaucratic image of his agency to the public at large. He is required to depict himself more in the role of a "multi-purpose worker" than of a person in a distinct advisory position. As no specific demands are made on him in his subject matter competence, he cannot develop himself sufficiently in his professional capacities.

The traditional role of the extension worker is conceived as one of providing farmers with factual information and advice on technical matters, e.g., application of fertilizer in the early growing stages of paddy cultivation. The new developments in paddy farming requires up-to-date knowledge on the interrelated aspects of paddy cultivation and thus the extension agent's intermediate role between agricultural research and actual farming practices becomes crucial. The upward communication flow of information from the farmer to researchers is another essential component of the communication process.

As extension agents function within the FO structure, a new role is emerging for them. In order to increase the farmers' understanding and participation in the FO, there is an apparent need to provide them with knowledge about the purpose and activities of the FO, and the role which they are expected to play as FO-members. This all requires a flexible attitude on the part of the extension agent, and an orientation towards an educational or training role in his relationship with farmers.

Extension practices in reality

In the Malaysian context, extension agents are posted at each FO. Such officers are directly employed by the FOs in the Muda region, whereas their colleagues in Krian are under the Department of Agriculture. In both cases, these field workers depend to a great extent on the experiences of the agricultural officers. It has already been noted that the main objectives of FOs are to provide facilities for agricultural credit, inputs and extension. The institutions are conceived as "providing packages of comprehensive and integrated services at the grass-roots level" (Ahmad Sarji 1973:53).

At first sight, the well-located and strategically placed FOs in both areas seem ideally equipped for their development tasks. At closer inspection, the present ratio of one extension worker to 1,500-2,000 farmers is too large to undertake effective extension work. As recounted above, the credit and administrative functions of FO personnel require so much attention that there is little time to advise farmers on agricultural matters. Ironically, instead of being assisted in his advisory work by the other field personnel,
the extension agent in Muda is expected to assist his colleagues in their respective duties. 20

In Krian, 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. In addition, extension workers often have to collect other types of agricultural data requested by the State Headquarters in Ipoh. According to one observer „ . . . no standard procedure exists for the collection of such data, so each extension agent follows his own inclinations as to how it ought to be done” (Sternberg 1977:143). One of the agricultural staff pointed out that physical limitations of the area, such as the absence of proper water management, prevented the adoption of practices recommended to the farmers. This naturally reduces the motivation of the extension worker in undertaking advisory work.

According to the FO general managers, so far not much effective assistance has been obtained in the form of practical information from agricultural research station. As one of them candidly observed, “Our field visits cause much embarrassment to us, as we have general agricultural knowledge, while the farmers have much practical experience in paddy farming”. This statement reflects the field worker’s own position as well, as they consider their formal college education inadequate for providing practical advice to farmers. Similar observations on the extension worker’s competence are recorded by Nayan (1975).

During interviews with field staff, it appeared that the term “extension” has taken a special connotation, as many officers used it to denote the necessity of “extending our FO activities to the farmers”. This is not an isolated perception existing only at the field level; at the Muda headquarters, one of the staff remarked that “We have to extend our image to the farmers”. Other officers had a preference for the ‘sensitising’ aspect of extension, with its slight political overtones. These remarks highlight the present perception of some officials regarding extension work which differs considerably from the conventional meaning of extension which is to provide practical information and advice to the farming community.

Discussion with officers at MADA confirmed that they were well aware of the present shortcomings of extension work at all levels. In fact, the recently released Operation Manual (MADA 1980) contains instructions on how to operate the various agricultural and extension support services in the second phase of the Muda irrigation project. At the same time, the Agricultural Division of MADA has been considerably strengthened so as to provide the necessary services at the FO level. One of the new measures is to provide better support to the extension workers by having six subject matter specialists, covering such topics as rice agronomy, crop protection, training and extension.
It is also proposed to divide each new irrigation block into four to six manageable irrigation service areas, covering 80 to 200 hectares of land allowing for irrigation supply and drainage to be separately controlled. Within these areas, smaller service units are to be established where in farmers are expected to organize themselves into single water-user work groups. The leaders of these groups should act as the linkage between the farmers and the extension agents. In such a manner, it is expected that a better co-ordination between irrigation and agricultural input supply requirements of the farmers can be attained. Guidelines for extension work itself are derived from the "training and visit system" advocated by the World Bank. All these recommendations are to be implemented in the early eighties; at this stage, it is not possible to state whether the new linkage system will result in concrete improvements at the farm level.

Methods of extension work

In order to analyse the role of agricultural extension in farmers' decision-making related to the use of agro-chemicals, we will first briefly review the ways in which advice is given and the content of such advice. There are several forms in which agricultural extension is given. 

The largest group of farmers had contact with extension officers through what is called a "local course" or "one-day course", held at village level. In the Muda area, these courses are given by the Farmers' Training Unit, a sub-branch of MADA's Agricultural Division; in the Krian area, they are the responsibility of the field officers of the Department of Agriculture. These courses are organized in co-operation with the FO and the goal is to reach each village (or SAU) once every three or four years.

Unfortunately, we have been able to observe such courses only in the Muda area. The meeting starts with a small meal or "kenduri" provided by the extension officers. This serves to bring both extension officers and farmers closer together in a less formal atmosphere.

After the meal, lectures by different extension officers are given. The technical content of the lectures concerns the amounts of different types of agro-chemicals that should be used and the timing of their application. Furthermore, farmers are urged to immediately report attacks of the more dangerous types of insects to the nearest Agricultural Office or FO. Finally, farmers are advised to better manage the level of water in their fields, to rotovate their land in time, use approved seed and to change it regularly, take more care of the seed nursery bed, transplant in time and at a width of about one foot.

Except for fertilizer, there are no specific recommendations about the types of other chemicals to be applied, but farmers are urged to use chemicals for crop protection and as curative measures in the case of attacks or diseases. For this purpose, the FO credit packet contains protective chemicals.
Another form of extension advice received was through trials of new varieties and techniques on individual plots or a group of adjacent plots operated by farmers themselves.

These trials were accompanied by meetings with lectures, but only a limited number of farmers could be involved (4% of respondents in the Muda area had ever taken part in such a trial). Furthermore, only 11% of Muda respondents, all FO members, had received technical advice on paddy growing through courses of longer duration, most of them in the village school on a one day per week basis, soon after the introduction of double cropping.

Finally, some farmers said that FO staff had given them advice, either in the SAU meeting in the village or during the filling in of credit application forms. Such advice was of a very general character, repeating the main items given in the local course. Research data show that far more FO members than non-members have ever received advice from extension officers. This mainly due to the fact that the majority of the members attended the local course held in the village, while the non-members did not because, as they observed, they were not invited by the SAU chief. FO serviced non-members tended to shy away from the local course as well, although to a lesser extent compared with non-members. Among members, equal percentages of small and large farmers had received agricultural extension advice. The same holds true for the non-members, which indicates that membership is a far more decisive factor than farm size in the invitation to obtain extension advice.

From field observations and from farmers’ reactions, it can be concluded that the extension arm of the present agricultural services is a very weak one and needs to be strengthened at all levels.
4. THE RESPONSE OF FARMERS TO FARMERS' ORGANIZATIONS

For the purpose of this study, we have conceptually divided the nature of the farmers' response to the FOs in three parts: 1) response in terms of membership; 2) in terms of utilization of services and adoption of new technology and, finally, 3) response in terms of their contributions to FO administration and organizational development. One Farmers' Development Area in Krian and one in Muda were selected for a detailed analysis of farmers' response to the existence of FOs. Since ecological conditions in Krian are not as favourable as in Muda, the best Farmers' Development Area in Krian was selected, so as to minimize the influence of ecology on the farmers' response.

A number of conditions prevailing in the Gunong Semanggol Farmers' Development Area in Krian which could have influenced the farmers' response were matched as best as possible with those obtaining in the Muda area. By this method, we selected the Jitra Farmers' Development Area. Like the Gunong Semanggol area, it is a fringe area in which farmers derive a small part of their income from crops other than paddy, particularly rubber. Still, however, both in the Gunong Semanggol and Jitra Farmers' Development Area, 90% of the farmers considered paddy as their most important source of income. In both areas, urban employment opportunities are limited due to their location, being about 20 km from the nearest urban centres. Finally, in both areas, the FOs have been in operation for a fairly long period of about 10 years. In terms of project implementation, FOA and MADA staff regarded the FOs selected as being among the better ones in their respective areas. Table 4 gives some comparative data on the two se-

TABLE 4. SOME COMPARATIVE FIGURES ON SELECTED FOs IN KRIAN AND MUDA

<table>
<thead>
<tr>
<th></th>
<th>paddy area covered</th>
<th>membership share capital per member</th>
<th>number of SAUs</th>
<th>number of MADA/FOA staff</th>
<th>number of workers employed by FO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krian</td>
<td>5,500 ha</td>
<td>2100</td>
<td>$25</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>Muda</td>
<td>2,400 ha</td>
<td>781</td>
<td>$115</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

1) Data refer to the situation at 1-1-1978

56
lected areas. The high number of workers employed by the FO in Muda is due to the two shops which it operates.

MADA gives little priority to the implementation of the integration policy between agro-based co-operatives and farmers' associations discussed in chapter 2. The FO in Jitra is still registered as a farmers' association and there have been no attempts at integration with the only other farmers' institution operating in the area, a co-operative rural credit society. This cooperative also functions as credit agent for the Agricultural Bank.

The FO in Gunung Semanggol, Krian, was transformed from a farmers' association into a FO in early 1976. Until early 1979, only one of the three co-operative societies operating in the area, a rice milling co-operative, had been loosely integrated with the FO. At that time, this co-operative which was on the verge of bankruptcy, was considering full integration with the FO. According to some committee members, the other two co-operatives, one inactive rural credit society and an active rice milling society have never been approached with proposals about integration and were unaware of the existence of this policy.

4.1 FACTORS INFLUENCING THE FARMERS' DECISION TO JOIN THE FO

The decision-making situation

In order to understand the nature of and factors influencing the farmers' response in terms of membership, it is necessary to bear in mind the involvement of Government organizations in the establishment and operation of FOs particularly in terms of initiative, manpower, guidance and funds. Due to this involvement, farmers view the FOs mainly as semi-government organizations to provide them with cheap short-term production credit, i.e. as a channel for subsidies. Such an involvement implies also that decision-making concerning membership is cast in a context totally different from what it would have been without this involvement. Under these circumstances, membership neither carries with it any obligations to the organization, nor the need to make real sacrifices to guarantee its continued existence. Rather than commitment to a common cause, membership implies gaining access to a collective good in the sense used by Olson (1965). In this situation, farmers are motivated to join exclusively in terms of individual benefits of membership without reference to common goals and interests, organizational solidarity, etc.

