

THE FELDA MODE OF INTEGRATING POPULATION AND  
DEVELOPMENT: ITS IMPACTS AND EFFICACY

Fong Chan Onn  
(Project Director)

in association with

Rita Raj Hashim  
Hock Ghee Heng  
Idris Jajri  
Low Yuet Chun

Faculty of Economics and Administration  
University of Malaya  
Kuala Lumpur 22-11

August 1982  
Revised February, 1983

ARC 114V  
613.88(595)  
F. 62  
1983

## ACKNOWLEDGEMENTS

A research undertaking of this magnitude could not have been successfully concluded without the assistance of many agencies and individuals.

We are thankful to the International Development Research Centre (IDRC), Canada, for funding and sponsorship of this study. In particular, we thank Ms. Shirley B. Seward, Program Officer, Social Sciences Division, IDRC, Ottawa, and Dr. Pedro V. Flores, Senior Program Officer, Social Sciences Division, IDRC, Singapore, for their constant encouragement and intellectual stimulation in the execution of this study. Ms. June Tan-Cheok, Senior Secretary, Social Sciences Division, IDRC, Singapore, maintained constant liaison between IDRC and the University of Malaya to ensure minimal delay in the implementation of this study.

This study is with reference to the Felda organization. We would like to acknowledge the advice and cooperation accorded to us by the many Felda officers. Our special thanks go to Mr. Alladin Hashim, Director-General of Felda, for his consent and guidance in the conduct of this study. The other Felda officers who provided invaluable inputs included:

Mr. Mat Abas Yusof, Director, Social Development Services

Mrs. Hapsah Nawawi, former Assistant Director, Social Development Services

Mr. Mohi Ismail, Chief Clerk, Social Development Services

Mr. Ghafar Abdul Wahab, Assistant Director, Budget and Planning Department

Mr. Mohd. Nor Malim Sirin, Budget and Planning Department

Mr. Mohd. Aini Sakrani, Budget and Planning Department

Mrs. Nurel Hayah Mohd. Nor, Budget and Planning  
Department

Mr. Zakaria Alipiah, Budget and Planning Department

Miss Habibah Mohd. Rizal, Budget and Planning  
Department

Mrs. Fathillah Yusoff, Head, Settler Accounting  
Division

We are also grateful to the Director General of the National Family Planning Board, Datin Dr. Nor Laily Aziz, and her staff for their constant encouragement and advice in the undertaking of this study.

We are greatly indebted to the Vice-Chancellor, University of Malaya, Royal Professor Ungku A. Aziz, for his encouragement in the undertaking of this study.

Numerous University of Malaya students were involved in the survey and coding phases of this study. To them, we record our note of thanks, and hope that they benefited just as much from being involved in an empirical study of this kind. Ms. Yap Siew Kuen, our systems analyst, ably performed all the necessary computer analysis from the huge data set within a very short period of time. To all her efforts, we are very much indebted.

This project would not have been completed within such a short period of time without the tremendous efforts and dedication put in by the two research assistants, Ms. Irene Low and Ms. Helen Lim. They willingly put in extra efforts to resolve sudden unexpected problems inevitable in an empirical research project of this kind, including problems associated with the physical supervision of the surveys, supervision of the coders and the analysis of the

data. One of the aims of this research study is in the diffusion of analytical skills. In this respect, the project has been rather successful. Ms. Helen Lim has been so fascinated by the computer analysis aspects of this project that she is now undertaking a post-graduate course in Computer Science.

The other team members of this project provided invaluable inputs. Mrs. Rita Raj Hashim commented extensively on the questionnaire design and assisted in the sample selection phase. She will be utilizing part of the collected data for her Masters degree, majoring in Population Studies. We wish her success in her new endeavour. Mr. Hock Ghee Heng and Mr. Idris Jajri assisted in the implementation of the household and staff surveys. Mrs. Jahara Yahaya was involved in the initial stages of the project. However, she had to leave the project prematurely because of her other academic obligations.

We also wish to express our gratitude to Ms. Choo Sau Ching and Ms. Janet Low for their patience in typing this report.

Most importantly, we wish to record our appreciation for the cooperation extended to us in the surveys by the 249 Felda scheme staff and settler leaders, and the 1,429 settler households. They constituted the respondents of our study, and we hope that the results can justify their valuable time extended to us in the surveys.

Finally, although many agencies and persons have been associated with this project, it goes without saying that I am solely responsible for the opinions expressed in this report and all the errors therein.

Fong Chan Onn  
(Project Director)

## CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
TABLES	x
FIGURES	xii
MAPS	xiii
APPENDICES	xiv
 CHAPTER	
1	1
INTRODUCTION AND BACKGROUND TO STUDY	1
1.1 Objective and Background of Study	1
1.2 Background for the Study	4
1.3 A Framework for Evaluation of An Integrated Population Program	18
1.4 Methodology and Implementation	22
1.5 Synopsis of Study	24
2	25
COUNTRY REVIEW	25
2.1 Location, Historical and Political Development of the Country	25
2.2 Population and Economic Characteristics	27
2.3 Need for Population-Development Program	39
2.4 Structure of the Integrated Population Program in Malaysia	40
2.5 Macro Impacts of the Various Components of the Integrated Population Program	46
3	54
OVERVIEW OF FELDA ORGANIZATION	54
3.1 Introduction	54
3.2 Organization of Felda	56
3.3 Linkage of Felda to Political and Administrative Leadership	62

		Page
	3.4 Structure for Implementation	63
	3.5 Implementation of Population Program	69
	3.6 Overall Performance Evaluation of Felda	71
4	SAMPLE SELECTION PROCEDURE FOR STUDY	76
	4.1 Introduction	76
	4.2 Sample Selection	76
	4.3 Rationale for Scheme Selection	79
	4.4 The Survey	82
5	ANALYSIS OF DATA	86
	5.1 Introduction	86
	5.2 Program Performance Variables	86
	5.3 Integration Variables	89
	5.4 Organizational Variables	90
	5.5 Control Variables	91
	5.6 Evaluation of Impact of Felda's Mode of Integration	91
	5.7 Organizational Factors	104
	5.8 Integration Factors	105
	5.9 Correlational Analysis of Impact Variables	112
6	INFLUENCE OF ORGANIZATIONAL AND INTEGRATION FACTORS ON PROGRAM IMPACTS	117
	6.1 Introduction	117
	6.2 Path Analysis at Community Level	117
	6.3 Path Analysis at Household Level	125

		Page
7	CONCLUSIONS AND POLICY IMPLICATIONS	132
	7.1 Introduction	132
	7.2 Summary of Conclusions	132
	7.3 Organizational Factors	135
	7.4 Integration Factors	135
	7.5 Influence of Organizational Factors on Integration	136
	7.6 Influence of Organizational and Integration Factors on Intermediate Program Impacts	137
	7.7 Influence of Intermediate Program Impacts on Final Program Impacts	138
	7.8 Policy Implications	139
	APPENDICES	A1
	REFERENCES	R1

TABLES	Page	
1.1	Summary of Experimental Service Delivery Programs	9
1.2	Summary of Impacts of Experimental Integrated Population Projects	10
1.3	Summary of the 1974 ESCAP/UNFPA Evaluative Study	14
1.4	Summary of the 1979 ESCAP/UNFPA Evaluative Study	15
2.1	Population by Community Distribution, Peninsular Malaysia, 1911-1980	28
2.2	Net Migrants into Malaya between 1880-1960	30
2.3	Gross Domestic Product by Industry of Origin, Peninsular Malaysia, 1960-1980	35
2.4	Average Annual Growth Rate of Gross Domestic Product by Industry of Origin, 1961-1980	37
2.5	Employment by Industry, West Malaysia, 1965-1980	38
2.6	Socio-economic Indicators for Fertility and Family Prevalence in Peninsular Malaysia	47
2.7	Socio-economic Indicators of Health and Nutrition for Malaysia, 1957-1979	50
2.8	Malaysia: Selected Socio-economic Indicators; 1960-1980	52
3.1	Distribution of Crops in Felda Schemes, 1981	55
3.2	Schedule of Activity for Development of Felda Land Schemes in A Region	65
3.3	Settler Selection System	67
3.4	Impacts of Felda Program in Comparison with Peninsular Malaysia	72
4.1	Schemes and Settler Families in Felda by Stratification Criteria	77
4.2	Sample of Schemes Selected for Study	78
4.3	Details of Schemes in Sample	80



TABLES		Page
5.1	Intermediate Program Impacts of Felda Stratified by Environmental Variables	92
5.2(a)	Final Program Impacts of Felda Stratified by Environmental Variables	95
5.2(b)	Marital Fertility Rate Stratified by Environmental Variables and Age of Wife	98
5.3	Intermediate Program Impacts of Felda Stratified by Household Variables	100
5.4	Final Program Impacts of Felda Stratified by Household Variables	103
5.5	Factor Analysis of Organizational Variables - Community and Household Analysis	106
5.6	Factor Analysis of Integrative Linkage Variables - Community and Household Analysis	108
5.7	Factor Analysis of Community Perception and Participation Variables	109
5.8	Factor Analysis of Household Perception and Participation Variables	110
5.9	Community Level Analysis: Correlation Coefficients for Selected Impact Variables	113
5.10	Household Level Analysis: Correlation Coefficients for Selected Impact Variables	116

FIGURES		Page
1.1	Proposed Framework for Evaluation of An Integrated Population Program	19
2.1	Total Population, Malaya, 1931	31
2.2	Total Population, Malaya, 1947	32
2.3	Total Population, Malaya, 1957	33
2.4	Present Structural Relationships of EPU and the Implementing Agencies: Malaysia Population Planning	42
2.5	Framework of Agency Interlinkages	43
3.1	Organizational Structure of Felda	58
3.2	Organization Chart of Social Development Services Department	61
3.3	Organizational Chart of 'Settler Development Committee' (JKKR)	70
6.1	Determinants of Felda Program Impacts - Community Level Analysis	119
6.2	Determinants of Felda Program Impacts - Household Level Analysis.	126

MAPS		Page
2.1	Malaysia	26
3.1	Distribution of Felda Schemes in Peninsular Malaysia	57

APPENDICES		Page
I	Staff Survey Questionnaire	A1
II	Settlers Survey Questionnaire	A18
III	Integrative Linkage Variables	A58
IV	Community Perception and Participation Variables	A60
V	Household Perception and Participation Variables	A62
VI	Organizational Variables	A63

## CHAPTER 1 INTRODUCTION AND BACKGROUND TO STUDY

### 1.1 Objective and Background of Study

This is a study on the demographic and socio-economic impacts of the Integrated Population Program as implemented by the Federal Land Development Authority (Felda) in its land schemes in Malaysia. It is one of the Four Country Studies on Integrated Population Programs in Asia sponsored by the International Development Research Centre (IDRC).

#### 1.1.1 *Objective of the Study*

The objective of this study is to analyse the demographic and socio-economic impacts of the Felda mode of integrating population activities with community development in the Felda land schemes. The Felda mode of integrating population activities with community development amongst the settlers in its land schemes consists of, in brief, the delivery of family planning services through the health clinics in the schemes. Further, community development activities like evening classes, kindergarten classes, youth club activities and scheme cooperatives are introduced and managed by the scheme officers and local leaders in the schemes. The idea of spacing out children and the concept of small family norm are introduced and reinforced by these scheme officers and local community leaders in their regular formal and informal contacts with the settlers.

The general hypotheses of this study are:

- (i) Due to the differences in work pattern between settlers of matured (productive) land schemes and settlers of immatured land schemes, there is likely to be a set of demographic and socio-economic clientele impacts of the Felda mode of integration which are dependent on the age of the scheme.

(ii) Further, due to the differences in pattern of agricultural activity, (particularly the demand pattern for household labour, and the difference in income-generating potential) between oil palm settlement and rubber settlement, there is likely to be a set of demographic and socio-economic clientele impacts of integrating population activities with community development which are agricultural activity-dependent.

(iii) However, because of a commonality in the nature of the services provided (i.e. the provision of family planning services and generation of a community spirit) by the clinic and other delivery outlets in the scheme, there is likely to be a set of demographic and socio-economic clientele impacts which are dependent on the intensity and extent to which community development is integrated with population activities.

After the verification of the above hypotheses, the study will proceed to analyse the organizational and community/staff integrative linkage determinants of the program impacts of the Felda mode of integration. This analysis will lead us to examine the conditions under which the positive demographic and socio-economic impacts of the Felda mode of integration can be enhanced, and the conditions under which the negative demographic and socio-economic impacts can be neutralised.

It should be noted that this study does not assume that the Felda mode of integration (i.e. integration of population activities with community development) is the only factor that can affect demographic and socio-economic impacts. However, the study does assume that integration of population activities with community development is an important class of variables that can have profound demographic and socio-economic impacts upon the clientele. Since this class

of variables (for example, the intensity of interaction between community and field-staff, the variety of community development activities introduced in conjunction with population activities, etc.) can be influenced by policy action, the study focuses its scope on this group of variables with the aim of deriving policy implications which can enhance the program impacts of the Felda mode of integration, in particular, and other population programs, in general.

#### 1.1.2 *Need for the Study*

Since the early 1970s, integration of population activities with development activities has been adopted as the official policy by the Malaysian government. Initially, the integrated population program was implemented along the maternal and child health-family planning (MCH/FP) model, that is, integrating family planning with maternal and child health through the health network. By the mid-70s, the success of the MCH/FP integrated program, which resulted in the extension of family planning services to more than half the total population (see Fong, 1979), encouraged the Malaysian government to extend the integration model from the traditional MCH/FP model to integration of population activities with general socio-economic development activities.

The Felda mode of integration (in which population activities are offered, in conjunction with maternal and child care, agricultural extension services, kindergarten activities, further education classes and youth activities to the settlers in Felda land schemes) is a vivid example of this more general mode of integrating population activities with socio-economic development as advocated by the Malaysian government. Although the success of the Felda schemes in raising the economic status of the settlers and in reducing rural-urban migration has been well documented (for example, see Tunku Shamsul and Perera, 1976), no study has been done to examine the demographic and socio-economic impacts

of the Felda mode of integrating family planning with socio-economic development.

After two decades of experience with Felda land schemes, it is essential to spread the idea of the small family norm to the settlers in conjunction with the implementation of socio-economic development activities. If this is not done, that is, if Felda settlers continue to have large families, then this would lead to what is usually termed as the "second generation" problem where Felda would need to open up new land schemes merely for the "second generation" Felda settlers. Since land is a scarce resource, opening up new land schemes for these "second generation" Felda settlers is not a feasible alternative. Hence, the Felda authorities have placed high priority on identifying the necessary policies to ensure the success of the adoption of the small family norm by the Felda settlers.

This study represents a study to fulfil that need, and aims to examine the factors that affect the demographic and socio-economic impacts of the Felda mode of integration and to suggest ways in which the impacts of the Felda mode of integration can be enhanced. Further, results from this study would also be applicable for deriving implications for the enhancement of other integrated programs in Malaysia.

## 1.2 Background for the Study

Since the early 60s, many developing countries have demonstrated great concern over the high rates of population growth and have implemented family planning programs with the aim of limiting the population growth rate. There is growing recognition, however, that the narrow clinic-based family planning programs alone are not sufficient to lower the fertility rates to the desired levels. To the extent that family planning is a specialised and isolated clinic-based program to distribute contraceptives to individual women and men, it is doubtful that it can have much substantial impacts on the high level of fertility.



Recognition of this condition is reflected in the great attention given to "beyond" family planning activities through the creation of specific projects to "integrate" family planning with maternal and child health, and in the use of postpartum period for the motivation of acceptors. More recently, that is, since the 1974 World Population Conference in Bucharest, "integration" has been an "in word" in the population circle, and to say that a program is integrated is to praise it as embodying the most modern concept.

An "integrated" population program can be defined in numerous ways. Ness (UNFPA, 1980) has provided the definition of integration which was in three pages. In this study, we shall define the Integrated Population Program in its most general sense; an Integrated Population Program is a program that brings together population and family planning activities, and activities of other specialised and different services, and integrates these activities into a single more coordinated set of activities (ESCAP, 1980). In this sense the Felda mode of integration, which is integrating family planning with community development activities (like further education classes, kindergarten activities and youth activities), can be classified as an integrated population program at the service delivery level.

#### 1.2.1 *Rationale for Integrating Population with Development at the Service Delivery Level*

A great deal of research has been done to provide the rationale for integrating population with development at the service delivery level. In the context of the issue of population and development at the service delivery level, specific attention has been directed to the interrelationships among population, health and nutrition.

With respect to the effects of fertility and health, there is considerable evidence to suggest that high fertility is associated with health hazard to individuals and family,

leading to the conclusion that family planning is one of the important health measures (Taylor, et. al, 1976(a)). High parity and frequent child-bearing can affect the health and mortality of children and mothers, and in general have a negative influence on community health. Similarly, on the reverse, studies have shown that health is related to population growth. Improved health can lead both to increases or decreases to population growth. The most obvious influence of improved health is the reduction of mortality, which by itself can result in population growth. On the other hand, the highly debated child survival and child replacement hypotheses (Taylor, et. al, 1976(b)) suggest that improved health can also lead to a decline in fertility. Although the evidence on the child survival and child replacement hypotheses is mixed, it is generally agreed that combining family planning with health represents an effort to produce a conscious awareness of better child survival. By combining child care with family planning, there is a greater chance in motivating mothers to accept family planning.

With respect to the relationship between nutrition and fertility, the effects of nutrition on fertility is a subject of considerable controversy. There has been considerable research on the impact of mother's nutritional status on the duration of lactation and the period of postpartum amenorrhea with implications for the ability to conceive (for example, Bongaarts, 1967). Some authors have argued that the length of postpartum amenorrhea is more dependent on the infant's sucking of the mother's breast than the nutritional status of the mother. Moreover, there is also the disagreement on the effectiveness of lactation in providing contraceptive protection.

The above interrelationships among health, nutrition and fertility have lead researchers and many international agencies to speculate about, and experiment on, integrating population with nutrition and health services at the program delivery level. It has been argued that an integrated population program is more efficient and effective, and more likely to attract support from the people, than a vertical single-purpose family planning program. Several authors (e.g. Johnston and Meyer, 1977) have suggested that the integration of family planning, health and nutrition through the use of multi-purpose health field workers, has the potential to increase efficiency and lower the cost of delivery, since such an approach would require fewer worker/client contacts and should be less costly per service delivered than the delivery of these services separately.

Further, it was argued that integrated population, health and nutrition programs are potentially more effective than programs delivering the inputs separately because of the close and natural relationship among the variables. The compatibility implies greater accessibility to the population most at risk,<sup>1</sup> higher motivation of clients and workers,<sup>2</sup> a further strengthening of the interrelationship

- 
- 1 It should be noted that in most developing countries extensive health networks have been in place long before the advent of family planning programs. Hence, delivering family planning services through these health networks improve the accessibility of the program considerably and rapidly. Further, utilizing the health networks in an Integrated Family Planning Program based on maternity care can reach every eligible women (Taylor and Berelson, 1968).
  - 2 It is argued that a maternal health and family planning program provides a particularly effective framework for motivating women to accept family planning. First, there is the advantage of the timeliness with which family planning is introduced. Secondly, family planning is made more acceptable to women because it is presented by the same health workers who are offering a more comprehensive health service (Johnston and Meyer, 1977).

between health and fertility<sup>3</sup> and greater likelihood of acquiring community support for the people.<sup>4</sup>

### 1.2.2 *Evaluation Experience of Experimental Projects*

As was indicated above, a number of research works have emerged over the past two decades evaluating the inter-relationship amongst nutrition, health and population. Concurrent with this intellectual development, a series of experimental integrated programs have been implemented in various parts of the world to evaluate the impacts of integrating population with social development (for example, health, nutrition, education, etc.) vis-a-vis single-purpose family planning programs. Most of these experimental projects have been designed to demonstrate various approaches to the integration of population with other development inputs. Table 1.1 presents a summary of seven such experimental programs implemented as such in 45 countries.

The results of the evaluative studies performed on the various pilot integrated projects are summarized in Table 1.2. From the Table, it is apparent that in spite of the extensive financial resources devoted to the design and implementation of the pilot integrated projects, the overall results that emerged are not too definitive. In fact, except for the Narangwal project

- 
- 3 Although the linkage between health and fertility is ambiguous, it is generally believed that because of the natural linkages between health and fertility, an integrated program which deliberately and consciously link family planning with health and nutrition should be more effective in changing the attitude, motivation and behaviour required to slow population growth.
  - 4 By integrating family planning with health and nutrition the public's image of family planning would be enhanced because health and nutrition are generally revered objectives (Taylor and Berelson, 1968). In developing countries where there is a controversy on family planning, community leaders may be more willing to support an integrated population program than one which is solely on family planning.

TABLE 1.1

## SUMMARY OF EXPERIMENTAL SERVICE DELIVERY PROGRAMS

Experimental Action/Research Program	Date of Initiation/Duration	Sample
1) International Post-partum Family Planning Program (IPP) (Castadot, et. al, 1975)	1966-1974	138 hospitals in 21 countries
2) Maternal and Child Health Family Planning Program (MCH/FP) (Cross River State, 1981; Parado, et. al, 1980; Mackenzie, 1979; Population Council, 1980)	- Initiation of overall program in 1970 - Field projects meant to take 5 years	Indonesia (Mojokerto) (1973-1979) Philippines (Bohol Province) (1974-1980) Turkey (Yozgat Prov.) (1974-1979) Nigeria (Calabar, Cross River State) (1975-1980)
3) Narangwal Population Study: Integrated Health & Family Planning Services (Rural Health Research Centre, 1975)	1969 (originally to have been operative over 5 years, but terminated prematurely due to political pressure)	India (26 villages in the Punjab)
4) Danfa Integrated MCH/FP/Health Care/Education Project (Ghana, 1979)	1969-1979	Four areas in Danfa district in Ghana
5) Estimegut Integrated Health/Family Planning Program (Fisek, 1974)	1966-1973	Turkey (Estimegut District)
6) Companiganj Integrated Health Nutrition and Family Planning Project (McCord, 1977)	1973-1975 initiation of training program 1975-1978 full program in operation	Bangladesh (Companiganj Thana in District of Noakhali)
7) Matlab Family Planning Health Services Project (FPHSP) (Bhatia, et. al, 1980)	1977-	Bangladesh (70 villages)

Table 1.2

## Summary of Impacts of Experimental Integrated Population Projects

OUTREACH OF PROGRAM	(Control) FP Gov't Health	Maternal Health/ FP	Child Health/ FP	FP/Education	MCH/FP/Education	MCH/FP/ General Health	MCH/FP/General Health/Education/ Dental	MCH/FP/General Health/Sanitation/ Malaria/Food/Water	MCH/FP	MCH/FP/General Health/Education	MCH/FP/General Health / Education/ Nutrition
1. Clients go to hospital based in urban areas									1 - IPP Program <sup>a</sup> (multi-purpose worker)		
2. Untrained field workers extend to community	1 - Condom Distribution Prog. (CDP) Matlab area (Single-purpose) (control group for Matlab)										
3. Trained field workers extend to community referring serious cases to clinics	1 - Marangwal (single-purpose operating in groups) 2 - Bohol (multi-purpose) 3 - Danfa (multi-purpose)	1 - Marangwal <sup>f</sup> (single-purpose operating in groups)	1 - Marangwal <sup>g</sup> (single-purpose operating in groups)	1 - Marangwal <sup>g</sup> (single-purpose operating in groups)	1 - Bohol <sup>b</sup> (multi-purpose) 2 - Danfa (multi-purpose)		1 - Estimegut <sup>h</sup> (multi-purpose) (no control group)	1 - Companiganj <sup>i</sup> (single-purpose) (no control group)	1 - Marangwal <sup>g</sup> (single-purpose) 2 - Matlab (multi-purpose) (compared to CDP) 3 - Danfa <sup>1</sup> (multi-purpose) 4 - Yozgat <sup>8</sup> (multi-purpose worker; no control group)	1 - Danfa <sup>j</sup> (multi-purpose)	Calabar <sup>d</sup> (single-purpose worker operating in groups) Remark : No control group
4. Trained field workers extend to community plus women's clubs and FP group activities ref. clients to clinics.						Mojokerto <sup>c</sup> (multi-purpose) Remark: no control group					

- Footnotes:
- Denotes significant impact on FP prevalence and decline in pregnancy rate. Have comparison with national program is invalid, hence actual impact not definitive.
  - Very modest increase in FP prevalence and decline in fertility rate in both control and treatment area. Evaluation procedure for project excellent.
  - Denotes significant impact on FP prevalence and decline in fertility rates. However, no control group comparison for results to be definitive.
  - Project implemented in an extremely poor and primitive area. Other than a greater demand for FP services, no other conclusion can be derived.
  - Some slight impact on FP prevalence. However, no base-line or post-treatment survey, and no control group. Results cannot be regarded definitive.
  - Denotes a very good impact on FP prevalence and health.
  - Denotes significant impacts on FP prevalence and health.
  - Denotes very significant improvement in FP prevalence and decline in fertility rates. However, no control group for purpose of definitive comparison.
  - Since project operated under an acute famine environment, no conclusive results can be derived.
  - Significant improvement in FP prevalence and health compared to control group.
  - Some increase in FP prevalence compared to control group.
  - No improvement in FP prevalence on health status compared to control group.

implemented in Punjab, India, none of the pilot projects can be said to have demonstrated conclusively that experimental integration projects can make a better impact on family planning prevalence, fertility, nutritional status or health status than non-integrated projects. As elaborated in Seward and Fong (1982) some of the reasons that can be attributed to these non-conclusive results could be as follows:

- (i) In many of the projects, for example the International Postpartum Family Planning Program (IPP), the effectiveness of the program (e.g. proportion of mothers under postpartum accepting family planning for the IPP) is compared against the effectiveness figure for the rest of the universe. This comparison is certainly not a valid indication of the effectiveness of the experimental project.
- (ii) Although in many of the projects (e.g. the Bohol MCH/FP Project, the Calabar MCH/FP Project and Danfa MCH/FP, Health Care and Education Project), control areas were built into the experimental design for the purpose of comparing the effectiveness of the pilot program vis-a-vis the on-going integrated program, in reality the control areas and the pilot areas were so physically close-by that acceptors living in the control areas could fairly easily avail themselves of the services offered in the pilot program area. Hence, it was not surprising that in the evaluation exercises performed on these programs, there were no significant differences between the impact made on the pilot areas and the control areas.

- (iii) Although it was recognised in some of the pilot projects that integration should not be treated as constant across all delivery outlets in the pilot project, in reality all the evaluative studies performed on the pilot projects assumed that the mode of integration is constant and invariant across all clinics in the pilot area. This may not be true as it is obvious that the intensity of integration (for example the amount of time a field worker spends on the various tasks assigned to him, and the intensity of interest the field worker shows to these tasks), must vary by clinics in a common pilot area. Any evaluation exercise that does not allow for this variation in the intensity of integration will obviously not be able to capture the factors that influence the effect of the pilot integrated programs.
- (iv) In all the evaluative studies, no attempt was made to relate the impacts of the pilot project with the community support and participation extended to the program. The perception of the clientele as to the intensity of the integrated programs and the support extended to it by the clientele (e.g. the number of volunteers helping out with the program) would obviously determine the effectiveness and efficiency of the program. The fact that these variables were left out in the evaluative study could mean that a big class of variables that can have an impact on the effects of the programs have been left out of the evaluative study.



### 1.2.3 *Evaluation Experience of On-going Programs*

Concurrent with the implementation of these experimental projects, and even before the results of most of these projects became known, since the 1970s, integration of family planning with maternal and child health has been adopted by numerous governments (e.g. Malaysia, India, Bangladesh) as a matter of official policy. There is an important rationale for this. In almost all developing countries there exist extensive health networks. If those in authority wish to spread family planning as a means of enhancing family and community development, then utilizing the health network to deliver family planning services would seem to be the most convenient and effective manner through which this could be achieved. In short, the adoption of the MCH/FP approach was viewed by these governments more in the light of making family planning more easily available to the people and less in the light of evaluating the approach vis-a-vis the other approaches.

Given this development, that is, the implementation of numerous experimental integrated projects and the adoption of MCH/FP approach by many governments since the 1970s, a number of studies have also been undertaken to actually evaluate the effectiveness of the pilot integrated projects vis-a-vis the controlled non-integrated projects.

A number of studies have also been conducted by ESCAP/ UNFPA (UNFPA, 1980; Fong, 1979; Yu and Kim, 1979) to evaluate the efficiency and effectiveness of the on-going integrated programs vis-a-vis single-purpose programs. The shortcomings discussed in relation to the evaluation of pilot projects were to a certain extent taken into account in these evaluative studies.