Another important aspect of decision-making concerning FO membership relates to the way in which farmers search and process information about such matters as institutional production credit. This point is illustrated by our experience in the Muda area where several institutional credit organizations operate in one location.21 Contrary to what one would expect, however, farmers do not actively seek comparative information on
the various alternative institutional credit sources in order to select the cheapest or most suitable type of credit. Even FO members had never compared the advantages and disadvantages of institutional credit provided through the FO against competing sources even when located in the same village. Farmers, being only partly literate and having little experience with formal organizations, are not content with the general and abstract information obtainable in the various credit institutions. The type of information required relates to personal experience with certain types of credit, which only other farmers can provide. Thus a farmer will only start contemplating membership in a credit organization when other farmers inform him the actual benefits derived.

One of the major reasons why farmers do not actively seek all available information from other farmers is the nature of the local social structure. In a recent comparative study of Japanese and Southeast Asian paddy-growing villages, Kuchiba and others have drawn attention to a number of characteristics which paddy-growing villages with bilateral kinship systems on large flat plains in Southeast Asia seem to have in common (Kuchiba and Bauzon, 1979). Using a concept introduced by Embree (1950), Kuchiba categorizes these villages as "loosely structured social systems." Our village level experience confirms the validity of this characterization to a great extent.

Both in Krian and Muda, the basic social unit is the household mainly consisting of a nuclear family, which operates the resources of its members as a single enterprise. Kinship units beyond the nuclear family or household are bilateral groupings of minimal genealogical extension. Social organization above the household level is characterised by a relative absence of permanent organizational structures. Villages are geographic rather than social entities with a relative absence of feeling as a community. Non-villagers can move into the village without initiation ceremonies or without having to ask permission from anybody except the landlord. Settlers are co-equal in status to the people living in a village. There is no village administration with legal powers and authority over a village territory. Common problems, related to the care and maintenance of local infrastructure, are solved through ad hoc organizations of communal labour parties (gotong royong) formed on a neighbourhood rather than a village basis. Only those tangibly affected by the problem are supposed to provide labour inputs. Problems of a social nature, such as quarrels among families, have to be solved by bringing both parties together, with the aid of intermediaries. In serious cases, people request the help of an informal leader living in the area. Such leaders have achieved their status through a certain charisma. Traditionally, leaders are elderly, wealthier, educated people with a respectable moral and religious background. Nowadays, good contacts with Government officials is an important criterion. Informal leaders have to be able and willing to help other people in their dealings with Government organizations (Ahmed Hussein, 1979; Husin Ali, 1968). These leaders occupy a rather central position in the village and often serve
on several of the permanent village committees such as the committee that
looks after the mosque and government-initiated-committees such as
school committees, parent-teachers' associations and the Village Security
and Development Committee.

The local social structure is mainly based on dyadic relationships be­
tween individuals. Farmers maintain relationships with some — but most
certainly not all — other farmers in a village. Some, moreover, maintain a
wider network of relationships, while others have relationships only with
some neighbours and relatives. In the existing dyadic social structure, far­
mers generally do not approach and obtain information on institutional
credit sources from farmers with whom they maintain no direct relation­
ship. Thus, access to information on institutional credit sources is dependent
on the experience with such credit available among those individuals who
constitute a farmer's network of social relationships. It is not uncommon
for farmers to maintain social relationships with only a few other villagers,
none of whom have experience with institutional credit. Such farmers, with
the exception of the more perceptive among them, very often do not join or
never even contemplate joining a credit organization. If there is experience
with institutional credit among those who form a farmer's network of social
relationships, it is nearly always confined only to the FO. Thus, there is
no opportunity to compare the various institutional credit sources and far­
mers tend to favour the source for which they can obtain information. The
reason for the relative popularity of FO credit is that, unlike other credit
agencies, MADA and FOA have approached informal leaders as interme­
diaries when a SAU is to be established in a village. These informal leaders
canvass for new members from among the people under their sphere of in­
fluence. These followers comprise villagers with a greater interest in com­
munal affairs and who participate in gotong royong activities more often
than others. Farmers who do not belong to this group and who have no
direct relationship with any of its members are seldom invited to join
the FO.

*Individual decision-making*

The individual farmers' decision whether or not to join the FO is predica­
ted upon his evaluation of relative costs and benefits of membership. Table
5 summarizes members' answers to the question why they had joined the
FO. In the interviews, the methodology followed was to ask for all possible
reasons until the farmer could not think of any other. Whether the answers
are *ex post* rationalizations or not, the outcome is significant in providing
information about what elements farmers regard as useful in the FO. As
the table indicates, the major and often only *reason for membership* is
to obtain access to cheap production credit. A second relevant observation
is that the Muda farmers more readily provide other reasons than the far­
mers in Krian. Although some of these other answers include other material
TABLE 5. REASONS FOR FO MEMBERSHIP (% OF MEMBERS)

<table>
<thead>
<tr>
<th>area</th>
<th>no cheap credit</th>
<th>cheap credit</th>
<th>cheap credit + advice</th>
<th>cheap credit + share in profit</th>
<th>cheap credit + advice + share in profit</th>
<th>other reasons</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krian</td>
<td>3</td>
<td>85</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>100 (n = 114)</td>
</tr>
<tr>
<td>Muda</td>
<td>1</td>
<td>75</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>21</td>
<td>100 (n = 107)</td>
</tr>
</tbody>
</table>

benefits obtained from FO membership, it is significant to note that there are farmers who joined "in order to strengthen the FO", "to unite and develop" or "to end the oppression of the middlemen", etc. These farmers, mainly elected FO representatives, had more ideological notions in mind when they joined the FO. The reason for the prevalence of these notions among Muda FO leaders in comparison to Krian is that MADA, and particularly its Agricultural Division, disseminates such ideological concepts to FO representatives. This is not the case in Krian. However, such verbalizations of ideological commitment by these leaders do not imply a great divergence in their perception of the FO and their roles compared to their counterparts in the Krian FO. Their attitude is probably best represented in one representative's answer in response to the question why he had joined the FO: "Untuk menolong Kerajaan membasmi kemiskinan orang kampong" ("to help the Government eradicate poverty among the rural population"). This attitude reflects dependence on Government action rather than on their own initiatives.

When members were asked whether they expected any new benefits from FO membership in the future, the vast majority of members (86% in Krian and 74% in Muda) replied negatively. Those who expected future benefits, again mainly FO representatives, underscore our contention that farmers regard FOs as a channel to provide them with various subsidies. For them, future benefits depend very much on Government provision of subsidized fertilizer and other inputs, machinery and agricultural advice, scholarships and other welfare assistance and better paddy prices.

In comparison to the FO members, some of the non-members had never contemplated joining the FO and, thus, could not produce rational reasons for their stand. Others, however, could explain their non-membership in rational terms. Whereas members stressed the advantages of cheap production credit, non-members emphasized the disadvantages of such credit compared to the alternative sources available. Non-members mentioned excessive paperwork, transport costs in time and cash, dependence on FO transport, quality and brand of fertilizer and membership entrance fees as
reasons why they do not prefer FO credit and thus did not join the FO. In order to obtain FO credit, members have to go the FO office three times: once for the application form, another for signing coupons and, lastly, for the disbursement of cash. Each visit takes at least half a day due to travelling and waiting in the FO office. To non-members, such efforts are only worthwhile if the benefits are large, i.e., when one needs a large amount of fertilizer. For the small farmers who only use a few bags of fertilizer, buying these on cash terms or obtaining them on credit from a nearby shop is preferred. Furthermore, they are free to choose whatever brand of fertilizer they like and can transport the bags home by bicycle, instead of depending on FO transport, and the uncertainties of delivery. Finally, they do not need to apply for membership, pay the necessary dues and buy shares, a cash outlay totalling $ 28, which is a substantial part of their monthly cash budget.

Although generally farmers pay more for shopkeeper credit than for FO credit, the absolute difference is marginal in the case of small farmers. Shopkeepers do not charge interest per se, but charge 10-20% higher prices on fertilizer and consumer goods, when they sell these on credit terms. On average, a small farmer who operates less than one hectare and applies recommended amounts of fertilizer thus pays only $5 — $15 more than he would pay if he used FO credit, excluding FO transport costs and visits to the FO. The farmer then has to sell his paddy through the shopkeeper who supplied him fertilizer on credit, but this would not be very different if he had used FO credit. Most FO borrowers also sell their paddy through local shopkeepers, who pay the same price for paddy whether the farmer has a debt or not.

Some small farmers in the Krian area, who are worse off economically than those in the Muda area, stressed yet another reason for their preference for shop credit: its flexibility and the lower risk involved. For a small farmer who needs credit, access to credit must be assured even when occasionally he is not able to repay the full loan given to him. Only the shopkeeper provides this assurance, since FO credit is terminated when outstanding loans are not repaid. For such farmers, shopkeeper loans have the further advantage that interest payments do not accumulate when a loan cannot be repaid promptly. However, when a FO loan is not repaid, the debt increases at a rate of 4.25% interest per season and a 1% fine per month, i.e., more than 20% per year.

Farmers' opinions on the advantages and disadvantages of FO membership and institutional credit show that economic conditions, particularly farm size, significantly influence whether a farmer

i. prefers to buy his inputs on cash terms;
ii. prefers shop credit or at least considers FO credit as no better than shopkeeper credit, or
iii. prefers FO credit.

Cultivated acreages in both Farmers' Development Areas studied were small. In Krian, the average was 1.3 hectares while in Muda this was 1.4 hectares. In both areas, one finds deviations from these averages in
both directions, but farms of more than 3 hectares are an exception. For cross-tabulation purposes, we have sub-divided the farmers in our sample into three farm size categories: small farms of less than 1.0 hectare, medium-size farms of 1.0 - 1.5 hectare and large farms of more than 1.5 hectare.