The framework of these studies are summarized in Tables 1.3 and 1.4. The 1974 evaluative studies

TABLE 1.3

## SUMMARY OF THE 1974 ESCAP/UNFPA EVALUATIVE STUDY

Country	Aim of Study (common to all four countries)	Sample of Study (Program Evaluated)	Clinic Performance (Dependent Variable)	Independent Variable at Clinic Level (common to all studies)	Hypothesis (common to all four studies)
Korea	To examine the relationship between clinic organizational factors (including interlinkage and integrative variables in the clinic level) and program performance at the clinic level. Respondents to the study were clinic staff. Units of observation were taken at the clinics.	36 clinics in 4 provinces. Respondents: 535 consisting of 408 FP workers and 127 supervisors. Clinics belong to Korean FP Board and provide only FP services but are jointly managed by the Ministry of Health and the Ministry of Internal Affairs. This <u>"integrated" control of a single-purpose clinic is unique.</u>	<ul style="list-style-type: none"> <li>i) New acceptors recruited per staff-day</li> <li>ii) Total acceptors service per staff-day</li> <li>iii) New acceptor couple-year of protection per staff-day</li> <li>iv) Total acceptor couple-year of protection per staff-day</li> </ul>	<ul style="list-style-type: none"> <li>i) Clinic environmental (socio-economic) variables.</li> <li>ii) Clinic facilities variables (e.g. equipment, etc.)</li> <li>iii) Staff background and training variables.</li> <li>iv) Staff attitudes towards clinic and work, peer group and community.</li> <li>v) Management style of clinic-participative authority, etc. using likert-type of typology.</li> </ul>	The set of postulated independent variables can affect program performance at the clinic delivery level. Since most of these variables can be adjusted by policy action, the established relationship would have important policy implications.
Singapore		39 clinics of National FP Board. 34 of these clinics are MCH/FP clinics, while the remaining 5 are purely FP clinics. A total of 74 supervisors were interviewed			
Malaysia		68 clinics of National FP Board. These clinics provide only FP services. A total of 368 staff were interviewed.			
Philippines		60 clinics from two provinces - 32 from Ministry of Health, 13 from FP Board and 10 from MCH/FP			

TABLE 1.4

## SUMMARY OF THE 1979 ESCAP/UNFPA EVALUATIVE STUDY

Country	Aim of Study (common to all four countries)	Sample of Study (Program Evaluated)	Clinic Performance (Dependent Variable)	Independent Variable at Clinic Level (common to all studies)	Hypothesis (common to all studies)
Korea (Yu and Kim, 1979)	To develop measures of performance of various components of services of integrated clinic. To determine the extend of interactive linkages between the integrated clinic and other agencies (as measures of intensity of integration).	60 clinics in four provinces. Each clinic has a FP worker who also provide TB and MCH services.	1) FP performance. ii) Development performance.	1) Frequency of contacts amongst workers of different agencies. ii) Smoothness of contacts amongst workers of different agencies. iii) Adequacy of contacts amongst workers of different agencies.	It was found that there is a close relationship between the independent variables and the dependent variables.
Malaysia (Fong, 1979)	To determine: (a) the relationship between the organizational factors and clinic interactive linkages, (b) clinic interactive linkages and clinic performance.	97 MCH/FP clinics in 18 districts	i) FP recruitment efficiency ii) MCH recruitment efficiency iii) Perceived FP impact iv) Perceived MCH impact		

(UNFPA, 1980) indicated fairly convincingly that communications and other linkages between family planning workers within the clinic and outside the clinic can lead to improved performance in the family planning program. Further, positive support and cooperation given to the program by the staff of the clinic, staff of other agencies and the clientele can enhance program performance. It was further observed that the clinics where the staff have more interaction with the people are more accepted and trusted by them as chain agents and these workers tend to be more efficient in their work.

It must be pointed out that this series of evaluative studies is one of the first to treat each delivery outlet (clinic) as a different and distinct unit of observation and attempt to measure the differences among the clinics, in terms of integration (e.g. in terms of administrative structure for integration, staff attitude towards the various jobs and staff interaction among themselves and with the clientele) and relate these differences to the clinic performance. The fact that these findings were fairly positive indicated that these evaluative studies did, in fact, capture a class of variables, namely, the nature of integration that do have a significant effect on program performance.

The main findings from the 1979 Korean Integrated Study were that staff interaction with clinic chief and doctors have strong and positive impacts on FP clinic performance. Also, the MPH, TB and SU inputs and interactive linkages do not contribute to FP performance.

From the 1979 Malaysian Integrated Study, it was found that the frequency and quality of the contact amongst MOH/NFPB staff, and particularly the quality of the

contact between MOH/NFPB staff and non-MOH/NFPB staff, were shown to be important determinants of program performance.

Another important finding was that there is a positive correlation between the performance measures of FP and those of MOH indicating that their roles were complementary. Further, the existence of a strong positive relationship between the organizational factors, the linkage variables, and the major performance measures suggested that appropriate use and improvement of organizational factors could enhance the frequency and quality of integrative linkages, and consequently the level of FP and MCH performance.

Notwithstanding the valuable contributions made by these evaluative studies towards developing measures to measure the extent and intensity of integration, and an understanding of these factors' effects on performance of integrated programs, there are some limitations of these studies. These limitations are:

- (i) The intensity of integration of the clinics was measured from the staff viewpoint. No attempts were made to assess the clientele perception as to the intensity of integration of the clinic. An integrated clinic is only integrated if it is felt and perceived by its clientele to be so. Hence, it is the clientele's perception of the intensity of the integration of the clinic that really counts and not the intensity of the integration from the staff viewpoint.

(ii) The evaluative studies utilized frequency and intensity of contact between worker and other staff as the main indicator of the degree of integration in a clinic. This may be too loose an indicator of the intensity of integration. Other equally important indicators which were left out of this study include the degree of rapport and trust between worker and clientele, the intensity and variety of tasks introduced, and the intensity to which the delivery unit extend out to the community.

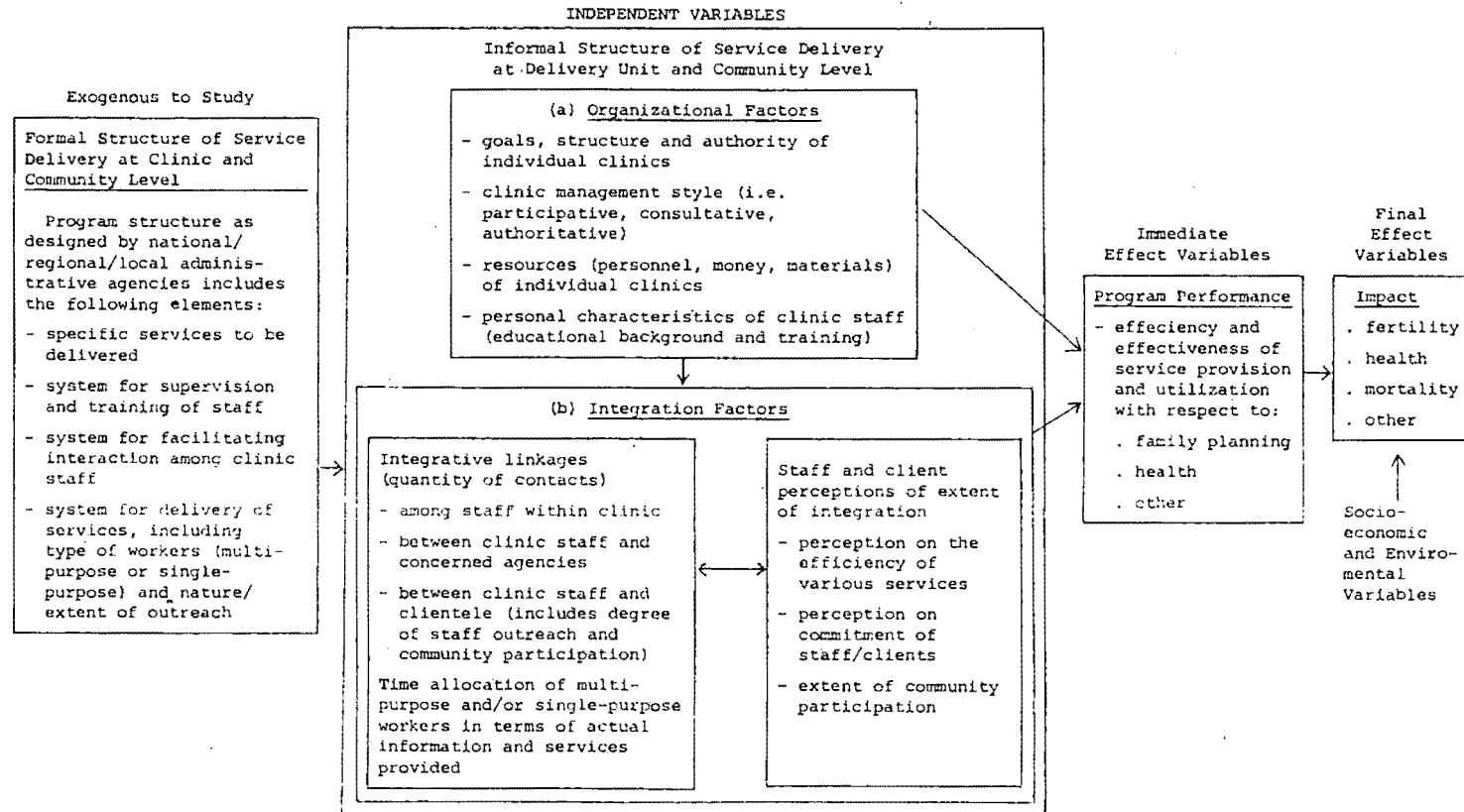
The absence of these indicators may be unavoidable given that these evaluative studies limited their respondents only to the clinic staff since measurements like linkages between worker and community (and the extent of community participation) can only be obtained through a survey of the clientele utilizing the services of the delivery unit.

### 1.3 A Framework for Evaluation of An Integrated Population Program

On the basis of the lessons learnt from the previous research on evaluation, a framework for the evaluation of an integrated population program is proposed in this section. This framework which is pictorially represented in Figure 1.1 will be utilized to evaluate the Felda mode of integration. The proposed framework is designed to evaluate the performance of an Integrated Population Program at the service delivery level rather than at the administrative level. Overall administrative factors such as the network for delivering services, the political will for integration, the national budget for the integrated program will greatly affect the structure of service delivery at the clinic level. However, in terms of the evaluation framework, they are considered as exogeneous variables.

FIGURE 1.1

PROPOSED FRAMEWORK FOR EVALUATION OF AN INTEGRATED POPULATION PROGRAM



### 1.3.1

#### *Formal Structure for Delivery of Services*

In order to evaluate the effectiveness of an integrated delivery unit, the administrative or formal structure that has been created to run a particular outlet can be evaluated. It is felt that this administrative structure could be an important factor in determining the effectiveness of a delivery outlet. Some of the local administrative characteristics that can affect its performance include the specified variety of services to be delivered, the system for supervision and training of staff, and the system for delivering services. Since the formal structure for delivering services is constant for all Felda schemes, in this study we shall assume the formal structure to be exogenous.

### 1.3.2

#### *Informal Structure for Delivery of Services*

The formal structure outlined in the previous section is only the official structure in the books. In practice, the actual process of service delivery (i.e. the informal structure for delivering services) may be very different from the official procedures. Thus, in order to evaluate the impact of an integrated outlet, the actual structure for delivery of services as practised by the outlet should be assessed. Some of the factors that should be included under the informal structure are organizational factors like the goals and authorities of each individual outlet, the outlet management style (Likert, 1967), the resources made available to the outlet, and the personal characteristics of the outlet staff.

### 1.3.3

#### *Integration Factors at Delivery Level*

Another class of variables that can affect the performance of an integrated clinic is the integration factors at the delivery unit level. This set of integration factors represents a pioneering area of methodological development.



As shown in Figure 1.1 integration factors include both the integrative linkages among staff and between staff and clientele, and the time allocation of the workers to the various services. These integrative linkages and time allocation factor are measures of behaviour with respect to integration. Another important measure of integration at the delivery unit level is the perception of staff and clientele regarding the extent of integration. Their perceptions include whether they perceived that all services are equally and efficiently delivered, and whether there are sufficient outreach to the community and other agencies. From the viewpoint of the clients, their perceptions include whether they perceived that all components of the services are readily available, and whether the program staff are equally committed to all the services.

#### 1.3.4 *Relationship between Independent Variables and Program Performance*

As can be seen from Figure 1.1, the hypothesized independent variables that can affect program performance include a set of organizational factors and a set of integration factors. Under the integration factors, we include both integrative linkages, and staff and clientele perception of the extent of integration. It is hypothesized that there is a two-way relationship between the organizational factors and the integration factors. Similarly, it is hypothesized that the organizational factors as well as the integration factors have a direct effect on the program performance variables of its various components of services (e.g. efficiency and effectiveness of the FP component, etc.). It is also assumed that the program performance variables will ultimately have a direct effect on the final effect variables which include impacts on fertility rate, mortality rate and health status.

In the proposed framework, we assumed that the formal administrative structure adopted for the delivery unit is constant and exogenous to the study. Further, we assume that they will not have a direct effect on the program performance variables but will only affect program performance through the outlet's organizational factors and integration factors.

1.3.5. *Relationship between Program Performance and Final Impact Variables*

Program performance variables, although important and useful for the purpose of evaluation of programs, are not the ultimate aim of an integrated population program. The ultimate aim of an integrated population program is to be able to have a positive effect on the final impact variables (e.g. marital fertility rates, toddler mortality rates, educational achievement, etc.).

In the framework, we postulate that improvement in program performance will ultimately lead to improvement in the final impact variables. There may be a time lag before improvement in the program performance and improvement in the final impact variables. However, in our research study we have selected the sample of schemes (i.e. a number of new land schemes where the settlers have just moved in vis-a-vis a number of established land schemes where the settlers have stayed for about a decade) such that this time lag can be taken into account in a cross-sectional research study conducted at one point in time.

1.4 Methodology and Implementation

The above framework will be utilized to evaluate the effectiveness and efficiency of the Felda mode of integration as follows:

The data on the informal structure for service delivery at the delivery unit level as well as the data on the organizational factors governing each delivery unit

will be collected through a survey of the scheme offices and the scheme delivery units (e.g. the scheme manager's office, the scheme health clinic and the scheme's kindergarten, etc.). The staff perceptions on the extent of integration at the delivery unit level will also be collected through a survey of the staff in the various selected schemes. The staff will also be questioned on the integrative linkages that exist among the staff and between the staff and the local community. The settlers in the various selected schemes would also be interviewed to probe on their perceptions on the extent of integration that exists between population and socio-economic development in the schemes. The data on program performance will be gathered through a survey of the settlers who form the clientele for the services. Data like practice of family planning, health status and household socio-economic status would be collected through a survey of these settlers.

The collected primary data would be checked for consistency against the secondary data that can be gathered from the Head Office of Felda. The Felda Head Office has up-to-date data on settlers' income and the production achievement of each scheme. Further, data like the time allocation of duties for the field-staff and the formal structure that exists for the delivery of services in each scheme can also be collected from these secondary sources. The checking and the verification of the primary data with the secondary data would enhance the accuracy of primary data collected.

The interrelationships amongst the various classes of variables collected would be tested for causal relationships by the use of path analysis and multiple regression in accordance with the framework in Figure 1.1.

### Synopsis of Study

For reasons of manageability, for this study, we shall limit ourselves to a randomly selected sample of 24 Felda schemes, stratified over Peninsular Malaysia for the scheme (community) analysis. In each of these schemes, about 60 settlers will again be randomly selected for the settlers (household) analysis.

In Chapter 2, we provide a brief country overview of Malaysia, describing, in particular, the structure and impact of the population-development programs.

In Chapter 3, we provide an overview of Felda which is the organization of particular interest in this study. This overview includes the overall administrative and organizational structure, leading from program formulation at the headquarters level, to program implementation at the scheme level. A detailed description of the manner in which Felda provides its population and socio-economic development services to its settlers is also provided in this Chapter.

The manner in which the schemes and settlers are selected for the surveys is described in Chapter 4. In this Chapter, we also describe the methods which we utilized to conduct the survey, in particular, the household survey.

In Chapter 5, a preliminary analysis of the data collected from the survey was conducted. In particular, in this Chapter, we discuss the program performance impacts of the Felda mode of delivery amongst the Felda households.

A more detailed discussion of the survey results is presented in Chapter 6. In this Chapter, we analyse in detail the causal relationships that exist amongst the organizational variables, integration variables and program performance variables.

Finally, in Chapter 7, we present a summary of conclusions and policy implications.

## 2.1

Location, Historical and Political Development  
of the Country

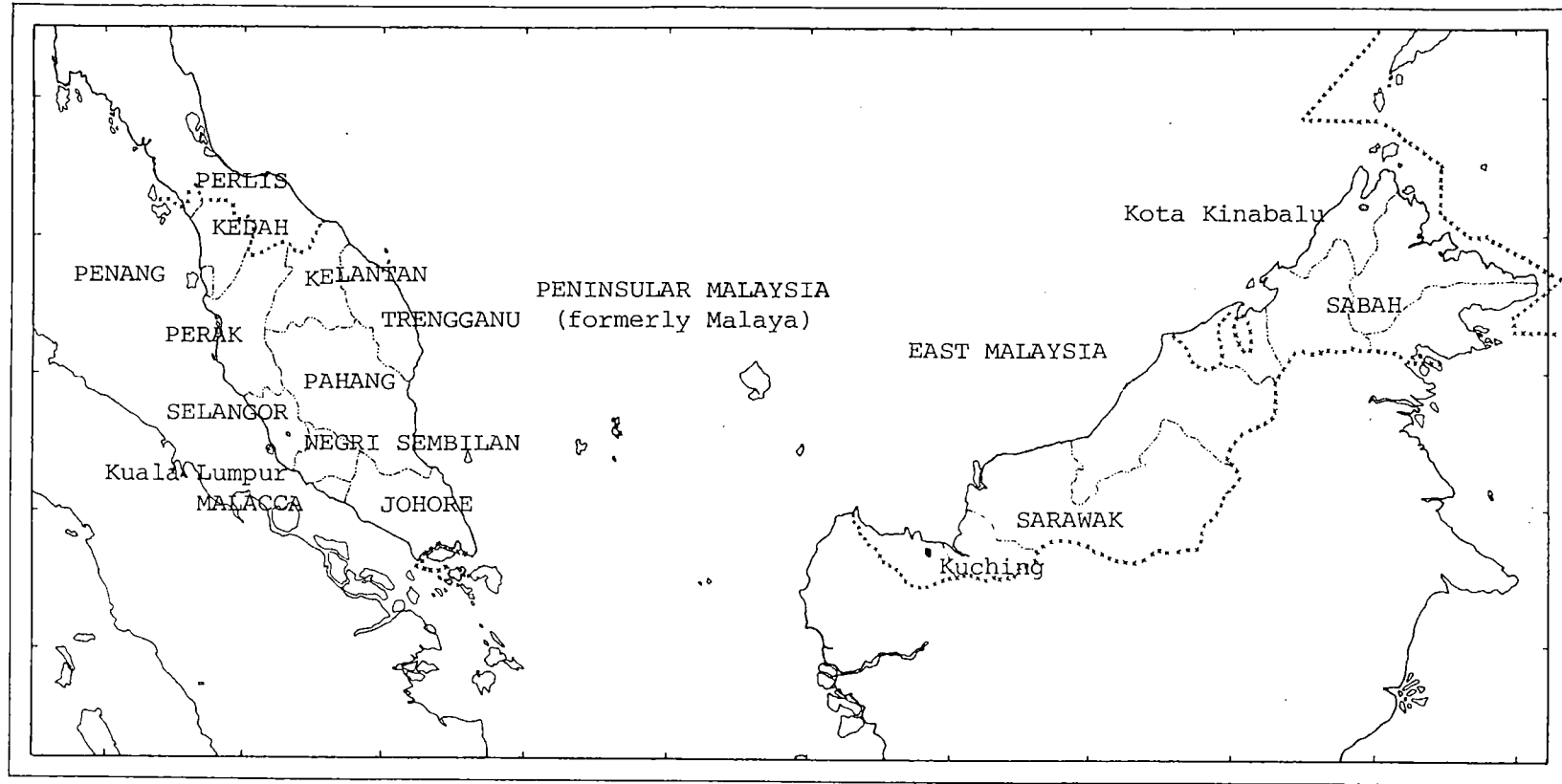
Bounded by the Indian Ocean on one side and the South China Sea on the other, Malaysia forms a crescent stretching from the Kra Isthmus through the Malay Peninsula to the North-western part of Borneo. Malaysia consists of eleven states in Peninsular Malaysia (formerly known as Malaya) and the two Borneo states of Sabah and Sarawak. The total land area of Malaysia is about 336,700 sq. km. of which Peninsular Malaysia occupies 134,680 sq. km. (See Map 2.1).

The modern history of Malaysia began with the colonization of the Malay Peninsula by Britain in the late eighteenth century, through the establishment of Penang in 1786. Since then, British influence in the Malay Peninsula spread rapidly and by the early nineteenth century the whole of the Malay Peninsula, Sabah and Sarawak (British North Borneo) were completely under British rule.

Rapid economic development took place with colonization. Rubber was introduced from Brazil and was planted on a large scale in the nineteenth to early twentieth century. The tin-rich land around Kuala Lumpur and Ipoh were extensively exploited for tin and other minerals. These agricultural and mineral activities led to a tremendous demand for labour. In order to solve this labour shortage, the British rulers allowed extensive immigration of workers from China and India to work in the tin mines and rubber plantations. This was the beginning of the process that led to modern Malaysia being settled by people of various races. The Chinese settled mainly in the urban areas and established themselves in tin-mining and service activities. The native Malays remained mainly in the

MAP 2.1

MALAYSIA



rural areas and continued with their traditional farming activities, while the Indians were employed mainly in the rubber plantations.

This liberal immigration policy, however, was terminated in the 1940s and since then the population growth in Malaysia has been mainly due to natural birth amongst the settled population.

Malaya became an independent country in 1957. It practises parliamentary democracy and is governed by a government formed by the elected majority party. The King of the country is a constitutional monarch. He is selected from amongst the various State Rulers, to serve as the King for a period of five years. The Prime Minister as well as the Cabinet serve at the pleasure of the King. In 1963 Malaysia was formed with the Federation of Malaya, Singapore, Sabah and Sarawak. In 1965, however, Singapore left the Federation and became an independent country.

## 2.2 Population and Economic Characteristics

### 2.2.1 *Population Characteristics*

Malaysia's population was estimated at 14.2 million in 1980 with 11.8 million in Peninsular Malaysia, 1.0 million in Sabah and 1.4 million in Sarawak. In 1980, the population on the whole was estimated to be growing at a rate of 2.5 per cent annually.

Table 2.1 shows the population of Peninsular Malaysia by community distribution between the years 1911 and 1980. From the Table, it can be seen that Malays formed the majority of Peninsular Malaysia's population. In 1970, of the total Peninsular Malaysia's population, 53.1 per cent were Malays and other indigenous people, 35.5 per cent Chinese, 10.6 per cent Indians and 0.8 per cent others. This community distribution remained essentially the same at 1980.

TABLE 2.1

## POPULATION BY COMMUNITY DISTRIBUTION, PENINSULAR MALAYSIA, 1911-1980

Year	Malays		Chinese		Indians		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1911	1,364,844	58.6	698,228	29.6	239,169	10.2	36,810	1.6	2,339,051	100.0
1921	1,568,588	54.0	855,863	29.4	439,172	15.1	43,068	1.5	2,906,691	100.0
1931	1,863,864	49.2	1,284,888	33.9	570,987	15.1	68,011	1.8	3,787,750	100.0
1947	2,427,834	49.5	1,884,534	38.4	530,638	10.8	65,080	1.3	4,908,086	100.0
1957	3,125,424	49.8	2,333,756	37.2	735,038	11.7	84,490	1.3	6,278,708	100.0
1970	4,663,284 <sup>a</sup>	53.1	3,117,896	35.5	933,250	10.6	66,298	0.8	8,780,728	100.0
1980	6,384,000 <sup>a</sup>	53.9	4,136,000	34.9	1,239,000	10.4	90,000	0.8	11,849,000	100.0

Source: Chander R., General Report - 1970 Population Census of Malaysia, Vol. 1, Department of Statistics, Malaysia, 1977.

Malaysia, Mid-Term Review of the Third Malaysia Plan, 1976-1980, Government Press, Kuala Lumpur, 1978.

Note: <sup>a</sup>This figure includes other indigenous people of the population.



Table 2.2 shows the net migrants to Malaya between 1880 and 1960. In the height of the migration period, (i.e. in the early 1900s) there were about 100,000 net migrants per year coming into Malaya. As the Table also clearly indicated, by the year 1940, the wave of immigration was terminated and since then there was an insignificant number of Chinese and Indian migrants to Malaya.

The wave of migration during the early 1900s, had a great impact on the age/sex distribution of the population as can be seen from Figure 2.1. In 1931, a large majority of the total population in Malaya consisted of men between the ages of 20 to 40. However, by 1942, as shown in Figure 2.2, as a result of natural birth among the settled population and termination of migration, the major proportion of the population consisted of children below the age of 10. This increasing proportion of young population due to rapid natural birth rate was even more pronounced by 1957 as can be seen in Figure 2.3. In fact, by 1957, the population of Malaya exhibited the typical population pyramid structure so commonly found in a developing country with rapid growth rate.

The age structure of Peninsular Malaysia's population also indicated the extreme youthfulness of the population. In 1978, about 42 per cent of the population was in the age-group 0 to 14 years while 54 per cent was in the working age-group 15 to 64 years. This indicated that 96 per cent of Peninsular Malaysia's population are under 65 years of age.

However, as a result of the fertility decline experienced since the 1960s, some shifts in the age composition are expected. In Peninsular Malaysia the 0 to 14 age-group declined from 42 per cent of the total population in 1978 to 39.2 per cent by 1980. At the same time, the age-group

TABLE 2.2

## NET MIGRANTS INTO MALAYA BETWEEN 1880-1960

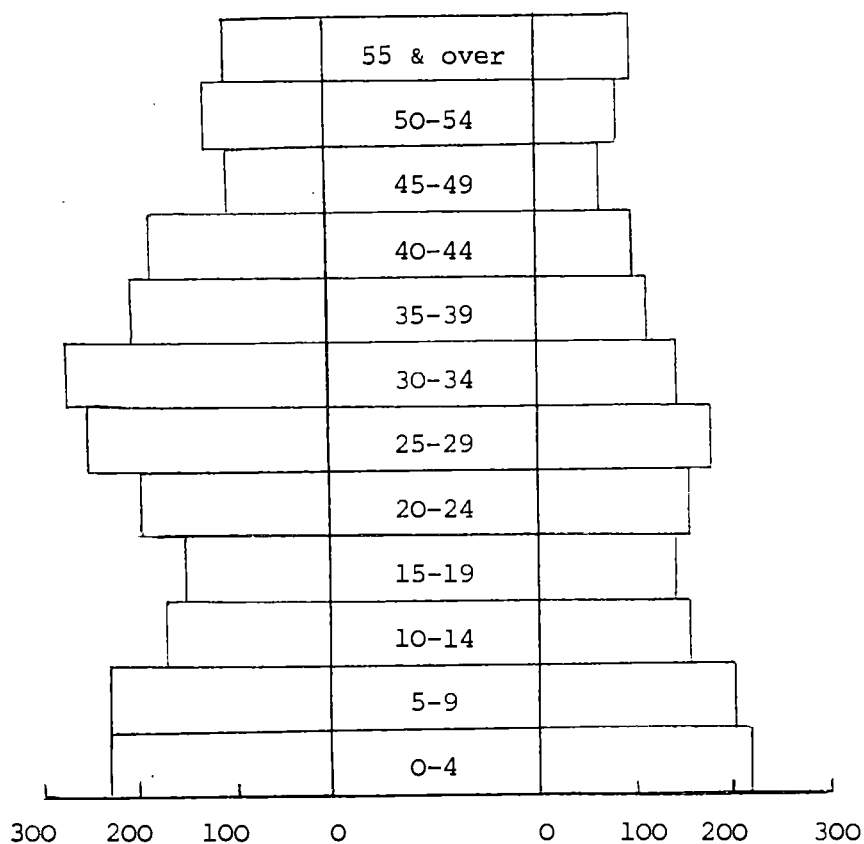
Year	Chinese	Indians	Total
1880	-	1,241	1,241
1890	51,174 <sup>a</sup>	3,197	54,371
1900	80,379 <sup>a</sup>	27,278	107,657
1910	86,528 <sup>a</sup>	44,643	131,171
1920	57,694	39,739	97,433
1930	74,246	-81,914	-7,668
1940	3,322	-7,595	-4,273
1950	-5,075	7,520	2,445
1960	1,612	-8,469	-6,857

Source: Saw Swee Hock, "Trends and Differentials in International Migration in Malaya", *Ekonomi*, Vol. 4, December 1963.

Note: a This figure is estimated to be 40 per cent of the total immigrants into Malaya.

FIGURE 2.1

TOTAL POPULATION, MALAYA, 1931 - ('000)



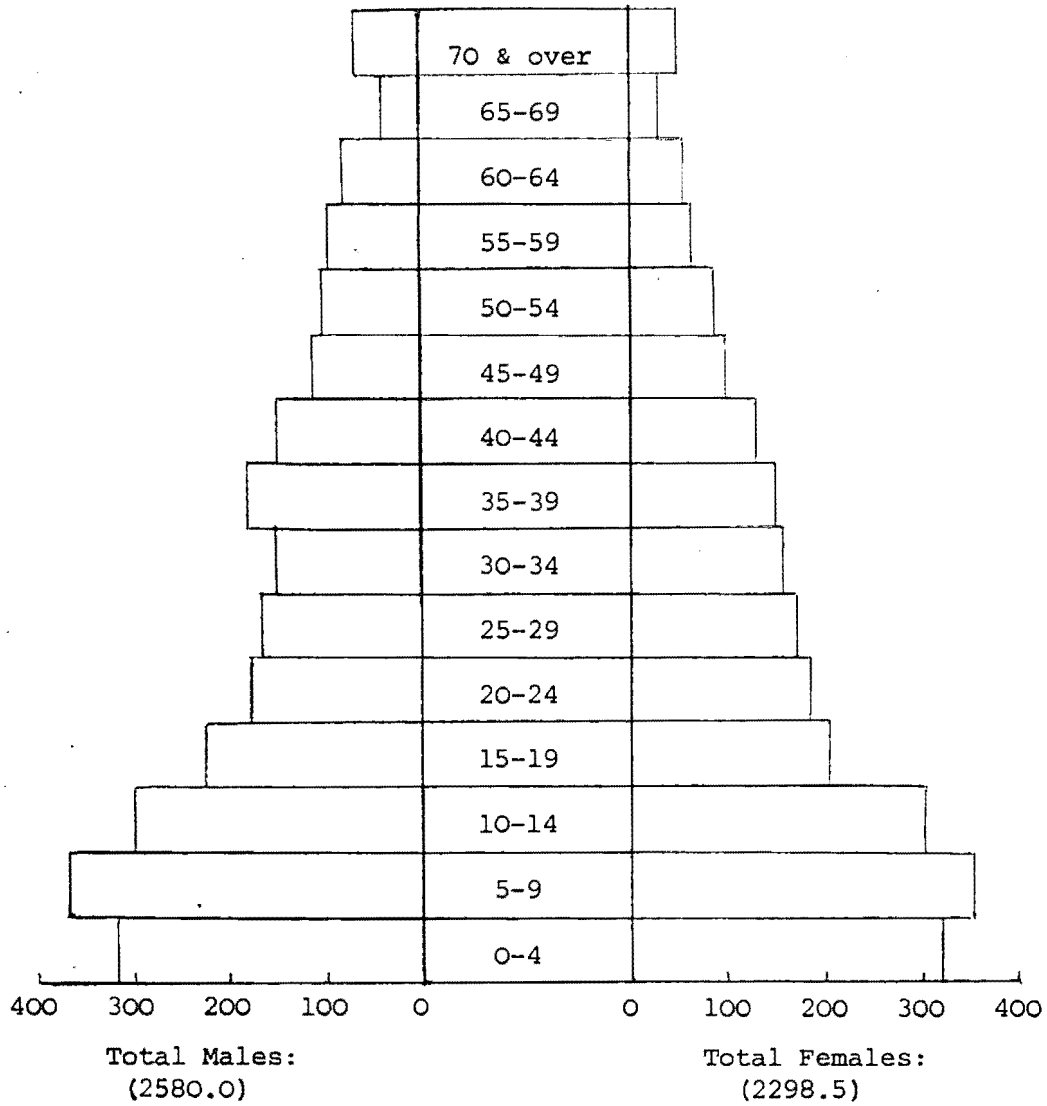
Total Males:  
(2,210.9)

Total Females:  
(1,500.2)

Source: Nor Laily Aziz, et. al., The Malaysian National Family Planning Programme - Some Facts and Figures, National Family Planning Board, Malaysia, 1979.