**TABLE 6. MEMBERSHIP IN THE FO IN KRIAN (% OF FARMERS)**

<table>
<thead>
<tr>
<th>farm size category</th>
<th>FO member (%)</th>
<th>non-member (%)</th>
<th>total farmers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 1.0 hectare</td>
<td>34</td>
<td>66</td>
<td>100 (n = 63)</td>
</tr>
<tr>
<td>1.0 - 1.5 hectare</td>
<td>61</td>
<td>39</td>
<td>100 (n = 45)</td>
</tr>
<tr>
<td>more than 1.5 hectare</td>
<td>80</td>
<td>20</td>
<td>100 (n = 69)</td>
</tr>
<tr>
<td>all farm size categories</td>
<td>59</td>
<td>41</td>
<td>100 (n = 177)</td>
</tr>
</tbody>
</table>

$x^2$ (2 d.f.) = 28.79 (significant at 0.01 level)  
Kendall's tau c = 0.43 (significant at 0.01 level)

**TABLE 7. MEMBERSHIP IN THE FO IN MUDA (% OF FARMERS)**

<table>
<thead>
<tr>
<th>farm size category</th>
<th>FO member (%)</th>
<th>non-member (%)</th>
<th>total farmers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 1.0 hectare</td>
<td>28</td>
<td>72</td>
<td>100 (n = 84)</td>
</tr>
<tr>
<td>1.0 - 1.5 hectare</td>
<td>44</td>
<td>56</td>
<td>100 (n = 44)</td>
</tr>
<tr>
<td>more than 1.5 hectare</td>
<td>70</td>
<td>30</td>
<td>100 (n = 57)</td>
</tr>
<tr>
<td>all farm size categories</td>
<td>45</td>
<td>56</td>
<td>100 (n = 185)</td>
</tr>
</tbody>
</table>

$x^2$ (2 d.f.) = 24.51 (significant at 0.01 level)  
Kendall's tau c = 0.38 (significant at 0.01 level)

The significant correlation between farm size and FO-membership in Tables 6 and 7 above indicates that, next to the influence of social relationships, the cost and benefits of FO credit play a very important role in determining the farmers' response in terms of membership. In other words, some farmers who were invited to join the FO by informal leaders (or their friends), did not become FO members because they expected no personal benefits from institutional credit. On the other hand, some of the farmers who were not linked to the networks of informal leaders became FO members on their own initiative, because of the personal benefits expected from FO credit.

Finally, the table shows that the Muda and Krian FOs both attracted similar percentages of members. The major difference between the two FOs, i.e., the stronger organizational support of MADA resulting in a larger number of business activities undertaken by the Muda FO, does not signifi-
cantly affect the farmers' response in terms of membership. The main reason is that such business activities play a limited role in farmers' decisions about FO membership, as we have shown. The major attraction of FO membership is the credit package and its cheap interest rate. Both in Muda and Krian, this credit programme is administered along procedures prescribed by the Agricultural Bank. In their role as agents for the Agricultural Bank, both FOs studied showed a largely similar performance towards their clientele, resulting in a similar recruiting impact.

4.2 Utilization of FO Services and Adoption of New Technologies

A second aspect of farmers' responses to FOs relates to their utilization of FO services and the adoption of new agricultural technologies. This aspect has been selected firstly because economic development of the membership is a prominent objective of national policies concerning the FO. Secondly, in a situation where farmers regard institutional credit as the major attraction of FOs, their greatest economic impact seems dependent on the utilization of credit and supporting services, like extension advice by their members.

The causal chain which we have to explore here is graphically presented as follows:

![Diagram](fo_services.png)

**Utilization of FO services**

Since access to credit is the main attraction of FO membership, it is obvious that the utilization of FO credit is largely dependent on the same factors which influence FO membership. However, only part of the membership uses FO credit each season (see Table 8).

<table>
<thead>
<tr>
<th>area</th>
<th>FO credit (%)</th>
<th>shopkeeper credit (%)</th>
<th>cash purchase from shops (%)</th>
<th>total FO members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krian</td>
<td>49</td>
<td>24</td>
<td>27</td>
<td>100 (n = 98)</td>
</tr>
<tr>
<td>Muda</td>
<td>61</td>
<td>20</td>
<td>19</td>
<td>100 (n = 69)</td>
</tr>
</tbody>
</table>

Both in Krian and Muda, for two thirds of the members who do not use FO credit the reason is indebtedness, while most of the rest failed to apply for credit on time. In general, failure to repay is attributed to natural causes like weather, but in some cases a new motorbike or TV set purchased after harvest is mentioned by neighbours.

Whatever the causes of non-repayment, indebted farmers have no further access to FO credit and thus either become dependent on cash purchase or on other sources of credit, particularly shopkeepers. In the latter situation, the new credit source becomes more important and overshadows the need to repay the FO debt, especially as it is well known that the FO staff does not take action against bad debtors. For these reasons, FO debts tend to be long standing overdues and the number of debtors increases every season.

This phenomenon is causing serious worry to FO representatives and part of the membership. They observe that lack of action by the FO adversely affects the repayment discipline of some members, which, in the long run, will result in unfavourable policies by the Government to the FO. FO representatives have urged FO staff to take stronger action against bad debtors, in vain however, because the latter are afraid of antagonizing the membership. In the long run, however, low repayment discipline may become widespread and, hence, affect a major FO instrument in improving the level of living of its members.

At this stage of analysis, no significance tests on the data presented in Table 8 is available. Even if the difference in utilization of institutional credit by members of the two FOs were statistically significant, this could not be attributed to a firmer policy by the Muda FO to bad debtors. In both Krian and Muda, cases of bad debts were referred to the Agricultural Bank for action with little result.

In Table 8, it is indicated that roughly half of the members used FO credit. Apart from them, a small number of non-members has access to FO credit through relatives who are members and who simply add the former’s acreage to their own credit application, usually with the consent of the Unit Chief. Six percent of the Krian and 3% of the Muda farmers obtained access to FO credit in this way. The aggregate outcome is that in Krian a total of 32% of all farm units used FO credit, while in Muda the corresponding figure is 31%. In the following, we will refer to these farmers as “borrowers”. Those who do not use FO credit are called “non-borrowers”. The latter obtain their inputs from shops either on cash terms or on credit (see Table 9).

In the previous chapter it was explained that in the Muda area, extension advice is provided through two channels: the FO extension agents and MADA’s Farmers’ Training Unit. In Krian, extension is the exclusive task of the Department of Agriculture. The methods used in both areas are basically similar, but the Muda structure facilitates an integrated manner of presenting material support and extension advice. MADA’s Farmers’ Training Unit reaches the farmers through the FOs, while the Department of
TABLE 9. WAY OF OBTAINING INPUTS (% OF FARMERS)

<table>
<thead>
<tr>
<th>area</th>
<th>FO credit (%)</th>
<th>shopkeeper credit (%)</th>
<th>cash purchase from shops (%)</th>
<th>total farmers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krian</td>
<td>32</td>
<td>30</td>
<td>38</td>
<td>100 (n = 164)</td>
</tr>
<tr>
<td>Muda</td>
<td>31</td>
<td>29</td>
<td>40</td>
<td>100 (n = 144)</td>
</tr>
</tbody>
</table>

1) Some farmers who borrowed cash from relatives or friends are included in this category. (Krian 2%; Muda 1%).

Agriculture in Krian has its own contacts with farmers, independent from the FOs.

Farmers' experiences with various types of extension activities are given in Table 10 below. Generally, farmers have little or no experience with extension activities. A total of 68% of all farmers in Krian and 71% in Muda had never had any experience with extension activities at all. The limited number of farmers who have had experience with extension activities are practically all FO members, particularly in the Muda area, but also in Krian (both relationship are significant at the 0.01 level).

TABLE 10. EXPERIENCE WITH EXTENSION ACTIVITIES (% OF FARMERS)

<table>
<thead>
<tr>
<th>type of extension activity</th>
<th>Krian (n = 164)</th>
<th>Muda (n = 144)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>experience (%)</td>
<td>no experience (%)</td>
</tr>
<tr>
<td>course</td>
<td>1</td>
<td>99</td>
</tr>
<tr>
<td>excursion</td>
<td>9</td>
<td>91</td>
</tr>
<tr>
<td>local one day course</td>
<td>8</td>
<td>92</td>
</tr>
<tr>
<td>demonstration</td>
<td>7</td>
<td>93</td>
</tr>
<tr>
<td>advice in DOA office&lt;sup&gt;a&lt;/sup&gt;</td>
<td>18</td>
<td>82</td>
</tr>
<tr>
<td>advice in FO office&lt;sup&gt;a&lt;/sup&gt;</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>farm visit</td>
<td>2</td>
<td>98</td>
</tr>
</tbody>
</table>

<sup>a</sup> The percentages concerning these types of extension activities are based on a random sample of farmers plus a sample of FO representatives. Since the latter have more experience with this type of advice, the percentages are probably artificially high. Percentages concerning all other extension activities in the table are exclusively based on a random sample of farmers.

Effects of the utilization of FO services on adoption of new agricultural technologies

Our attention can now focus on whether the activities of FOs contributed
to the adoption of new agricultural technologies and which factors have influenced farmers' responses in this respect. In order to answer these questions, we should first define what new technology means. A practical definition will be used: new technology is the package of paddy cultivation practices which officially forms the basis of extension work in the areas under study. This package consist of the following elements:

i. Use of seed varieties approved by the local agricultural research organization (MARDI), regular exchange of seed and seed selection using the salt water technique;

ii. Field preparation through two rounds of rotovation;

iii. Sowing at a prescribed date;

iv. Use of ammophos and crop protection chemicals on the nursery;

v. Application of a certain amount of compound fertilizer$^{22}$ per hectare just before transplanting;

vi. Transplanting of seedlings at the age of about 25 days;

vii. Planting density of 2 – 3 seedlings at about one foot intervals;

viii. Application of a certain amount of urea (45% N) per hectare$^{23}$, half of which is to be applied just before tillering and the rest at panicle initiation;

ix. Use of crop protection chemicals and curative measures in the case of pests or diseases;

x. Use of lime on acid sulphate soils.

This package of cultivation practices forms the basis of extension work in the Muda and Krian areas with only slight differences between the two areas (for instance, in Krian, the recommendation to rotovate is left out). With the exception of areas with acid sulphate soils, the recommendation is not differentiated according to sub-areas within the Muda or Krian irrigation schemes. In practice, however, extension workers do adapt the recommended package more or less on their own initiative. They leave out elements which they themselves regard as unrealistic and unacceptable to the farmers. Thus, the adaptations are based on farmers’ experiences to a considerable extent. Practically all extension workers dropped the recommendation of approved varieties, with the exception of some farm experiments with such varieties. Krian extension workers advise farmers “to transplant as early as possible”, but do not mention a specific age of the seedlings.