FIGURE 2.2

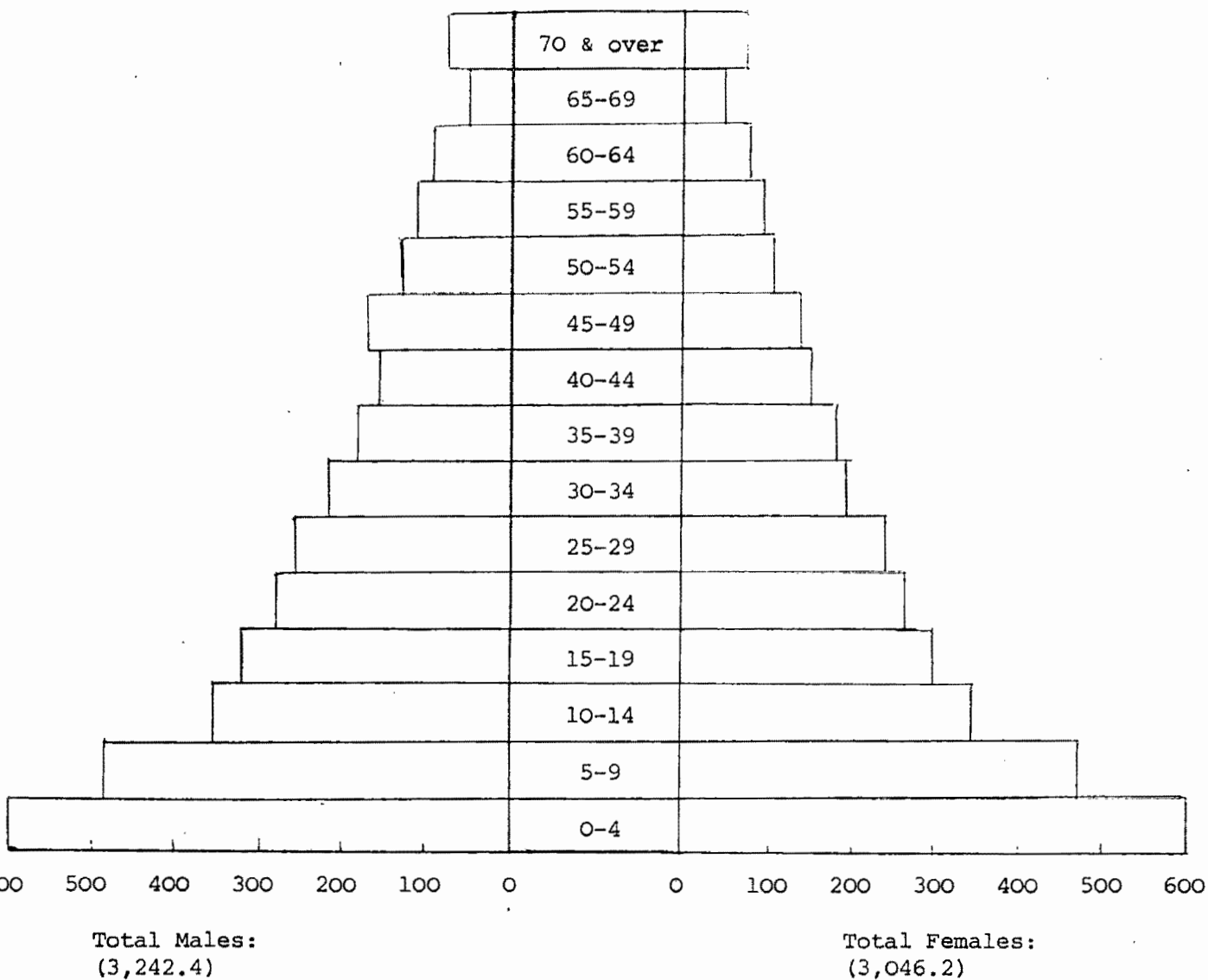
TOTAL POPULATION, MALAYA, 1947 - ('000)



Source: Nor Laily Aziz, et. al., The Malaysian National Family Planning Programme - Some Facts and Figures, National Family Planning Board, Malaysia, 1979.

FIGURE 2.3

TOTAL POPULATION, MALAYA, 1957 - ('000)



Total Males:  
(3,242.4)

Total Females:  
(3,046.2)

Source: Nor Laily Aziz, et. al., The Malaysian National Family Planning Programme - Some Facts and Figures, National Family Planning Board, Malaysia, 1979.

15 to 64 years increased from 54 per cent in 1978 to 57.1 per cent of the total population in 1980.

In 1978, married women between 15 to 49 years constituted 14.0 per cent of Peninsular Malaysia's population. In terms of urban and rural population distribution, about 33.9 per cent of the population in Peninsular Malaysia was located in the urban areas with 66.1 per cent in the rural areas. It is projected that by 1990 (Malaysia, Fourth Malaysia Plan 1981-1985, 1980) the urban population will increase further to 42.1 per cent of the total population.

#### 2.2.2

#### *Economic Characteristics*

During the period of British rule, economic development in Malaysia was confined to tin-mining and rubber planting. However, the economic development of Malaysia since independence was diversified to include a whole spectrum of agricultural activities like oil palm, coconut and cocoa planting, and the acceleration of the industrialization process.

Agriculture remained the dominant sector in Malaysia up to 1980. Table 2.3 shows the Gross Domestic Product (GDP) by sector of origin for Peninsular Malaysia. From the Table, it can be seen that in 1965, the GDP for the agricultural sector formed about 31.5 per cent of the total GDP, while that of the manufacturing sector formed only 10.4 per cent. However, in 1980, the agricultural sector's share of the GDP has declined to about 22.9 per cent while that of manufacturing sector has increased to 21.2 per cent of the GDP. This tends to indicate the success of the industrialization process that was implemented since the early 60s. From an output which was about one-third that of the agricultural

TABLE 2.3

## GROSS DOMESTIC PRODUCT BY INDUSTRY OF ORIGIN, PENINSULAR MALAYSIA, 1960-1980

Industry	1960		1965		1970	
	GDP* in \$ million	% of the Total GDP	GDP* in \$ million	% of the Total GDP	GDP* in \$ million	% of the Total GDP
Agriculture, forestry and fishing	1,976	37.8	2,066	31.5	3,797	32.0
Mining and quarrying	306	5.9	587	9.0	778	6.6
Manufacturing	453	8.7	682	10.4	1,650	13.9
Construction	158	3.0	269	4.1	475	4.0
Electricity, gas and water	70	1.3	150	2.3	229	1.9
Transport, storage and communications	189	3.6	284	4.3	581	4.9
Wholesale and retail trade, hotels and restuarants	817	15.7	1,004	15.3	1,633	13.8
Finance, insurance, real estate and business services	71	1.4	104	1.6	1,036	8.8
Government services	584	11.2	696	10.6	1,367	11.5
Other services	596	11.4	710	10.9	306	2.6
Gross Domestic Product	5,220	100.0	6,552	100.0	11,852	100.0

1975		1980	
GDP* in \$ million	% of the Total GDP	GDP* in \$ million	% of the Total GDP
4,804	28.4	5,809	22.9
792	4.7	1,214	4.8
2,850	16.8	5,374	21.2
654	3.9	1,186	4.7
365	2.2	592	2.3
1,071	6.3	1,696	6.7
2,219	13.1	3,295	13.0
1,468	8.7	2,155	8.5
2,210	13.1	3,398	13.4
478	2.8	657	2.5
16,911	100.0	25,376	100.0

Source: Malaysia, First Malaysia Plan 1966-1970, Government Press, Kuala Lumpur, 1966.  
 Malaysia, Second Malaysia Plan 1971-1975, Government Press, Kuala Lumpur, 1971.  
 Malaysia, Fourth Malaysia Plan 1981-1985, Government Press, Kuala Lumpur, 1981.

Note: \* Gross Domestic Product

sector in 1965, the output of the manufacturing sector has grown to a level which is almost equal to that of the agricultural sector in 1980. The policies that accounted for this shift in production pattern will now be elaborated.

The Pioneer Industries Ordinance was introduced in 1958 with the aim of accelerating the process of industrialization through import-substitution. New industries were given tax relief in the form of exemption from income tax for a period of between two to five years. The Pioneer Industries Ordinance was superseded by the 1968 Pioneer Industries Act which gave further incentives, particularly to export-oriented industries. Manufacturing industries developed rapidly as a result of these two Acts, and by 1980 the contribution of the manufacturing sector to GDP was doubled that of 1965 (i.e. 10.4 per cent in 1965 to 21.2 per cent in 1980). The main source of growth in the manufacturing sector was the location of manufacturing establishments by foreign multi-national enterprises in Malaysia, taking advantage of the investment incentives.

Table 2.4 shows the average annual growth rate of GDP by industry of origin for Peninsular Malaysia. From the Table, it can be seen that the average annual growth rate for the agricultural sector is much lower than that of the manufacturing sector. For example, during the period of 1976-1980 the manufacturing sector grew at an annual rate of 13.5 per cent, while the annual growth rate for the agricultural sector during the similar period was only 3.9 per cent.

In terms of employment, the agricultural sector employed about 52 per cent of the total working population in 1965. However, in 1980, the percentage employed in the agricultural sector declined to 40.6 per cent (See Table 2.5). From the Table, it can also be seen that the manufacturing sector has increased



TABLE 2.4

AVERAGE ANNUAL GROWTH RATE OF GROSS DOMESTIC PRODUCT  
BY INDUSTRY OF ORIGIN, 1961-80  
(Percentages)

Industry	1961-65	1966-70	1971-75	1976-80
Agriculture, forestry and fishing	4.0	6.8	4.8	3.9
Mining and quarrying	4.5	1.1	0.4	8.9
Manufacturing	11.1	9.9	11.6	13.5
Construction	17.9	4.1	6.6	12.6
Electricity, gas and water	11.9	8.1	9.8	10.2
Transport, storage and communications	5.5	3.0	13.0	9.6
Wholesale and retail trade, hotels and restaurants	5.3	3.3	6.3	8.2
Finance, insurance, real estate and business services	10.3	10.2	7.2	8.0
Government services	4.6	5.2	10.1	9.0
Other services	7.4	4.7	9.3	6.6
Gross Domestic Product	6.3	5.5	7.1	8.6

Source: Malaysia, First Malaysia Plan, 1966-1970, Government Press, Kuala Lumpur, 1966.

Malaysia, Second Malaysia Plan, 1971-1975, Government Press, Kuala Lumpur, 1971.

Malaysia, Fourth Malaysia Plan, 1981-1985, Government Press, Kuala Lumpur, 1981.

TABLE 2.5

## EMPLOYMENT BY INDUSTRY, WEST MALAYSIA, 1965-80

Industry	1965		1970		1975		1980	
	('000)	Share of Total (%)	('000)	Share of Total (%)	('000)	Share of Total (%)	('000)	Share of Total (%)
Agriculture	1,350	52.1	1,714.6	50.5	1,923.5	45.3	2,066.9	40.6
Mining	66	2.5	88.6	2.6	88.3	2.1	89.6	1.7
Manufacturing	217	8.4	-386.5	11.4	572.0	13.0	803.1	15.8
Construction	90	3.5	136.7	4.0	187.8	4.4	262.8	5.2
Electricity, water and sanitary services	16	0.6	26.5	0.8	33.2	0.8	49.5	1.0
Transport, storage and communication	101	3.9	115.1	3.4	165.5	3.9	193.2	3.8
Wholesale and retail trade, hotel and restaurants	-	-	371.1	10.9	503.4	11.8	648.5	12.7
Finance, insurance, real estate and business services	287	11.1	31.5	0.9	40.7	0.9	52.1	1.0
Government services	-	-	396.6	11.7	555.8	13.1	710.1	13.9
Other services	463	17.9	128.7	3.8	176.9	4.2	217.7	4.3
Total	2,590	100.0	3,395.9	100.0	4,247.1	100.0	5,093.5	100.0

Source: Malaysia, Second Malaysia Plan 1971-1975, Government Press, Kuala Lumpur, 1971.

Malaysia, Fourth Malaysia Plan 1981-1985, Government Press, Kuala Lumpur, 1981.

its share of total employment in 1980. In 1965, the manufacturing sector employed about 8.4 per cent of the total employment but by 1980 this percentage had increased to 15.8 per cent. This indicated the increasing importance of the manufacturing sector to both production and employment generation.

### 2.3

#### Need for Population-Development Program

In spite of the relative high rate of economic growth Malaysia enjoyed since the 1950s, it became clear to the government that the benefits of the economic growth would not be fully felt if the population growth rate remains high. For example, although Malaysia's economic growth rate has been consistently above 5 per cent per annum since the 1950s, the crude birth rate was around 2.8 per cent to 3.0 per cent. This implies that if this crude birth rate continues to be undiminished, the per capita Gross National Product (GNP) growth rate would grow at a minimal rate of only about 2 per cent per annum. Hence, programs to reduce the population growth rate was deemed essential. This was argued forcefully by Saunders (1968).

As a result of this awareness of the relationship between population and economic welfare, the official Family Planning Program was established in 1966 with the passing of the Malaysian Family Planning Act. The Family Planning Program, as envisaged in the Act, is a multi-agency program involving government agencies like the Ministry of Health (MOH), the Ministry of Social Welfare and voluntary organizations like the Federation of Family Planning Associations. A new organization known as the National Family Planning Board (NFPB), was established to coordinate and direct this program. The official goal of the family planning program is to reduce the crude birth rate to 2.6 per cent per annum by 1985.

The multi-agency nature of the program was deemed essential by policy planners. Family planning is a sensitive political issue in a multi-racial country like Malaysia. It was felt that for family planning to be widely accepted, especially in the rural areas, it was necessary to diffuse the political sensitivity of the concept by imbedding family planning with family welfare and family health. If the conservative rural folks can view family planning as part and parcel of family development then the chances of their accepting family planning is much better.

Since the mid-70's, this concept of imbedding family planning with family and societal development was enhanced further with the integration of population program activities into the activities of socio-economic development programs like health services, agricultural development, regional development and squatter upgrading programs. It was felt that in order to achieve the nation's goal of 2.6 per cent crude birth rate by 1985, family planning implementation has to be enhanced further through the imbedding of family planning activities into all development programs that are implemented to uplift the level of living of the people.

#### 2.4 Structure of the Integrated Population Program in Malaysia

In this section, we shall describe the set-up and the structure of the Integrated Population Program in the country. This description shall be broken down into three levels of integration, namely the policy formulation level, the policy coordination level and the policy implementation level.

##### 2.4.1 Policy Formulation

In Malaysia, Integrated Population Planning is at present being undertaken by the Manpower and Population

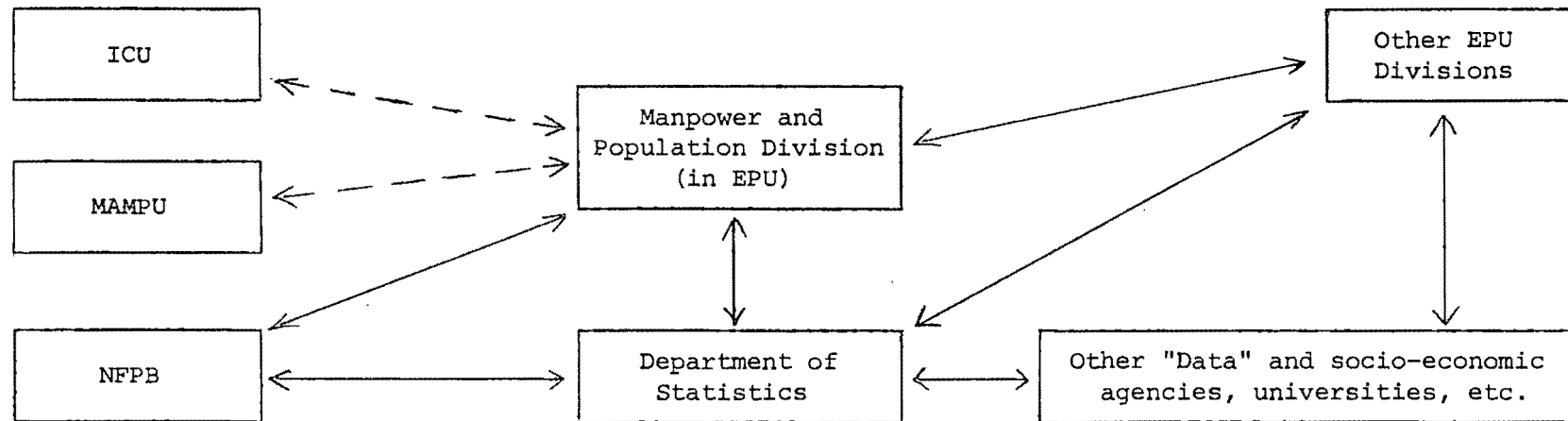
Division of the Economic Planning Unit (EPU) in the Prime Minister's Department. This unit interacts with the other EPU divisions (in particular with the Implementation Coordination Unit (ICU), the Administrative, Modernization and Manpower Planning Unit (MAMPU)) and other government departments such as the NFPB, the Department of Statistics and agencies that implement socio-economic development programs, in the formulation of the population policy and the integration of population concepts into macro development policy. This linkage is as shown in Figure 2.4.

Although the Manpower and Population Division of EPU is responsible for designing the overall policy on the Integrated Population Program, other implementing agencies such as the MOH, the Ministry of Agriculture and the Ministry of Welfare Services also have vital roles to play in the formulation of the Integrated Population Policy that are being implemented within the respective agencies. The Manpower and Planning Division of EPU, in such cases, would act as the Coordinator for the population policy planning process (it has a representative in the committee responsible for the formulation of the Integrated Population Policy in each of the respective agencies) to ensure that the Integrated Population Policy being formulated for implementation in each agency are within the specific parameters as provided by the overall EPU policy and are internally consistent with each other. The relationship between EPU and the implementing agencies are as illustrated in Figure 2.5.

From the Figure, it can be seen that the planning of Integrated Population Policy occurs at two levels namely, at the level of the overall policy which is being formulated by EPU and at the level of the implementing agencies which is formulated by the

FIGURE 2.4

PRESENT STRUCTURAL RELATIONSHIPS OF EPU AND THE IMPLEMENTING AGENCIES:  
MALAYSIA POPULATION PLANNING



Legend

ICU = Implementation Coordination Unit

MAMPU = Malaysian Administrative, Modernization and Manpower Planning Unit

EPU = Economic Planning Unit

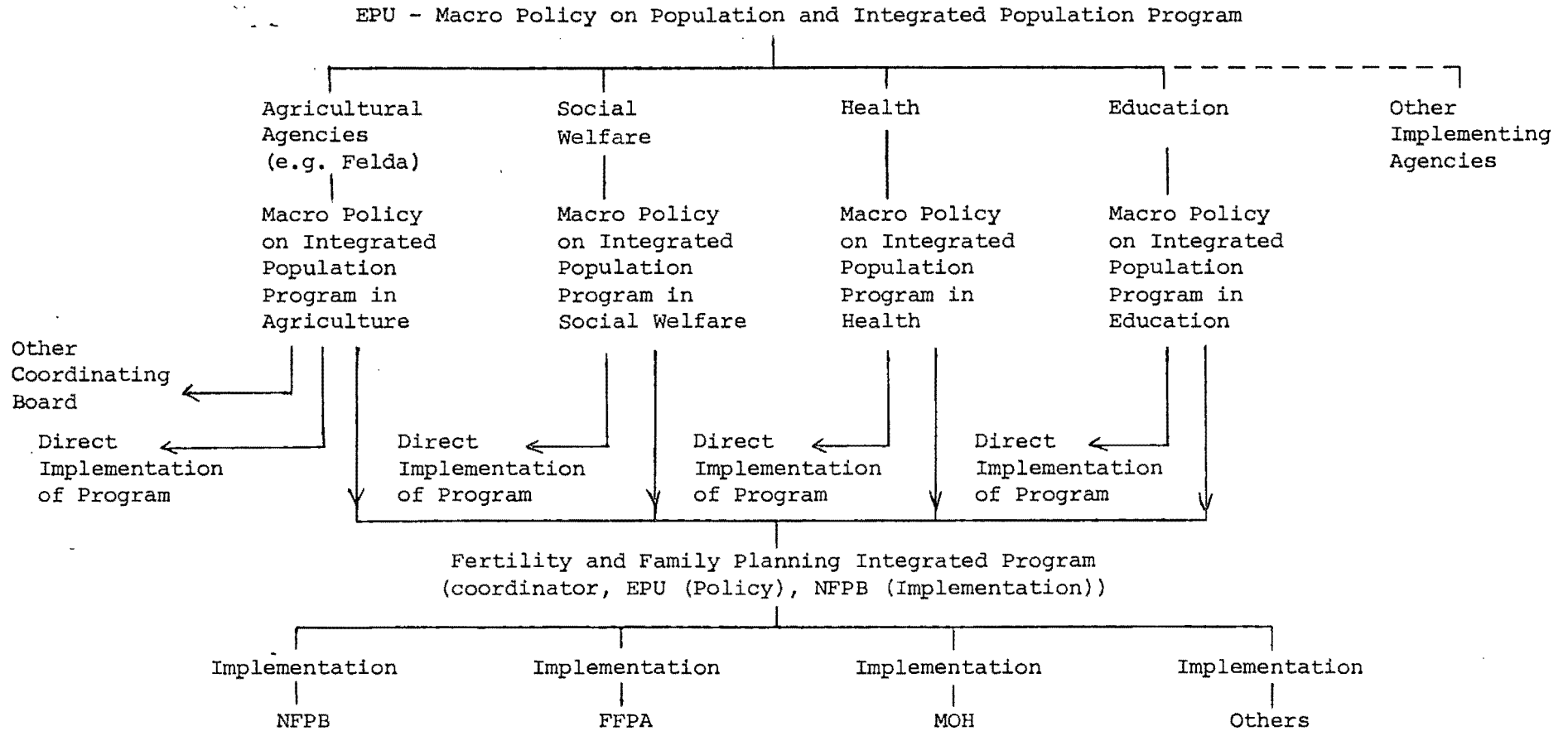
NFPB = National Family Planning Board

The solid lines represent relationships that exist.

The broken lines represent probable relationships.

FIGURE 2.5

FRAMEWORK OF AGENCY INTERLINKAGES



NFPB = National Family Planning Board  
 FFPA = Federal Family Planning Associations  
 MOH = Ministry of Health  
 EPU = Economic Planning Unit

respective agencies with the participation of EPU to ensure national consistency.

#### 2.4.2 *Policy Coordination*

As was elaborated above, EPU, besides formulating the overall population policy, also coordinates the planning process done by the various implementing agencies. At the implementation level, however, each agency is responsible for the implementation of their own component of the Integrated Population Program. For example, the Ministry of Agriculture is responsible for the Community Development Program (KEMAS), which aims at the teaching and spreading of the small family norm through further education and vocational classes among the housewives in the rural areas. Similarly, the MOH is responsible for the Integrated Rural Health Program in which family planning services are offered as part of the rural health services. The Ministry of Education, on the other hand, is responsible for implementing the curriculum development program in which the idea of small family norm is taught through text books to students in school.

However, to ensure consistency in the implementation of the various components of the program (e.g. the fertility component, the health component, the social welfare component, etc.), one particular agency is assigned to be the coordinator of each of the components of the Integrated Population Program. For example, the NFPB is given the authority to act as the coordinator for the fertility component of the Integrated Population Program. In pursuance of this role, it sets acceptor targets for the various integrated population agencies and it offers technical training and supervision to the staff of the various agencies on family planning methods. Similarly, the MOH acts as the coordinator for the health component of the Integrated Population Program. In this respect it offers technical training and overall supervision to



the staff of the various agencies on matters relating to family health and child development. The linkage of this coordination in the implementation stage is also illustrated in Figure 2.4.

#### 2.4.3

##### *Policy Implementation*

As was pointed out in the previous two sections, each of the development implementation agencies is assisted in the overall Integrated Population Policy by the EPU, and in its implementation of the various components of the Integrated Population Program by a specific coordinating agency, in particular, the NFPB. However, ultimately each of these implementing agencies are responsible to themselves for the success (or otherwise) of the various components of the integrated program.

Within each of these implementing agencies, there are various divisions that are responsible for the implementation of the various components of the Integrated Population Program. For example, in Felda there is one particular section that is responsible for overseeing the population development program and another division that is responsible for implementing the settlers economic development program. Similarly, in the MOH, the integrated rural health service program is under the supervision of Family Planning Unit of the Ministry, while other divisions in the Ministry is responsible for the other components like the nutrition component and child care component.

Within each of these agencies there exists an administrative structure which ensures smooth interrelationships in the implementation of the various components of the Integrated Population Program. Typically in each of these implementing agencies, Steering Committees are formed to monitor and supervise the progress of the various components of the Integrated Population Program being implemented.

In these Steering Committees, representatives from all the relevant divisions within the agency as well as those from the other relevant agencies are coopted so that progress in the various components of the Integrated Population Program can be meaningfully discussed and evaluated. Because of the presence of representatives of the various agencies, the Steering Committee meetings, to a certain extent, also ensure consistency in the implementation programs of the various agencies.

## 2.5 Macro Impacts of the Various Components of the Integrated Population Program

In this section, we describe briefly the macro impacts of the various components which constitute the most important components of the Integrated Population Program in Malaysia. The impacts of these components, namely fertility reduction, mortality, health and nutrition, education and general welfare will be described without differentiating the impacts due to the Integrated Population Program or those due to the individual programs themselves. In other words, we shall concern ourselves with the macro impacts of the main components that constitute the Integrated Population Program, without evaluating the extent to which these impacts are due to the nature of the Integrated Population Program or the nature of the individual programs.

### 2.5.1 *Fertility and Family Planning Prevalence*

Since the establishment of the family planning program in Malaysia in 1966, family planning prevalence among married women in Malaysia has increased dramatically. As can be seen from Table 2.6, the percentage of married women currently using family planning was 8.8 per cent in 1966. This percentage increased to 35.5 per cent in 1974 and in 1978 it further increased

TABLE 2.6

SOCIO-ECONOMIC INDICATORS FOR FERTILITY AND  
 FAMILY PREVALENCE IN PENINSULAR MALAYSIA  
 (Percentages)

	1957	1970	1975	1979
Crude birth rate	4.62	3.39	3.14	3.05
Rate of natural increase	3.37	2.66	2.49	2.47
Total fertility rate	6.66	5.02	4.30	4.10
Married women currently using family planning		8.80 <sup>a</sup>	35.50 <sup>a</sup>	39.20 <sup>a</sup>

Source: Malaysia, Statistical Bulletin, December 1980, Department of Statistics, Kuala Lumpur, 1981.

Malaysia, Social Statistics Bulletin 1977, Department of Statistics, Kuala Lumpur, 1978.

Note: <sup>a</sup>The figures given are taken for the years 1966, 1974 and 1978.

to 39.2 per cent. This represented a fairly rapid diffusion of family planning amongst married women and demonstrated to a great extent the success of both the purely Family Planning Programs and the Integrated Population Program in diffusing the idea of family planning.

Concurrent with the increase in family planning prevalence, all indicators of fertility have also shown a decline over the past two decades. As can be seen from Table 2.6, the crude birth rate has declined from 4.62 per cent in 1957 to 3.05 per cent in 1979. Similarly, the total fertility rate has also declined from 6.6 children per woman in 1957 to 4.1 children per woman in 1979. These figures, hence, indicate a 33 per cent decline in crude birth rate over the period 1957 to 1979, and a corresponding decline of 38 per cent in total fertility rate over the same period.

As was pointed out earlier, the goal of the National Family Planning Program (both integrated and unintegrated) is to reduce the crude birth rate to 2.6 per cent by 1985. As is clearly shown in Fong (1982), this target could be easily achieved if the various agencies in the family planning program were to continue with their present rate of expansion in terms of the acceptor rate of recruitment.

However, it must be clearly noted that as family planning is diffused more widely, the efforts required for maintaining similar rate of increase in family planning prevalence would be much greater because of the increasing difficulty in spreading family planning to the henceforth "untapped" areas in rural Malaysia.

It is here that the Integrated Population Program which seeks to diffuse family planning through health, economic and community development, could play an important role. With the existence of health infrastructure and government administrative machinery that penetrated even to the most remote corners of the country,

diffusion of family planning through the program implemented by these infrastructure will have a far greater chance of success.

#### 2.5.2 *Macro Impacts of Health and Nutrition Program*

Since independence, Malaysia has been spending a relatively large part of the government expenditure on health. As can be seen from Table 2.7, the expenditure on health as a proportion of government expenditure has been maintained around 7 per cent since 1957. Similarly, the expenditure on health as a proportion of Gross National Product (GNP) has been maintained at around 1.5 per cent to 2 per cent since 1957.