Although the recommended cultivation practices come as a package, farmers typically select elements of the package which suit their particular circumstances. Furthermore, the degree of adoption of some elements varies according to different factors including the farmer’s economic situation, quality of his fields, irrigation and drainage facilities and personal characteristics. Even among borrowers there is a wide variation in the adoption of new technologies. The FO credit package consists of fertilizers, insecticides and cash to meet the costs of land preparation and, in some FOs, of labour wages for transplanting. However, borrowers are free to accept only part of the package and, for instance, leave out the cash element. Furthermore,
any amount of fertilizer or insecticide can be obtained, as long as it is not more than the maximum allowed per hectare. Cash loans are provided in fixed amounts per hectare.

In the following, we will present some of our findings concerning the effect of FO credit and extension advice on the adoption of elements of new technology. Because there are very few non-borrowers who have experience with extension activities, it is impossible to test the separate effects of extension advice or FO credit. Any differences between borrowers and non-borrowers must then be attributed to the combined effects of these two variables.

For both Krian and Muda, tests of significance were made to evaluate whether borrowers differed from non-borrowers in the adoption of various elements of new technology. Such differences could be observed in the utilization of certain inputs contained in the FO credit package, but not in the adoption of other elements of new technology, like seed selection method, age of seedlings at transplanting, planting density, etc. The recommendations concerning most of the latter practices are so general and have remained unchanged for so long, that they have become known to practically all farmers, irrespective of experience with extension activities and whether they are borrowers or non-borrowers. It appears, however, that FOs are most effective in stimulating the use of those inputs which they provide on credit. In this section, we will concentrate our analysis on the differences between borrowers and non-borrowers in the utilization of inputs contained in the FO credit package.

There are some factors which, however, complicate this line of analysis. During interviews, farmers made it quite clear that it is not only access to institutional credit and extension advice by FOs which influence their use of these inputs. This is most clearly illustrated in the case of fertilizers. Farmers generally use fertilizer at levels which they themselves recognize as sub-optimum. In Krian, 70% of the farmers believe using more fertilizer than their present levels would increase their income. The corresponding figure for Muda is 51%. Fertilizer is not applied more intensively because a majority do not have enough cash and are afraid to borrow more fertilizer. It is rationalized that when the expected higher yield does not materialize or when its cash value is substantially reduced because of rain during harvest, the higher debt obligation forces more rigid economies in expenditure or greater dependence on consumer credit. Although increasing fertilizer use up to recommended levels will not involve large cash outlays and despite the fact that fertilizer costs represent a small part of total production costs, farmers are still hesitant to use the recommended quantities. It became quite clear that farmers, even though conscious of the relationship between extra fertilizer and higher yield, are acutely aware that this relationship is subject to uncertainties and, more important, the effect is often not visible. Thus, raising actual fertilizer applications to recommended level tends to be regarded as something of a gamble which only farmers with higher incomes can afford. For lower-income farmers, however, the purchase of ex-
extra fertilizer competes with other pressing needs, and farmers become more sensitive to the uncertainty of the outcome of the former. Access to credit does not provide a solution in such a situation as credit has to be repaid from future income. Where other needs have priority, farmers will not be prepared to take the risk of unfavourable returns.

Another factor which constrains fertilizer use, is that farmers with lower incomes, who would have to buy extra fertilizer on credit, are less inclined to rely on credit in general. These farmers prefer to purchase all necessary consumer goods and inputs on cash terms for fear of becoming indebted, and subsequently having to purchase their requirements on a credit basis at much higher prices. This tendency to avoid credit is stronger among low-income farmers, which can be illustrated as follows. Suppose the margin of surplus income, i.e. the margin of total gross income over the sum of subsistence requirements and unavoidable cash expenditure for both production and consumption in one season, is x%. Then the probability of becoming indebted is equal to the probability that natural factors or price fluctuations will reduce total gross income with more than x%. Since the latter probability is equal for all farmers operating under the same ecological conditions and, obviously, decreases with increasing x, it follows that the probability of becoming indebted decreases with increasing x, i.e. with increasing margins of surplus incomes. Because of the tendency, especially among farmers with lower incomes, to avoid dependence on credit, fertilizer use becomes constrained by limited cash resources on hand. Even when these farmers cannot avoid dependence on credit, they keep their debts as low as possible. Thus with the prevailing uncertainty about the impact of extra fertilizer on yields, they regard buying extra fertilizer on credit as unwarranted.

In the research areas, the margin of surplus income is mainly dependent on farm size, since there are very limited opportunities for earning off-farm income. Thus we get the following hypothetical model of causal relationships:

![Diagram of causal relationships](image)

Figure 5

68
The model complicates the statistical analysis of the effect of FO credit on adoption of new technologies. In testing for the significance of either the second or the third relationship, we should eliminate the effect of the other. In a preliminary analysis of the causal relationships in this hypothetical model, we used farm size as a convenient indicator for surplus income. For each element of the FO credit package, the difference in adoption was tested as follows:

i. Between borrowers and non-borrowers;
ii. Between small, medium and large farms;
iii. Between borrowers and non-borrowers eliminating the effect of farm size; thus separate tests were performed for the small, medium and large farms;
iv. Between small, medium and large farmers, eliminating the effect of FO credit; thus separate tests were performed for borrowers and non-borrowers.

Use of field fertilizers

Chemical fertilizers are the most popular element in the FO credit package, with practically all borrowers buying fertilizers on credit. As indicated above, borrowers can obtain any amount of fertilizer below a certain maximum allowance per hectare, and are not forced to take the full fertilizer package.

In this section the effect of FO credit on the amount of fertilizer used is examined first. Then, its effects on other aspects of fertilizer use, such as order and timing of the application of proper proportions of various fertilizers will be evaluated. In measuring fertilizer use per hectare, kilogrammes of urea cannot be simply added to kilogrammes of compound fertilizer, because of price differences. In our tests of significance, therefore, we used total expenditure on fertilizer per hectare as an indicator for fertilizer use. This indicator is relatively unambiguous, because fertilizer prices for borrowers and non-borrowers do not differ significantly. The indicator measures whether borrowers, as compared to non-borrowers, face less financial constraints in the use of recommended amounts of fertilizer.

Table 11 shows the average total fertilizer costs per hectare for borrowers and non-borrowers in various farm size categories in Krian and Muda. The next table shows the statistical significance of the various differences for which tests were made according to the schedule outlined above.

Statistically significant differences between borrowers and non-borrowers were found in both the small and medium farm size categories in Muda. In the large farm size category, however, both borrowers and non-borrowers spend similar amounts on fertilizer per hectare. Generally, borrowers in Muda, irrespective of their farm size, apply fertilizers more or less at recommended levels. Among the non-borrowers, however, only large farmers apply recommended fertilizer levels, while the small and medium non-
TABLE 11. AVERAGE TOTAL COST OF FERTILIZER PER HECTARE

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Krian</th>
<th>Muda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Borrowers</td>
<td>Non-Borrowers</td>
</tr>
<tr>
<td>less than 1.0 ha</td>
<td>116</td>
<td>114</td>
</tr>
<tr>
<td>1.0 - 1.5 ha</td>
<td>106</td>
<td>101</td>
</tr>
<tr>
<td>more than 1.5 ha</td>
<td>136</td>
<td>94</td>
</tr>
<tr>
<td>all farm size categories</td>
<td>117</td>
<td>103</td>
</tr>
</tbody>
</table>

TABLE 12. STATISTICAL SIGNIFICANCE OF OBSERVED DIFFERENCES IN AVERAGE TOTAL COST OF FERTILIZER PER HECTARE

<table>
<thead>
<tr>
<th>Area</th>
<th>Statistical Significance of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Between Borrowers and Non-Borrowers</td>
</tr>
<tr>
<td></td>
<td>Small Farms</td>
</tr>
<tr>
<td>Krian</td>
<td>not significant&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Muda</td>
<td>.021</td>
</tr>
</tbody>
</table>

1) At 0.10 level.

borrowers lag behind. Apparently large farmers in Muda are able and willing to use recommended amounts of fertilizer, even without access to FO credit. In the small and medium farm size categories, however, those without access to FO credit apply less fertilizer than borrowers.

In many respects, the pattern of fertilizer use in Krian differs from that in Muda. In Krian, there are no statistically significant differences in expenditure on fertilizer per hectare between the borrowers and non-borrowers in the small and medium farm size categories. The influence of FO credit in Krian is confined to the large farm size category. Looking at the borrowers separately, in Krian only the large borrowers use near recommended amounts of fertilizer, while the small and medium borrowers use less than the prescribed level. Irrespective of their farm size, the non-borrowers, too, buy less than the recommended levels. Thus, unlike in Muda, large farmers in Krian do not use recommended amounts of fertilizers unless they have access to FO credit. Similarly unlike in Muda, among the small and medium farmers in Krian, access to FO credit has no effect on fertilizer use.

Summarizing the differences between Krian and Muda in the effect of FO credit on fertilizer use, it can be stated that:

1. In Krian, there is no effect among the small and medium farms because both borrowers and non-borrowers apply less than recommended amounts of fertilizers.
ii. Among the large farms in Krian and among the small and medium farms in Muda, access to FO credit is correlated with higher expenditure on fertilizer. Borrowers use near recommended amounts, non-borrowers use less.

iii. Among the large farms in Muda, there is no effect of FO credit on fertilizer use, since even non-borrowers apply near recommended amounts of fertilizer.

At this stage of data analysis only a tentative explanation of these differences can be given. The pattern of differences suggests, that fertilizer use is subject to constraining factors which are so strong in the case of small and medium size farms in Krian, that they cannot be overcome by FO credit. In the case of large Krian farms and small and medium farms in Muda, these constraints are less strong and can be overcome by FO credit. Finally, these constraints are weak or absent in the case of large farms in Muda, in that they can be overcome without FO credit.