This huge expenditure on health has been reflected in an improvement of health status for the Malaysian population, indicated by the fact that the infant mortality rate has declined from about 7.5 per cent in 1957 to about 2.7 per cent in 1979. This represented a decline of 29 per cent per year over the period 1957-1979. The declines in toddler mortality rate and maternal mortality rate have been even more dramatic. Toddler mortality rate (which is generally used as an indicator of quality of nutrition on children) declined from 1.06 per cent in 1957 to 0.24 per cent in 1979. Similarly, maternal mortality rate also declined from 0.28 per cent in 1957 to a significant 0.07 per cent in 1979. The crude death rate for total population declined from 1.5 per cent to 0.58 per cent in 1979. On the reverse, the life expectancy for the average individual has increased from 55.7 years (for males) and 58.1 years (for females) in 1957 to 66.0 years and 70.9 years respectively in 1979. These figures demonstrated clearly the success of the health programs in reducing mortality rates among the Malaysian population.

TABLE 2.7  
SOCIO-ECONOMIC INDICATORS OF HEALTH AND NUTRITION  
FOR MALAYSIA, 1957-1979

Indicators	1957	1970	1975	1979
Expenditure on Health as percentage of GNP	1.4	1.4	1.9	2.1
Expenditure on Health as % of Total Government Expenditure	1.0	6.5	6.8	7.0
Crude Death Rate per Thousand	14.9	7.3	6.6	5.8
Infant Mortality Rate per Thousand <sup>a</sup>	75.0	40.8	35.4	27.0
Maternity Mortality Rate per Thousand <sup>b</sup>	2.8	1.5	1.0	0.7
Toddler Mortality Rate per Thousand <sup>c</sup>	10.6	4.2	3.1	2.4
Life Expectancy - Males	55.7	65.5	64.4	66.0
Life Expectancy - Females	58.1	68.2	69.6	70.9
Calories Intake per Head per Day	2193	2511	2525	2643
Proteins Intake in gms. per Head per Day	42.5	50.2	54.2	56.2

Source: Malaysia, Statistical Bulletin, December 1980, Department of Statistics, Kuala Lumpur, 1981.

Malaysia, Economic Report, 1979/80, Ministry of Finance, Kuala Lumpur, 1979.

Malaysia, Social Statistics Bulletin 1977, Department of Statistics, Kuala Lumpur, 1978.

Note: <sup>a</sup>Used as an indicator of living conditions in any area.

<sup>b</sup>Indicate standard of obstetric care.

<sup>c</sup>Indicate quality of nutrition.

From the Table, it can also be seen that the quality of nutrition for the population has also improved. The calorie intake per head per day has increased from 2193 calories in 1957 to 2643 calories in 1979. There was also an improvement in the protein intake per head per day, from 42.5 grams in 1957 to 56.2 grams in 1979.

Table 2.7 clearly demonstrates the dramatic improvement in the health and nutritional status of the Malaysian population over the past two decades. The fact that the decline in mortality rate is accompanied by a similar significant decline in fertility rate indicates that Malaysia is in a fairly advanced stage of demographic transition where both mortality and fertility rates are at a declining stage. Hence, over the short to medium term, a relatively stable population size for Malaysia can be achieved if these trends continue, and then taper to steady levels.

### 2.5.3

#### *Impacts of Socio-economic Development*

Tremendous socio-economic development has taken place in Malaysia since independence in 1957. As Table 2.8 clearly indicates, the per capita Gross Domestic Product (GDP) for Malaysia has increased from M\$746 in 1960 to about M\$2142 in 1980. This represented an increase in per capita GDP of 9.3 per cent per annum. This improvement in per capita GDP is a result of the industrialization strategy adopted by the government since the early 60s.

The tremendous economic development has resulted in a significant improvement of the socio-economic welfare of the population. As can be seen from Table 2.8, government expenditure on education has increased from 13.9 per cent in 1960 to 19.4 per cent in 1980. This has resulted in a significant improvement in the literacy rate, from 51 per cent in 1957 to 68 per cent in 1976.

TABLE 2.8

## MALAYSIA: SELECTED SOCIO-ECONOMIC INDICATORS, 1960-1980

Indicators	1960	1970	1980
Per capita GDP, Factor Cost (\$)	746	1350	2142
Expenditure on Education as % of Total Government Expenditure	15.9	19.1	19.4
Literacy Rate	51.0	60.8	68.0 <sup>a</sup>
No. of Televisions owned per 100 population	0.4	2.2	9.0
No. of Private Cars per 100 population	0.1	0.2	0.4
No. of Motor Cycles per 100 population	0.3	0.4	0.9
% of dwellings with piped water	n.a.	47.5	57.0 <sup>a</sup>
% of dwellings with electricity	n.a.	43.7	56.0 <sup>a</sup>
Copies of Newspaper sold per 100 population	6.1	7.4	17.5 <sup>a</sup>

Source: Malaysia, Fourth Malaysia Plan, 1981-1985, Government Press, Kuala Lumpur, 1981.

Malaysia, Social Statistics Bulletin, 1977, Department of Statistics, Kuala Lumpur, 1978.

Malaysia, Economic Report, 1979/80, Ministry of Finance, Kuala Lumpur, 1979.

Note: <sup>a</sup>These are 1976 figures as the latest ones are not available.

n.a. - not available.



The other indicators of socio-economic welfare also showed great improvement over the past two decades. For example, the copies of newspaper sold has increased from 6.1 per hundred population in 1957 to 17.5 per hundred population in 1976. Similarly, the percentage of television ownership has improved from 0.4 per hundred population in 1960 to 9.0 per hundred population in 1980, while ownership of private vehicles has increased from 0.15 per hundred population in 1960 to 0.45 per hundred population in 1980.

In terms of housing, the percentage of houses with piped water has increased from 47.5 per cent in 1970 to 57 per cent in 1976 while the percentage of houses with electricity supply has increased from 43.7 per cent in 1970 to 56 per cent in 1976.

The indicators as presented in Table 2.8 illustrate clearly that there has been a significant improvement in the socio-economic welfare of the Malaysian population since 1957.

#### 2.5.4

##### *Program Impacts Due to Integration*

As was stated in the beginning of this section, the macro impacts of the various components of the Integrated Population Program are discussed without differentiating between the impacts due to the Integrated Population Program and the impacts due to the various single-purpose programs. The main aim of this research study is to examine the impacts on the various components of the Integrated Population Program, amongst the Felda settlers due to the Felda mode of integration and to compare these impacts to that of the traditional single-purpose programs amongst the people in the traditional areas. The end results of this study would, hopefully, provide some insights into the performance of integrated population programs vis-a-vis that of single-purpose programs.

3.1 Introduction

With over 63 per cent of the total population living in rural areas, rural development has been adopted by the Malaysian government as the major development strategy in order to uplift the standard of living of the rural masses (Fourth Malaysia Plan, 1981-1985). An important component of this rural development strategy is land development.

Felda, the land development authority established in 1956, was specially created to spearhead the implementation of this land development strategy through the establishment of new land schemes (out of virgin jungles) for the settlement of the landless rural masses. Although the activities of Felda has not been considered as an explicit component of the Malaysian Population Program, its activities in the purposeful redistribution of the formerly landless poor living in the traditional densely populated rural areas to new uninhabited areas, have had significant impacts on the population distribution of the country. This resettlement, in the last two decades, of a significant proportion of the population from the traditional rural areas to Felda new land schemes has been instrumental in reducing the rural-urban migration rate (Hirshman, 1976).

In spite of its impact on population distribution, it must be emphasized that the major objective of Felda is the acceleration of socio-economic development through the development of new land schemes. Starting from its humble origin in 1956, by the end of 1981, Felda has developed 308 land schemes covering an area of 564,910 hectares planted predominantly with oil palm (59.4 per cent) and rubber (31.6 per cent). Recently, cocoa, sugar cane and coffee have also been introduced in some schemes (see Table 3.1). The land

TABLE 3.1  
DISTRIBUTION OF CROPS IN FELDA SCHEMES, 1981

	No. of Schemes	Area (in hectares)	Percentage (in terms of area)
Oil Palm	177	335,741	59.4
Rubber	117	178,322	31.6
Cocoa	11	15,059	2.7
Sugar Cane	2	5,118	0.9
Coffee	1	529	0.1
Village Area		30,141	5.3
<b>Total</b>	<b>308</b>	<b>564,910</b>	<b>100.0</b>

Source: Felda, Felda Annual Report 1981, Kuala Lumpur, 1981

schemes developed up to 1981 have settled a total of 70,563 families or over 400,000 people. A map indicating the distribution of Felda schemes in Peninsular Malaysia is given in Map 3.1.

### 3.2 Organization of Felda

Felda is an organization administered by a Board of Directors responsible to the Ministry of Land and Regional Development. The organizational structure is given in Figure 3.1. From the Figure, it can be seen that the Felda organizational structure can be divided into three main components: operations, services and commercial; the first two being administered by a Director General while the last division being administered by an Executive Director.

#### 3.2.1 *Operations*

As can be seen from the Figure, the Operations Division is headed by the Deputy Director General. This division performs three main functions, the most important of which is scheme physical development and scheme management. Since the schemes are distributed all over the country, scheme development and management are achieved through a number of Operations Directors who are each in charge of a region of the country. Each Operations Director for each geographical region has three areas under him, with each area having 20 schemes. Typically each scheme has about 20 scheme staff including a manager, an assistant manager, agricultural extension workers, social and community development staff and supportive clerical staff. Essential services in each scheme like police, schools, fire brigades and health clinics are provided by the respective Ministries through their usual networks. The staff providing these essential services, though they live on the schemes, work independently of Felda.

DISTRIBUTION OF FELDA SCHEMES IN PENINSULAR MALAYSIA

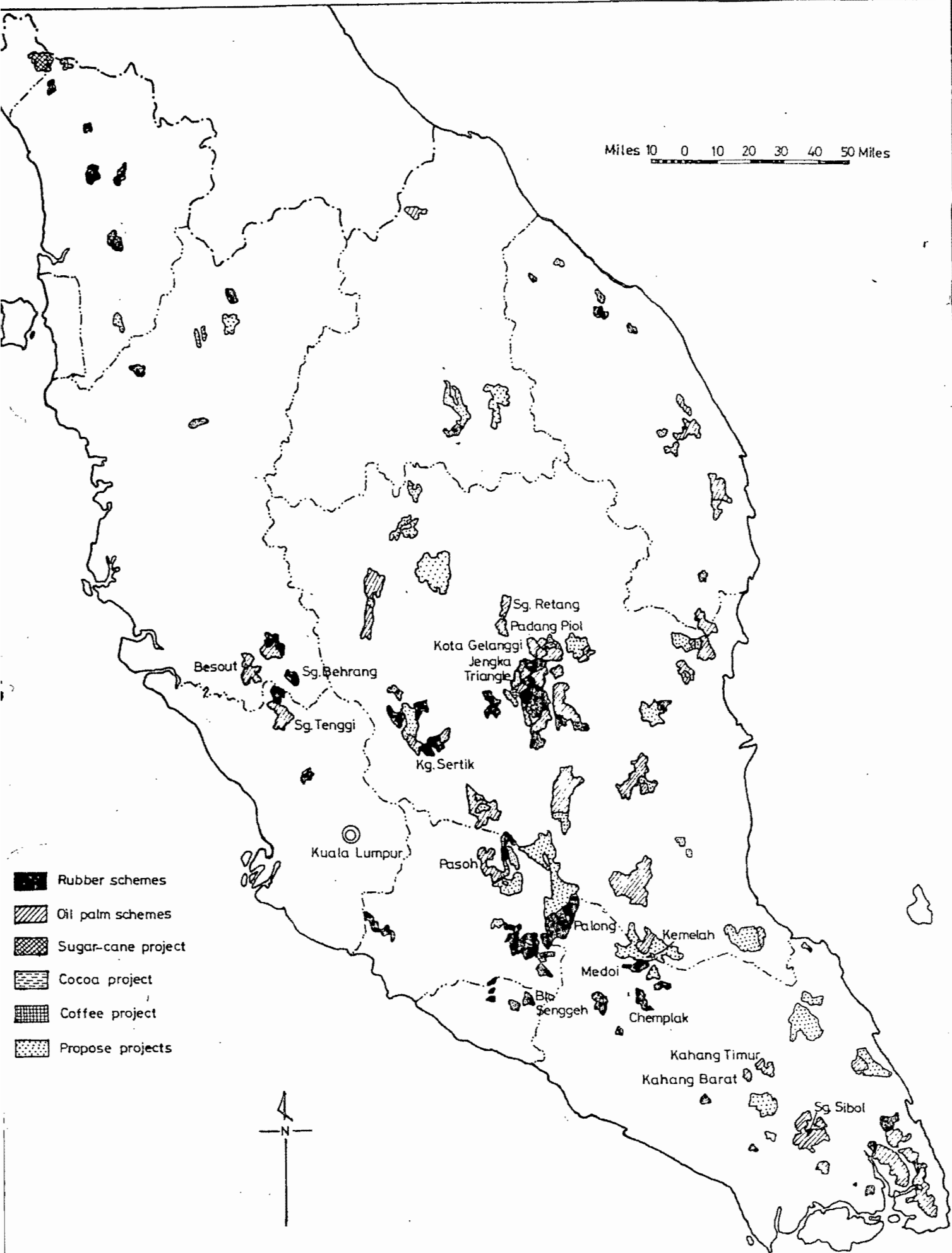
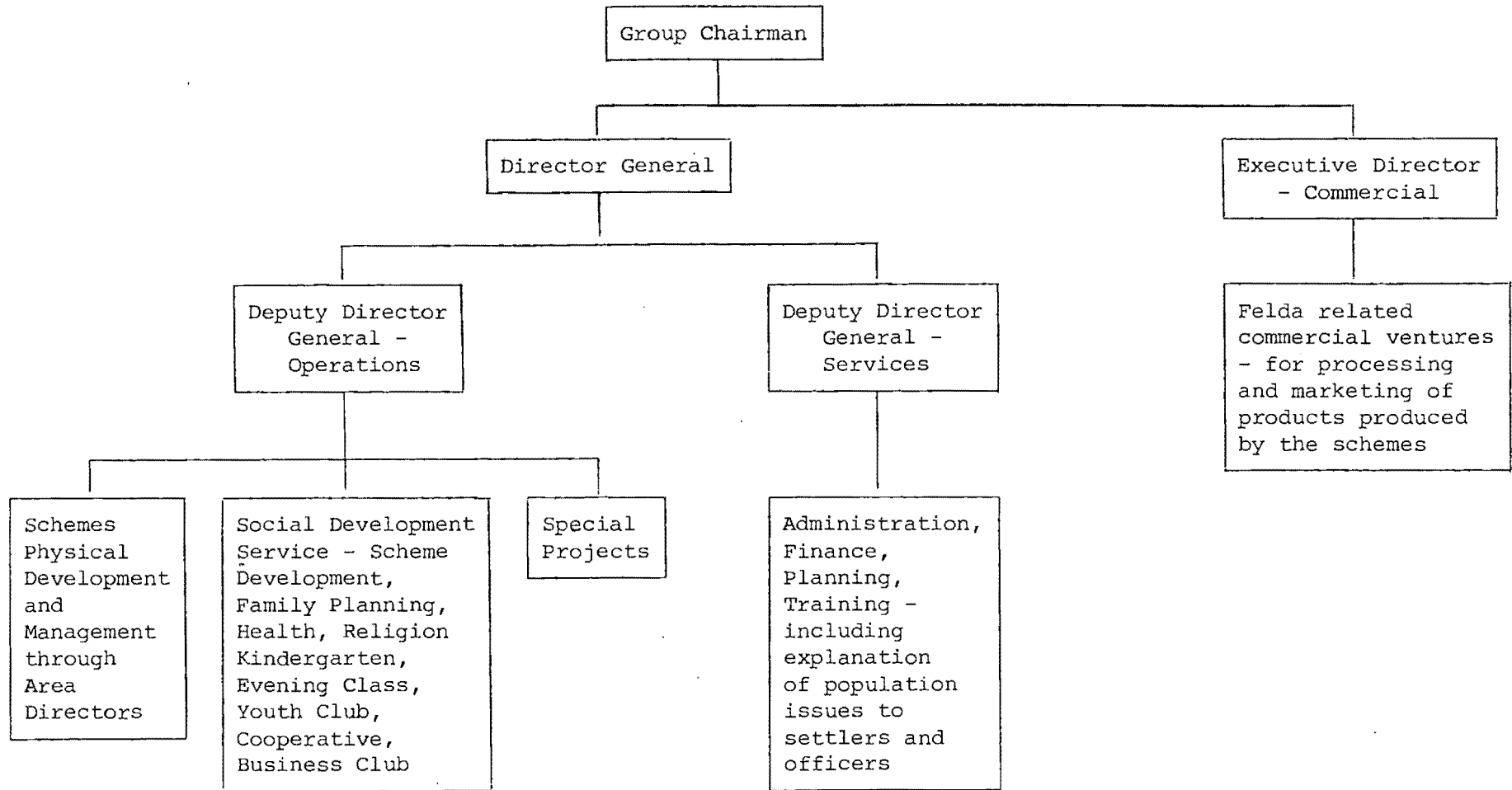


FIGURE 3.1

ORGANIZATIONAL STRUCTURE OF FELDA



In reality, of course, there are close personal contacts between non-Felda staff and Felda staff in a particular scheme.