For an, as yet untested, interpretation of these constraining factors, we refer to our hypothetical model of causal relationships presented in Figure No. 5. This model, constructed before survey data were collected, appears incomplete when an analysis of the data on fertilizer use in Krian and Muda is attempted within a single comprehensive framework. The problem is that the margin of surplus income over subsistence requirements and unavoidable cash expenditure is not only dependent on farm size, but also on farm productivity per hectare per year. Although the latter is relatively constant within the areas studied, there are considerable differences in productivities and incomes between farms of equal size in Krian and Muda. The income from Krian farms is lower, because cropping intensity in Krian is 150%, compared to about 200% in Muda and, as we shall see, average yields are considerably lower in Krian. The combined effect of these variables is that gross incomes per hectare and per year in Muda are about 80% higher than in Krian. Even taking into consideration the higher production costs per hectare per year in Muda, Krian farmers with farm sizes equal to Muda farmers, earn less surplus income. In effect, this means that our hypothetical model of the factors determining the adoption of expensive new technologies should read as follows:

Figure 6
This hypothetical model of causal relationships provides a tentative explanation of our findings concerning fertilizer use in Krian and Muda. It follows from this model that the financial constraints to the use of recommended amounts of fertilizer are strongest among the small and medium farms in Krian and weakest among the large farms in Muda, with the other categories somewhere in between. This could explain why small and medium Krian farms use less than the recommended amounts of fertilizer and why FO credit has no effect in these cases. Apparently, where financial constraints are very strong, even farmers with access to FO credit give priority to the satisfaction of their more pressing needs and, for that reason, refuse to take the risk involved in raising fertilizer applications to the prescribed levels. With increasing margins of surplus income, financial constraints gradually weaken, but farmers still hesitate to apply recommended fertilizer levels. Under these conditions, access to FO credit can induce farmers to increase their fertilizer applications, as appears from the higher fertilizer use among borrowers as compared to non-borrowers among large Krian and small and medium Muda farmers. When, at the other extreme, there are no important financial constraints to fertilizer use, there is no hesitation to use recommended amounts: among the larger Muda farmers both borrowers and non-borrowers use fertilizer at the recommended levels.

Although our hypothesis cannot be more definite at this stage of data analysis, it is presented in order to emphasize the importance of such factors as cropping intensity and land productivity in decisions to adopt new technology. A tentative conclusion is that these factors are far more important than differences in organizational structure between FOs in Krian and Muda.

Concerning the timing and order of application of various fertilizers, a wide variety of practices are followed to suit farmers' individual preferences. Few farmers (10% in Muda; 6% in Krian) followed the practices recommended by extension workers. Most of them (73% in Muda; 94% in Krian) had worked out their own schedules, independent of other farmers. Although extension activities have little effect, it appears that FOs have an indirect effect on the proper timing of fertilizer applications. In both Krian and Muda, farmers who do not buy sufficient quantities of fertilizer tend to delay the timing of the application for fear of exhausting their supplies. This has obvious adverse effects on plant growth. By inducing some farmers to increase their fertilizer levels, FOs indirectly promote the proper timing of fertilizer applications.

Use of ammophos

Unlike the application of recommended amounts of field fertilizer, the recommended practice of using special nursery fertilizer (ammophos; N : P = 11 : 48) requires only small cash outlays. In Muda this practice is well
established among 79% of the farmers. Most other farmers use urea or compound fertilizer or a home made mixture of these two. Only 2% do not apply any nursery fertilizer at all. No statistically significant differences between borrowers and non-borrowers in the small, medium and large farm size categories related to this factor, was found. Neither among the borrowers nor the non-borrowers did farm size have any effect on this practice.

The use of ammophos is less popular in Krian, despite the fact that it is provided as part of the the FO credit package there, but not in Muda. Most Krian farmers apply urea as a nursery fertilizer, while only 2% do not use any fertilizer at all. As in Muda, there is no significant relationship between observed practices and use of FO credit or farm size.

The absence of any relationship between farm size and the practice of applying nursery fertilizer in both Krian and Muda indicates that financial constraints are not important in this respect. This is not surprising because of the low costs involved in applying at least some nursery fertilizer. Financial constraints could however have an effect on the amount of nursery fertilizer used, but this variable could not be measured.

The fact that borrowers and non-borrowers do not differ in their use of nursery fertilizer indicates that access to FO credit is not a determining variable. This is clearly demonstrated by the fact that ammophos is widely adopted in Muda, without any FO support for it.

**Use of crop protection chemicals**

In both areas, slightly less than 40% of the farmers take preventive measures to protect their crop. Another 40% rely on curative measures and 20% never take any such measures at all. As pest infestations and diseases have not been serious occurrences hitherto, these farmers regard it cheaper to undertake curative measures when there are signs of pests or diseases. Preventive crop protection is more expensive and is not considered absolutely necessary. In view of our hypothesis on the relationship of farm size to extra expenditure on inputs, it is not surprising that both in Krian and Muda the larger farmers are more inclined to take preventive measures than the smaller farmers. Among the borrowers and non-borrowers, there are statistically significant relationships between farm size and adoption of preventive use of crop protection chemicals (see Table 13).

There is also a statistically significant difference in the adoption of preventive measures between borrowers and non-borrowers in Muda. This effect is, however, confined to the medium and large farm size categories. Apparently FO credit has a stimulating effect on farmers who can afford the luxury of protective use of agrochemicals. In Krian, however, there is no statistically significant effect of FO credit on disease prevention practices. That the Muda FO is more effective in stimulating crop protection could be because in Muda, insecticides are part of the overall credit package, while
TABEL 13. STATISTICAL SIGNIFICANCE OF OBSERVED DIFFERENCES IN CROP PROTECTION

<table>
<thead>
<tr>
<th>Area</th>
<th>Statistical significance of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>between borrowers and non-borrowers</td>
</tr>
<tr>
<td></td>
<td>small farms</td>
</tr>
<tr>
<td>Krian</td>
<td>not significant (1)</td>
</tr>
<tr>
<td>Muda</td>
<td>not significant (1)</td>
</tr>
</tbody>
</table>

1) At 0.10 level.

in Krian, borrowers have to make a separate credit application in order to obtain insecticides. As its benefits are limited it is likely that many borrowers are reluctant to go through this extra application procedure and then postpone the purchase of insecticides on cash terms until necessary.

Use of mechanical rotovators

FOs contribute to the mechanization of field preparation in several ways, including renting out power tillers and tractors, provision of medium term credit to purchase machines, and seasonal production credit to finance mechanical field preparation.

In the Muda area, mechanical rotovators have almost completely replaced buffalo-ploughing. Some farmers, however, still use the waterbuffalo to level the land after mechanical rotovation. In the Krian area, field preparation was traditionally done by manually slashing weeds below the water level with a kind of scythe (tajak). Waterbuffaloes were not used because of insufficient carrying capacity of the soil. Since only part of the Krian area is suitable for rotovation by light power tillers, mechanized land preparation has not been as extensive as in Muda. Even on soils having sufficient carrying capacity, some farmers use power tillers during alternate seasons only. When land is not prepared with power tillers, the scythe is used together with weedkiller to reduce the burden of manually slashing weeds. In Krian, 46% of the farmers did not use mechanical rotovators, 42% were fully mechanized, while 11% used power tillers on part of their land.

The Muda FOs studied do not own power tillers or tractors to rent to their members. These services are obtained either from middlemen (large tractors) or — in most cases — from other farmers who invested in two-wheeled power tillers or small tractors. In Krian, middlemen have not invested in agricultural machinery as in the Muda area. However, the FO has rented out eleven power tillers to enterprising members, mostly FO committee members, to be rented in turn to other farmers. At the time of this research, these machines were quite old and the majority of them not ope-
rational and beyond repair. As in Muda, most farmers who use power tillers rent them from other farmers.

Both in Muda and Krian, the large majority of power tillers owned by farmers was obtained on a hire purchase agreement from private dealers. Very few members used the opportunity to obtain credit for the purchase of a power tiller from their FO. In the FO area in Krian, for instance, of at least a hundred power tillers only four were bought on FO credit.

Even though the FOs in Muda and Krian provide cash loans for land preparation, this did not affect the use of power tillers or the number of rotovations to a statistically significant extent. The most obvious reason for this is that practically all farmers (86% in Muda; 95% in Krian) who rent power tillers pay the service charge due after harvest. Thus, FO cash loans meant for land preparation are practically always used for consumer purposes.

In Muda, 73% of the farmers rotovated twice, while only 1% rotovated once. Due to the long drought preceding the main season of 1978 to which field data refer, some 26% of the farmers did a third rotovation. Hence, the Muda data may probably not be representative of normal conditions. Of those farmers who used power tillers in Krian, 42% rotovated once, while 58% did two rotovations.

Whereas FO credit has no effect on the number of rotovations, a statistically significant relationship of farm size to the number of rotovations is indicated. Both in Krian and Muda, large farmers tend to rotovate more often than small farmers (the relationships are significant at 0.05 level). This finding supports our hypothesis concerning the effect of farm size on expenditure for additional quantities of inputs.

The conclusion from this field data is that the adoption of mechanized field preparation methods is mainly dependent on soil conditions, while the number of rotovations depends on farm size rather than on access to FO credit.

Use of recommended varieties

Table 14 shows the percentages of FO members and non-members who had some experience with the seed supply programmes operated by the FOs in Muda and the Department of Agriculture in Krian. Under these programmes, farmers can exchange their own paddy for seed of recommended varieties on a 1:1 basis. In Krian, both FO members and non-members approach the Department of Agriculture which operates independently from the FO. In Muda, where the programme is operated by the FOs, FO members make significantly more use of this facility than non-members. In both Krian and Muda, small, medium and large farmers do not differ in the utilization of this facility.

The interest in these seed exchange programmes has been limited, particularly in the Muda area. Even when the first new non-photo-sensitive short
TABLE 14. EXPERIENCE WITH SEED EXCHANGE PROGRAMMES (% OF FO MEMBERS AND NON-MEMBERS)

<table>
<thead>
<tr>
<th>area</th>
<th>FO members (%)</th>
<th>non-members (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krian</td>
<td>39 (n = 104)</td>
<td>31 (n = 60)</td>
</tr>
<tr>
<td>Muda</td>
<td>23 (n = 72)</td>
<td>3 (n = 71)</td>
</tr>
</tbody>
</table>

Term varieties — mainly hybrids of high yielding varieties and local varieties — were introduced just before the start of double cropping, only a limited number of farmers could be supplied. These farmers multiplied the seeds obtained and provided their neighbours, relatives and friends after the first season. Thus, the new seed varieties were disseminated by a chain reaction.

In recent years, the interest in the seed exchange programme has decreased even further. Farmers have started growing non-recommended varieties of their own choice. These are not traditional varieties, but non-photosensitive short and medium-term 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 originate from MARDI's experimental plots and were selected by farmers because of particular characteristics which they favour. Farmers are constantly on the look-out for new varieties and are ready to try them out on the recommendation of relatives or friends. Thus in the Muda area, the researchers noted a rapid change from one non-recommended variety called “Seribu Gantang” to another, “Anak Dara Perlis”, which essentially was an adaptation to recent drought conditions in the area.

In Krian, varietal changes have not been as quick as in the Muda area, although the farmers do experiment with new seeds, particularly from the latter area. However, these seed varieties do not suit the deep-water conditions in Krian and thus farmers stick to their present favourite variety, which is a non-recommended variety. These observations show that at present, despite the greater popularity of the programme in Krian than in Muda, the seed supply programmes in both areas have little influence on the adoption of recommended varieties.

When they plant the same variety for several seasons, both Krian and Muda farmers regularly exchange seeds among plots or with other farmers. Few farmers (Muda 6%; Krian 14%), however, use salt water to select their seeds, as the practice is not thought to be effective. Concerning seed exchange and selection, there are no differences between borrowers and non-borrowers, or between small, medium and large farmers.

*Effects of adoption of new technology on yields*

With only one exception, field data do not show a statistically significant
difference in yield between borrowers and non-borrowers (see Table 15). This shows that despite the fact that borrowers and large farmers use more inputs than other categories of farmers, no effect of these practices could be identified. This observation is confirmed by experiments in the Tanah Merah Pilot Project area. With improved water control facilities, extension officers in this area mobilised a group of farmers who received all necessary inputs and were closely supervised by them. A comparison of yields with farmers outside the project area showed slightly higher yields for the project farmers in the first season, but considerably lower yields in the second season. In view of the higher input costs, the project farmers obtained a lower net income per hectare.

## Table 15. Average Yields of Paddy (Metric Tons per Hectare)

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Krian</th>
<th>Muda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Borrowers</td>
<td>Non-Borrowers</td>
</tr>
<tr>
<td>Less than 1.0 ha</td>
<td>2.8</td>
<td>2.7</td>
</tr>
<tr>
<td>1.0 - 1.5 ha</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>More than 1.5 ha</td>
<td>2.8</td>
<td>2.6</td>
</tr>
<tr>
<td>All Farm Size Categories</td>
<td>2.8</td>
<td>2.7</td>
</tr>
</tbody>
</table>

1) The only significant differences in the table are between small borrowers and small non-borrowers in Muda (significant at 0.01 level), and between small borrowers and medium and large borrowers in Muda (significant at 0.05 level).

These observations imply that at field level, the present technology disseminated by extension officers is not superior to that already used by farmers. It also means that plans to considerably increase the number of extension workers in both areas will not have the desired effect unless new and more effective technology is made available.

### 4.3 Members' Contributions to the Development of FOs

In the above, the response of farmers to FOs in terms of membership, utilization of services and adoption of new technology has been analysed. It is also government policy that FOs should develop into viable, self-reliant institutions managed by the farmers themselves. For this purpose, the formal structure of FOs resembles the structure of an association and not that of a government service organization.

In this section, the response of farmers in terms of their contributions to further the goal of organizational independence and self reliance will be discussed. The analysis will be confined to some of the more important factors influencing the purchase of shares, payment of dues, buying of inputs...
from the FO whenever possible, repayment of loans, attendance at meetings, serving as representatives and, more generally, the contribution of ideas and entrepreneurial ability.

Farmers' response in terms of these forms of contribution have been limited in both FOs studied. In Krian, few members have ever bought more than the minimum number of shares required for membership. The Muda FO studied extended credit on condition that the borrower would simultaneously purchase a minimum of shares; thus share capital per member was generally higher than in the Krian FO (see Table 4 above). Even then, however, farmers seldom bought more shares than was necessary to obtain FO credit. Membership dues in both Krian and Muda were only paid by active borrowers. Similarly in both areas, members only bought inputs from the FO when these were obtainable on credit. When members bought inputs on a cash basis, as some did to supplement the inputs obtained on FO credit, they preferred to deal with shops and not with the FO. In the Krian FO, for instance, only 1.4% of all inputs sold in one season (1977/78) was sold on a cash basis. Interest in SAU meetings was very limited in both areas. Quite often, SAU meetings could not be held because of insufficient quorum or were held even though there were not enough members attending.

There have been no problems, however, in finding representatives to sit on the Assembly and the Board of Directors (BOD) or to serve as SAU Chiefs. For these functions, members prefer the type of informal leader referred to earlier, i.e., men with a relatively prominent position in village society because of their initiative in local matters, experience with government organizations and who are ready to assist fellow farmers in their dealings with these organizations. Such leaders have to be respectable and accessible to many of the members. Usually they are relatively large farmers as small farmers cannot afford the time and effort required.

Elected representatives, particularly the SAU Chiefs, contribute to the FO by functioning as a communication link between FO staff and members. They accompany and assist members in their credit applications. They deliver letters summoning members to repay instalments, etc. When any SAU member has a problem in his dealings with the FO or has questions about something he does not understand, he contacts the SAU Chief or other representatives. All these are routine matters, involving functionaries in a pre-conceived administrative process, allowing flexibility only for minor adjustments such as proposing other brands of fertilizer, urging timely delivery and recommending action against bad debtors.

In another role, farmers' representatives, particularly the Board and Assembly members, have the opportunity to contribute to the FO in terms of ideas and entrepreneurial ability. Even though their authority is subject to upper level organizations such as MADA and FOA, nevertheless they are in a relatively powerful position. Despite this, however, their contributions in terms of leadership and entrepreneurship have been very limited because of ignorance of or inability to exploit available opportunities for business and other organizational activities. They have little experience in business.
and in organizational development and find it difficult to judge the feasibility of various project proposals. Furthermore, being informal village leaders, they sit on various other committees and thus cannot pay sufficient attention to their FO tasks. Even if they do make useful proposals, they have to depend on the FO staff for their implementation. Since the latter are generally as inexperienced as the former, a serious handicap in expanding the activities of FOs is faced.

Factors influencing members' contributions and some reflections on policy implications

The previous sections of this chapter have analyzed the response of farmers to FOs both in terms of factors which make for similarity in response and in terms of factors which cause a differentiation in response among individuals. However, because of the limited differentiation in the level of members' contributions to FO development in both Krian and Muda, the analysis is confined to the major common factors which influence the generally disappointing behaviour of members in this respect. Firstly, some of the factors which, according to sociological theory, influence members' contributions to the development of organizations like the FO will be reviewed. Secondly it will be examined why these factors are absent or weak.

Some of the more important conditions which should be fulfilled before members are prepared to make contributions like the buying of shares, attendance at meetings, etc., are summarized below:

i. The norms and sanctions relating to the contributions which are expected of members must be generally known to the membership.

ii. Members must believe that making such contributions will eventually yield material benefits both to themselves and to the membership at large.

iii. Members must realize that there are no easier ways to obtain the same benefits.

iv. There have to be some means of social control to enforce the behaviour which is expected of members.

v. In situations where such control is not possible, members must still be prepared to some extent to conform to the norms, even if this conflicts with short-term individual interests.

The first, second and third conditions do not need explanation, but they are not sufficient conditions, however. Even when members know what behaviour is expected of them and that such behaviour will yield future individual benefits both for themselves and for the general membership, they will not always be inclined to live up to the norms. The reason is that, in many cases, individual members can obtain the same benefits, whether or not they make the contributions expected of them. Under such circumstances, members will be inclined to evade the contributions expected of them, especially when these conflict with short-term individual interests.
Thus, some measures of social control are necessary, but even these will be insufficient to enforce the behavioural norms, particularly when they are newly introduced, but also later on, because evasion of contributions is easy to conceal and difficult to control. Thus proper role performance by members, indispensable to the survival of the FO as an independent organization, will have to depend to a considerable extent on ideological commitment to the common cause. While the above conditions are certainly not comprehensive and do not do justice to the complicated theories concerning these issues, for our purpose they are sufficient to explain the behaviour of FO members.

Most members know that they are expected to buy shares, pay dues, attend meetings, etc., but the majority have serious doubts about the long term benefits of such behaviour and normally confine their contributions to the basic minimum to obtain FO credit. To a large extent, this reaction can be attributed to the heavy involvement of the government in FOs and the absence of any explicit policy directed at their self-reliance or independence. To the majority of FO members, FOs can never be anything more than a government channel to provide them with cheap credit. Most members were unable to articulate the issue of FO independence, because they had never given it a thought. Members who were able to discuss the issue did not believe that the FOs could be viable without government support. While many members, both in Krian and Muda, could recount instances of the failure of some co-operative credit society in their neighbourhood, experiences with successful credit co-operatives are scarce. Knowing that the relatively unsophisticated co-operative societies, run by unpaid committee members, have not proved economically viable, members cannot perceive of the situation in which FOs could pay its staff using its own resources. This lack of faith is strengthened by the fact that even now that staff salaries and other costs are subsidized by the authorities, the financial results have not been outstanding. In a situation where the long-term goal of independence remains a nebulous concept to members, positive contributions can only be predicated upon their short term interests. Thus, conditions ii and iii above cannot be fulfilled, mainly because of heavy government involvement in the FOs. It also indicates that simply reducing government support will not lead to higher contributions by members. Gradual withdrawal of government support has to be based on a deliberate policy directed at the development of FOs as independent organizations. Among the major objectives of such a policy are the following:

i. promote the economic viability of the FOs and, thus, attract members;
ii. make the benefits of membership to individual members more directly dependent on their contributions;
iii. increase ideological commitment to the FO objectives.

The dilemma concerning this policy is that it requires strong government involvement. Unlike the current involvement, however, such a policy should phase out the stages through which the ultimate goal of FO indepen-
dence can be attained. A gradual transfer of responsibility to the members, while simultaneously reducing government support should be programmed.

The objective of economic viability requires the provision of FO services at a lower or equal cost as compared to private middlemen. Naturally, the administrative burden of dealing with small farmers, e.g., the provision of many small loans involving a large amount of paperwork makes the attainment of the economic goal difficult, but this can be compensated by spreading out such fixed costs over a wider range of profitable activities. MADA is currently working on the development of various production activities undertaken by FOs. These experiments, including brick and furniture production, are not undertaken on a large scale, however, and more industrial feasibility studies are necessary before more suitable activities can be identified. Management skills of both FO staff and farmers' representatives have to be greatly improved, while at the same reducing bureaucratic control over their activities.

The policy of making FO membership benefits more directly dependent on individual members' contributions has been attempted by the Muda FO, which relates access to credit to share purchases. However, the constraint faced is that the quantum of such "forced" participation cannot be greater than membership benefits. As long as members view cheap credit as the only benefit, the limited price difference between FO and shop credit leaves little room for forced contributions. If FO credit were more expensive than shop credit, 89% of the FO members in Krian and 79% in Muda expect that at least half of the current FO borrowers will switch to the middlemen. This shows that the success of the policy of forced contributions is dependent on an increase in the benefits of membership, i.e., on the economic viability of the FO. The interdependence of these policy objectives is thus illustrated.

Economic viability, withdrawal of government support in planned stages and linking benefits more directly to contributions will facilitate the attainment of the second and third of the five conditions outlined above. However, if these two conditions were fulfilled, there remain serious obstacles to proper contributions by members. Although members generally recognize their obligations to the FOs, in the form of buying shares, patronizing the FO and attending meetings, it does not follow that they feel an actual commitment to these obligations. From our interviews, it became apparent that in situations where these obligations conflict with short-term individual interests, priority could be assigned to the latter. Most members did not even appear to consider the alternative of giving up private benefits in order to support the common cause. Thus, the ideological commitment which is indispensable to proper member-contributions is missing. There are no indications that this commitment would increase if the government were to withdraw its support. Moreover, social control over members' contributions cannot possibly be very effective. In fact, we found that both elected representatives and ordinary members exercise very little social control. Ordinary members do not consider it their task to control other members, thus placing the responsibility on elected representatives who are thus placed in a role
conflict. Their prestige as informal leaders is dependent on helping the members rather than reminding them of unpleasant obligations which have been evaded. In this situation, FO representatives only limit themselves to admonishing bad debtors to repay.

The present social organization of Malay paddy-growing villages provides very few means to control the tendency to give priority to private interests as against group interests, whenever these two conflict. Unlike the FO, most traditional types of economic co-operation in these villages such as labour exchange in agricultural production, burial funds and "syarikat pinggan mangkok" (see glossary), exist on the basis of clearly defined contributions before benefits can be obtained. In these forms of co-operation, the participants' self-interest cannot normally conflict with their obligations to the other participants. Only communal labour for the construction and maintenance of public facilities poses problems of conflict with self-interest. Firstly, villagers are asked to give up short-term individual benefits, for instance a day's wage, for the common good. Secondly, from the viewpoint of each individual, the benefits of communal labour could be obtained without participating. It appears that rural Malay society has developed no means to effectively control proper contributions to communal labour activities in the present situation. Both in Krian and Muda, about 25% of the households never took part in communal labour activities, while most of the rest participated infrequently. Although, in principle, all households benefiting from communal labour have to contribute labour inputs, non-attendance at communal labour parties is not penalized. For the poor, the excuse is that they cannot afford to sacrifice a day's wage; for the rich, non-attendance is accepted if the latter provide some money for drinks. However even those in the middle-income bracket, often stay away without penalty.

The conclusion to be drawn is that where society has been unable to deal with disloyalty or non-contribution in traditional types of economic co-operation, it may be impossible to expect social control and commitment to be exercised in the case of FOs. This point has been largely overlooked in the creation of FOs. Contributions to FOs, moreover, pose some extra problems in this respect. Unlike the case of communal labour, there is often no exact norm dictating what, or how much, is expected of FO members. Furthermore, when a FO member evades his responsibilities, this is easier to conceal than non-attendance at a communal labour arrangement. The MADA policy of increasing ideological commitment of the FO representatives does not overcome the problem of the lack of commitment and effective social control. If nothing else is done, not much improvement can be expected, since representatives continue to deal with ordinary members who expect help rather than being asked to make sacrifices. In our judgement, next to increased material benefits of FO membership (economic viability) and a more direct link between these benefits and individual members' contributions, there is a great need for formulated efforts to increase ideological commitment of the whole membership if FOs are to develop into viable independent organizations. This requires a continuous education programme designed to
train both members' representatives and ordinary members in co-operative ideology and the role which they are expected to play as FO members. The programme should not be directed only at providing knowledge, but should relate abstract concepts to actual practice. This could be done by forming small groups of about ten members who set standards of contributions for their members, record their performance and discuss shortcomings and problems. Good group performance could be rewarded with access to extra benefits. When groups are given the responsibility for the distribution of these benefits among their members, institutionalisation of group decision-making on these issues could reduce dependence on leaders as mediators between the members and the FO. This would facilitate acceptance of the concept of FO as a common responsibility of the members, rather than a channel for government subsidies.
5. CONCLUSIONS

The authors are acutely conscious of the many constraints that all academics and researchers labour under in formulating pragmatic solutions to the problems faced by bureaucrats in the field of rural development. However, it is also felt that this research report would be incomplete and our obligations unfulfilled if some preliminary findings and recommendations were not offered to the reader and, in particular, the authorities who generously permitted research work to be undertaken in their areas of jurisdiction. It is our express hope that what is given below will form the basis of further studies in the critical area of rural institutions and their role in rural development.

Concept of FOs as farmers' institutions

As with the old agro-based co-operatives and the farmers' associations, FOs can be perceived of essentially as government-sponsored and supported institutions with which farmers do not identify in the ideological sense of the term. It may be ironic that, in comparison with some of the agro-based co-operatives, decision-making and resource allocation is very much in the domain of control of the FO general manager and his staff. In contrast, the formal leadership role of the elected members of the board of directors and, hence, their influence on policy formulation are generally subservient to the former. To some extent, of course, this situation reflects a lack of organizational capacity among farmers and their leaders; even more so, the lack of managerial competence is indicated.

It thus becomes a matter of prime importance that the policymakers have to formulate some image — a Leitbild — of what will be the eventual role of the FOs in the long run. If the current tendencies are to continue, it may well be less costly and more administratively efficient if these institutions are formally remodelled to become service agencies on par with the National Padi and Rice Authority, for instance. If however, FOs are meant to play a fuller and more meaningful role in the convergence of the dynamism of the farming community in the processes of rural development, then new strategies are required to facilitate the exercise of the constitutional prerogatives of the farmers and their elected leaders.

It is realized that the role of the public sector in these processes is inevitable; what is less unavoidable is the dominant role of the staff assigned to the FOs. The formulation of the long term goal that would lead to reversal
of the current roles of the general manager vis-a-vis the board of directors would fundamentally re-orientate the present direction of organizational development. The training of board members and farm leaders is a prerequisite in this process as would a re-education of the officers of the FO. It is our impression that under the present administrative structures, the potential for such growth is greater in the Muda region than in the Krian area. At the same time it is realized that environmental factors – mainly irrigation and drainage facilities – contribute much to such growth potential.

**Promoting farmers' interest in FOs**

In order to increase farmers’ understanding, participation and ideological commitment to the FO, there is a great need to provide them with information about the purposes, formal structure and activities of the FO and the role which they are expected to play as FO members. At the same time, to attract farmers to the FOs, its range of economic activities should be increased, and its future benefits advertised extensively. In order to disseminate the required information effectively, there is a need for improving the communication links between farmers’ representatives and ordinary members. The present informal system of disseminating messages through farmers’ representatives reaches only part of the membership. Probably a regular and simple information bulletin, distributed to all members, would meet much of the need for extra information. In addition, active members in each SAU could be trained to give courses to interested fellow members on co-operative ideology and practice. This will improve the members’ perception of their role in the organization. Such active members could also be stimulated to work out proposals for projects at SAU or FO level to be discussed by them with the board of directors.

Activities at SAU level could be increased by promoting the concept of group borrowing for whatever feasible project. Some such groups are functioning on an informal basis at present under the name of "kongsi" or "syrakat orang kampong", but their development seems to be hampered by suspicion among farmers and the lack of capital. The former constraint can be reduced by requiring applicants to follow the training course on simple book-keeping and by having the FO control the accounts of the kongsi.

**Functions of FOs**

The major economic activities undertaken by the FOs in the two paddy areas relate to the administration and supervision of the agricultural credit and input scheme for farmers. This would appear to be rather limited in scope particularly when compared to the wider range of programmes and projects funded under the Third Malaysia Plan. Be that as it may, FOA’s stated objective in respect to the commercialization of farming activities re-
quires the generation of a more business-like behaviour on the part of the FOs and the farmers themselves. For the former, recovery of credit could be more stringently pursued and a firmer stand adopted vis-a-vis negligent borrowers. A broader range of more meaningful economic projects which would widen and diversify the range of farm activities rather than the marginal and often shortrun pursuits now undertaken is of the essence. In order to achieve this, the process of project identification should be a cooperative effort among the FO staff, the farmers and their leaders, in consultation with specialist staff from the Department of Agriculture, the National Padi and Rice Authority, Department of Veterinary Services and other agencies.

The processes of project formulation and evaluation clearly need to be strengthened particularly by training, inputs and other assistance from FOA headquarters. It is also worth emphasizing that the role played by private middlemen in the provision of inputs and services is more flexible compared to that played by the FOs. The commercialization of farm activities and operations should, therefore, involve an expansion of activities, assuming that such services are provided at competitive cost.

**Accessibility**

As is evident from this study, farmers in the bigger farm size categories have better access to FO services than small farmers. In order to provide services in a more equitable way, special programmes should be developed for those categories of farmers who lag behind. Farmers needing more attention are those in the smallest farm size category and all farmers living outside irrigation schemes. Special care should be given to the programming of new activities to reach those groups and to the selection of FO personnel coming into contact with them. Whatever new activities are to be undertaken should be based on the farmers' expressed needs.

**Administrative structure and organizational effectiveness**

The administrative structure represented by MADA appears to support FOs more effectively than the FOA structure in Krian, as is evident from the wider range of business activities undertaken by FOs in Muda as compared to those in Krian. One of the reasons for this may well be the shorter and more easily supervised communication linkages between MADA headquarters and the FOs and the higher quality of supporting services provided to the field staff. MADA is also consciously aware of the need to integrate the activities of the FOs in its overall rural development strategy while simultaneously attempting to nurture an organization with which farmers can identify. To a greater extent than in Krian, FOs are brought, via the Consultative Assembly, into the nexus of decision-making by MADA, al-
though the process is still in its preliminary stages and appears to involve more the channelling of information to the Assembly.

However, the wider range of business activities undertaken by the Muda FOs and better consultative linkages between MADA and the FO representatives, do not imply that the FOs in Muda cannot improve their performance in this respect. On another and, perhaps, more crucial plane, the need to create more independent farmers’ institutions is evident in the Muda area. To the credit of MADA, its staff is well aware of the need to formulate such an objective and design appropriate strategies to attain it in their long term plans. It is less evident with the FOs in the Krian area with their more cumbersome administrative linkages to the State and Federal FOA apparatus.

Despite the advantages of the administrative structure represented by MADA, FOs in Muda are not more effective than those in Krian in attracting members, in providing services to their farming clientele and in eliciting members’ contributions. Both in Krian and Muda, the main service provided to members, which is also the major, and often only, attraction of FO membership, is the provision of credit and inputs based on administrative procedures prescribed by the Agricultural Bank. This largely administrative task is performed in a similar way in both areas, resulting in similar responses by farmers. One could say that, due to the non-dynamic character of this task, the observed differences between the Muda and Krian administrative structures have little influence on this major dimension of FO performance. One could also say, however, that despite the obvious advantages of the Muda structure over that in Krian, MADA has not been able to exploit them by making credit provision play a more dynamic role than in Krian. However, when the range of FO services is extended, the organizational advantages of the MADA structure become more sharply focussed and, perhaps, result in differences in farmers’ responses in the two areas.

**Rural extension**

From field observations and from farmers’ reactions, the present extension methods are not very effective. Extension workers are not very certain about the content of their tasks and do not undertake activities meaningful for the farmers.

At the moment, the scope for increasing paddy yields through repeated local courses seems limited. The advice given is simple and general and already well-known to the majority of the farmers. Although farmers obviously do not follow all the advice given, they nevertheless get substantial yields. In the farmers’ eyes, these yields can stand the test of comparison with those obtained by more careful and cumbersome practices as advised by extension officers. Very often, farmers claim they obtain even more in their own way. This is not due to stubbornness as some of them did try out
new practices, sometimes under the guidance of extension officers, but with disappointing results. If extension has to have any further impact, therefore, trials by farmers in co-operation with extension officers have to be more impressive than they have been hitherto. Whether this can be realised does not only depend on the number of extension officers, but also on the availability of new technology that can really prove itself superior to that currently used by the farmers. Indeed, such technology is a precondition to any success being achieved. The use of effective extension methods, including audio-visual aids, is another area which should be strengthened considerably.

In order to provide for advisory work on paddy cultivation, workers should be properly trained in all aspects of paddy production. Sound supporting services should be provided to them. A work programme and a detailed schedule of activities are indispensable means to successful extension work. In order to provide extension workers with meaningful messages for the farmers, communication with researchers is a vital link in the total process. In this respect, the relation of FO personnel with MARDI staff needs strengthening and consolidation. The main topics that require emphasis are the special characteristics of new rice varieties, application of chemical inputs and upkeep of farm equipment. A better framework is needed to give extension personnel a proper perspective of the interrelated factors in development work such as the provision of drying, storage and marketing facilities in the paddy producing areas.

In short, the present blanket approach should be replaced with a more detailed system of information reflecting the interrelations in practical farm development work.

**Socio-economic research**

It is important to undertake further research on the structure and dynamics of rural organizations and their relationships with the farming community. In studying rural institutions with specific functions in the field of rural development and food production one should focus on their connection with particular farming systems, e.g. irrigation farming or mixed farming systems. Within these broad areas, the following topics seem relevant:

- Institutional environment and management of irrigation systems: infrastructural design and interaction between water-users and irrigation personnel in the allocation of scarce water supplies; interrelationship between irrigation and agricultural performance; role of irrigation associations.

- Role of farmers' organizations, committees and associations at the village and area levels; their contribution to agricultural development and welfare; linkages to the public sector; latent and emerging leadership patterns; design of optimal strategies and policies to transfer farmers' organizations to farmer members.
– Characteristics of rural institutions facing a rapidly changing social and economic environment: organizational features; interrelations between agricultural research, rural extension, processing and marketing; communication channels with the farmers; supporting functions of research institutes and experimental stations; actual and potential roles of field workers in rural development.

– Accessibility of public sector agencies for the less privileged strata of the farming population; degrees of accessibility; utilization and under-utilization of services; local participation and expressed interests into decision-making processes.
# GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>DID</td>
<td>Drainage and Irrigation Department</td>
</tr>
<tr>
<td>DOA</td>
<td>Department of Agriculture</td>
</tr>
<tr>
<td>FA</td>
<td>Farmers’ Association</td>
</tr>
<tr>
<td>FDA</td>
<td>Farmers’ Development Area, the area covered by a Farmers’ Organization</td>
</tr>
<tr>
<td>FO</td>
<td>Farmers’ Organization</td>
</tr>
<tr>
<td>FOA</td>
<td>Farmers’ Organization Authority</td>
</tr>
<tr>
<td>gotong royong</td>
<td>form of co-operative activity in which villagers work together for a common purpose (usually not lasting more than a few days)</td>
</tr>
<tr>
<td>kenduri</td>
<td>social occasion related to significant events in life (birth, marriage, and death) and celebrated by a feast</td>
</tr>
<tr>
<td>ketua kampong</td>
<td>village headman</td>
</tr>
<tr>
<td>ketua yunit</td>
<td>chief of Small Agricultural Unit</td>
</tr>
<tr>
<td>kongsi</td>
<td>informal partnership pooling capital for economic purposes (e.g. buying and operating a power tiller)</td>
</tr>
<tr>
<td>MADA</td>
<td>Muda Agricultural Development Authority</td>
</tr>
<tr>
<td>MARDI</td>
<td>Malaysian Agricultural Research and Development Institute</td>
</tr>
<tr>
<td>mukim</td>
<td>sub-district</td>
</tr>
<tr>
<td>padi-kuncha</td>
<td>system of credit provision compelling the farmer to sell his produce in advance on terms favourable to the lender. The ‘kuncha’ is a native measure of volume (180 gantang)</td>
</tr>
<tr>
<td>penghulu</td>
<td>head of sub-district</td>
</tr>
<tr>
<td>SAU</td>
<td>Small Agricultural Unit, or sub-division of a Farmers’ Organization</td>
</tr>
<tr>
<td>syarikat orang kampong</td>
<td>informal group of villagers, similar to kongsi</td>
</tr>
<tr>
<td>syarikat pinggan mangkok</td>
<td>association which owns a stock of plates, bowls and cooking utensils for use by members during kenduri</td>
</tr>
</tbody>
</table>
NOTES

1. The term Farmers' Organization (FO) will be used as a general classifier throughout the bulletin, in conjunction with the term Farmers' Association, which is used in the Muda area.
2. This information is contained in the three field reports on this study. Also, early study results and observations have been presented at seminars and during informal meetings with FO officers.
3. All amounts in the text are given in Malaysian dollars. Rates of exchange on 1 July 1980 were as follows:
   1 US $ = M$ 2.13
   1 £ = M$ 4.97
   1 Nfl = M$ 1.04
4. For a fuller treatment of these two concepts and related discussion on rural development goals and strategies, see Fredericks (1978).
6. The term decentralization is used here, although the French term deconcentration is perhaps a more precise one, as it depicts a situation in which a central authority makes provisions for the functioning at a regional or district office, while still maintaining its authority in central decision making.
7. This hypothesis is derived from the wider theoretical framework as formulated by Thompson (1967).
8. In analysing these aspects, it should be borne in mind that the researchers did not undertake an evaluation study as such. They attempted primarily to arrive at a better understanding of the operation of FOs in their respective environments.
9. All designations as 'general manager' and 'FO officers' have been derived from the Taiwan organizational framework of farmers' associations.
10. The consultative assembly has been instrumental in obtaining the co-operation of farmers in the re-alignment of canals and feeder roads to better serve the community under the Muda II project.
12. Commercial banks, like the Chartered Bank and the United Asian Bank, have been officially persuaded to diversify their loan portfolio to include more small loans for agriculture.
13. More information on the role of middlemen in providing credit to the farmers is given in chapter 4.
14. Low repayment rates are reported in other Asian countries also, as in the BIMAS programme in Indonesia and the Masagana 99 programme in the Philippines (ADB 1977).
15. The Farmers' Association Assembly in Muda exerts some pressure on their members to repay their loans.
16. One possible explanation is that anymore vigorous pressure goes against Malay norms of inter-personal relationships.
17. Regular in-service training courses are organised by FOA for field officers.
18. Similar observations on the orientation towards routine work among field personnel in Malaysia have been made by Esman (1972).
19. In June 1978, FOA introduced a zonal system in Perak, whereby one regional office was established at Parit Buntar covering the five FOs of the Krian area. It is too early to make observations on the frequency of meetings under this new provision. The same restrictions apply for the Muda region, where sub-regional offices to facilitate supervision recently have been created.
20. In the early stage of the Muda irrigation scheme, practical information on the cultivation of new paddy varieties was given through a number of pilot projects.

21. The clientele of these organizations, like Insan Diranto and the Chartered Bank, is very small compared to that of the FOs.

22. In Muda the recommended amount of compound fertilizer (N:P:K = 16:16:10) is 140 kg per hectare. The corresponding figure for Krian (N:P:K = 23 : 17.6 : 10) is 200 kg per hectare.

23. Recommended quantities in Muda are 70-140 kg per hectare, in Krian this amounts to 100 kg per hectare.

24. It proved impossible to find out whether this was ammophos or one of the other special nursery fertilizers available from local shops.

25. Unlike the ordinary FO credit package financed by the Agricultural Bank, credit for insecticides in Krian is financed with FO funds and requires a separate application procedure. This practice is intended to increase FO profits through better utilization of funds.

26. This information was provided by MADA’s Evaluation Unit.

27. The theoretical argument in this section owes much to Galjart (1976).

28. This does not mean, however, that members know exactly what is expected of them in this respect. Members join with only vague ideas about this issue and their obligations are known only in the course of time.

29. These discussions should stimulate consciousness of the existence of conflicting interests and contribute to the development of a rationalized consensus about the rights and obligations of members in situations where their short-term individual interests conflict with group or FO interests.
REFERENCES


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