The next important function under Operations is social development services. Given that each new scheme is settled by people who are initially complete strangers to each other, it is necessary that settlers in each particular scheme are grouped into a community as soon as possible. The function of the social development services division is to achieve this through the implementation of a number of social development projects. In each scheme the social development services provided include scheme economic bureau, maternal and child health services, family planning, religious services, kindergarten classes, further education classes, youth clubs, cooperatives and business clubs. These activities are managed either by the scheme staff or full time staff employed specifically for running these social development activities. Further, since the settlers in the scheme form a very small community, it is inevitable that the same leaders may be running a number of local organizations. This in a way leads to a highly integrated approach to social community development in which all the activities are interlinked with each other. Family planning, for example, is not only motivated by the clinic nurses but also by the teachers in the kindergarten through their contacts with parents, by the scheme managers and by the teachers of evening classes. This integrated approach towards population and community development is commonly termed as Felda mode of integration and is considered to be a fairly innovative mode of delivering population services. Formally, population services are provided by the nurses through the clinics in the schemes. The nurses are

from the Ministry of Health but they provide information on health and acceptor status to the scheme office as well as the NFPB. The family planning aspect of the clinic is monitored by the NFPB, which also provides expertise as and when required. Contraceptives are also supplied free to the scheme clinics by the NFPB. Acceptors are charged a nominal fee for contraceptives and the funds collected are utilized by a special committee for settler development activities. The scheme officers, especially the women extension workers, help in identifying and motivating family planning acceptors among the settlers. Family planning and population are also integrated into the training program of the women extension workers and other scheme staff. The Social Development Services Department's organizational structure is given in Figure 3.2.

The last function of the Operations Division is the implementation of special projects. This includes the introduction of new crops and the experimentation of new clones of rubber, oil palm, cocoa and sugar cane.

### 3.2.2 *Services*

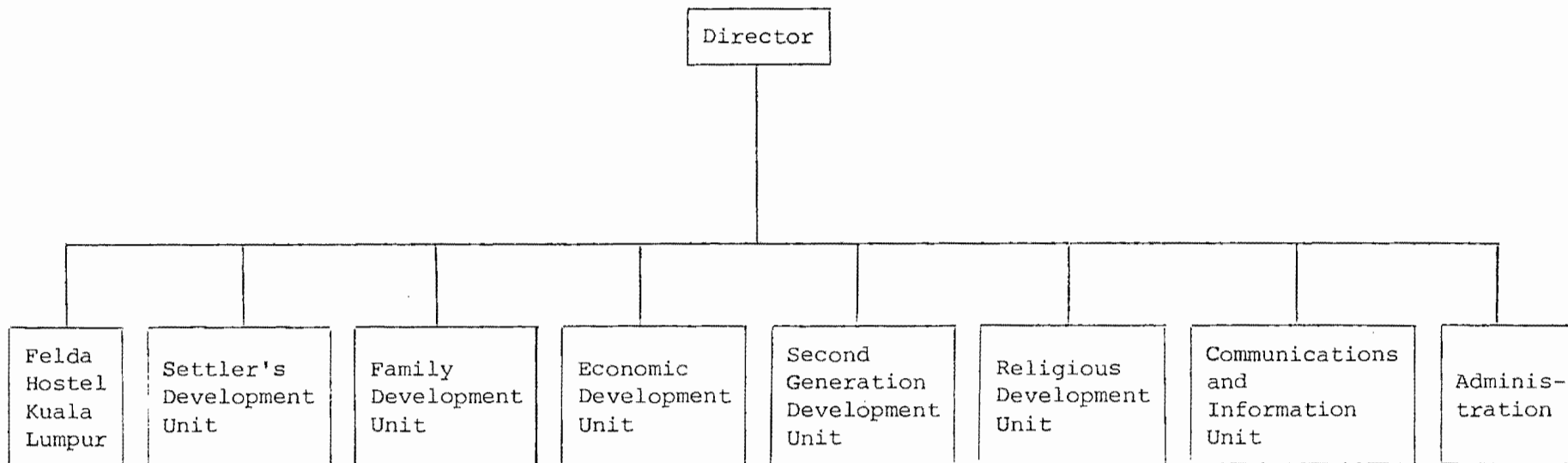
This division, headed by another Deputy Director General, performs activities like finance processing, personnel management, data processing, survey, and land and settler emplacement. In general, the functions of this division is to complement the implementation of the Felda land scheme programs. Of particular significance is the training function for settlers and scheme staff which are provided by this section. With particular reference to population, as stated before, modules on family planning, family health and family social development are integrated into training programs for settlers and scheme officers.



FIGURE 3.2

ORGANIZATION CHART OF SOCIAL DEVELOPMENT SERVICES DEPARTMENT

61



Source: Felda Social Development Service, Felda, Malaysia, 1982.

### 3.2.3 *Commercial Groups*

The last division of the Felda organizational structure is the commercial group. This is headed by an Executive Director. Under this group, a total of 8 corporations and 6 joint-ventures were formed for the purpose of transportation and marketing of the products produced by the Felda schemes. Examples of activities under this group include palm oil refineries, Standard Malaysian Rubber (SMR) processing mills and fertilizer plants.

### 3.3 Linkage of Felda to Political and Administrative Leadership

Felda is an agency responsible to the Land and Regional Development Ministry. Land development is politically and administratively very important in a basically agricultural country like Malaysia. Hence, it is not surprising that Felda, as an organization, has close relationships (both formal and informal) with the political and administrative leaderships at the federal, state and local levels.

At the federal level, Felda has always been cited by politicians as an exemplification of the success of its land development strategy. The fact that Felda settlers are in the position to earn household income<sup>1</sup> far above that earned by households in the traditional rural areas meant that parliamentary representatives from rural constituencies are often bidding for Felda schemes to be implemented in their respective constituencies to enhance the income of their constituents.

---

1 In 1980, the average income for a settler in a matured oil palm scheme is about M\$700 per month while the average income for a settler in a matured rubber scheme is about M\$500 per month. This is much higher than the average rural income of about M\$200 per month (Fourth Malaysia Plan, 1981-1985).

At the state level, Fel'da has to work closely with the various State governments because the authority for land alienation is vested in the State government. Since Fel'da has a history of success in land development, most State governments are more than willing to alienate unused land for Fel'da development. However, problems can arise in the emplacement of settlers. Some states require that only residents from their own states can be resettled in the Fel'da schemes in the state. However, fortunately the largest State of Pahang does not impose such conditions on selection of Fel'da settlers for schemes within its boundary. This process of land alienation, land development and settler emplacement, therefore, implies that Fel'da must work closely with the State authorities. Typically, a representative of Fel'da would be coopted into the various State Land Development Committees so that Fel'da's views on land development can be considered seriously at the state level.

At the local level, scheme settlers, by virtue of their high economic status, usually have the means to be active in local political and social affairs. Most scheme leaders are, inevitably leaders of political parties in the local area. This close involvement of settlers in political affairs meant that Fel'da scheme managers have always to be on the alert and responsive to the needs and grievances of the settlers.

#### 3.4

#### Structure for Implementation

In this section we provide in greater detail the structure for implementation of the Fel'da program.

#### 3.4.1

##### *Structure of Implementation of Land Development Program*

With respect to the implementation of land development program, it is effected through four levels in the administrative process. Land schemes including the problem of land location and land alienation are planned and formulated at the Felida Headquarters level. For planning purposes, Felida schemes in Peninsular Malaysia are divided into four regions with each region consisting of about 73,000 hectares. The administration of each region is subdivided into three areas with each area, consisting about 28,000 hectares being administered by a regional controller. Each area typically consists of 20 schemes, each of size of about 1,600 hectares. Typically a scheme is usually settled by 200 households with each household allocated between 4 to 5 hectares of land for rubber or oil palm. Each scheme is managed by about 20 scheme officers headed by a scheme manager.

The processes of land development in each region are indicated in Table 3.2. From the Table it can be seen that the process of land development starting from the location of site to the emplacement of settlers involves the cooperative effort of a large number of Federal agencies and their respective State governments. Given the complexity of the land development process it is essential that Felida maintains a close and intimate working relationship with all these agencies.

#### 3.4.2

##### *Criteria for Selection of Felida Settlers*

To be emplaced in a Felida scheme has been the desire of many poor households from traditional rural areas. This is indicated by the fact that Felida currently has on its waiting list more than 10,000 applications to be emplaced in its various land schemes. As was indicated in the previous section, some state

TABLE 3.2

SCHEDULE OF ACTIVITY FOR DEVELOPMENT OF  
FELDA LAND SCHEMES IN A REGION

Activity	Implementator
Feasibility studies on location of project	State Government, State Land Office, Felda
Agreement for land to be handed over to Felda for development	State Government, State Land Office
Clearance for development	Departments of Forestry and Mines
Land clearing	Felda
Planting of agricultural crops	Felda
Village Plan	Town and Country Planning Development
Village Road	Public Works Department
Water Supply	Public Works Department
School	Public Works Department
Clinic	Public Works Department
Community Hall	Public Works Department

Source: Federal Land Development Authority.

governments insist on only its own state residents being selected as Felda settlers in land schemes in its own state, while some bigger states like Pahang and Perak do not emplace such residential requirements. Within that constraint, the criteria utilized by Felda for selection of Felda settlers is summarised in Table 3.3.

From the Table it can be seen that the main factors taken into consideration are health status of the family, educational qualifications and skills, previous occupational background and family size. The last point, family size, needs to be elaborated. Felda gives priority to settler families with more than three children. This emphasis, though minor in totality of the selection system appears to contradict the aim of its social development programs which is to spread the idea of the small family norm. However, once selected and emplaced in a Felda land scheme, Felda's social development programs would attempt to diffuse the idea of small family norm to these settlers.

The development of a Felda project can be typically divided into four stages, that is, development, maintenance, repayment and ownership. After the land has been alienated by the State government, it is usually subcontracted out for the purpose of jungle clearing and the planting of crops until the settlers move in. At this stage, amenities like roads, schools, clinics and houses are constructed. Felda settlers typically enter a scheme three years after land clearing, thus commencing the maintenance phase. In this phase, the settlers are expected to maintain the plantation under the supervision of the Felda staff. For this work, the settlers are paid a regular monthly salary of about \$200 per month. The repayment stage starts about five years (in the case of oil palm) and

TABLE 3.3

## SETTLER SELECTION SYSTEM

Criterion	Husband	Points	Wife	Points
Health	Very Healthy	6	Very Healthy	6
	Average	5	Average	5
	Less Healthy	2	Less Healthy	2
	Physically Handicapped application rejected		Physically Handicapped	
	Maximum Points	6	Maximum Points	6
Educational Qualifications	Form I and Above	4	Form I and Above	4
	Standard 4-6	2	Standard 4-6	2
	Others with ability to read and write	1	Others with ability to read and write	1
	Maximum Points	4	Maximum Points	4
Special Skills	Commerce	2	Commerce	1
	Barber	2	Tailoring	1
	Tailor	2	Embroidering	1
	Handicrafts	2	Weaving (mat, wickerwork, etc.)	1
	Mechanic	2	Handicrafts	1
	Carpenter	2		
	Rubber Cultivation	2		
	Oil Palm Cultivation	2		
	Maximum Points	6	Maximum Points	3
Occupational Background	Farming, Fishing, Ex-Servicemen	8	No Points	
	Mining, Forestry	5		
	Labourer, Driver, Office-worker & Others	3		
	Maximum Points	8		
Family Size (No. of children)	3 and Above	3	No Points	
	2	2		
	1	1		
	Maximum Points	3		
	Total Points	27	Total Points	13

Total Points for Both Husband and Wife - 40

Source: Federal Land Development Authority

six years (in the case of rubber), after land clearing, when the crops are in production. At the production stage, settlers derive their income from the sale of their production. Out of this income, they are expected to repay Felda, through monthly installments, the cost of land development, construction of houses, subsidies for fertilizers, etc. When repayment has been completed (about fifteen years after crop production), individual land titles are given to the settler households. These titles formally signify the transfer of the state land to the households, and more importantly, the realization of a long cherished dream of these originally poor landless rural folks.

#### 3.4.3 *Management of the Individual Scheme*

As was previously stated, each scheme is managed by about 20 Felda staff headed by a scheme manager. During the initial years of a particular scheme, in addition to orientating the settlers to a new way of life, Felda assist the settlers in leadership training so as to forge a community spirit out of the group of settlers who are initially strangers to each other.

Settlers are initially divided into groups of twelve and each settler is given the opportunity to be a leader for a month. After a year, two groups are united to form a block. The block is a working unit that instills group dynamics and leadership development. The leader for each block is selected by the settlers of each block after a year of the formation. These leaders, together with other local leaders, are grouped together to form the "Settler Development Committee" (JKKR) for a particular scheme. The Chairman of JKKR is the scheme manager with the settlers holding the positions of deputy chairman, secretary and treasurer. The JKKR is the decision-making committee for a particular scheme. This ensures that settlers are involved in the planning



and implementation of the scheme (see Figure 3.3 for the structure of a JKKR).

The deputy chairman and secretary of all the scheme JKKRs in a particular region are appointed members of the regional JKKR. Further the chairman and deputy chairman of the regional JKKR are in turn appointed members of the national JKKR. This process thus allows the settlers to participate fully in the process of decision-making on matters relating to Felda scheme development at the national level. In addition, settler representatives are also appointed to the Felda Board and to the Boards of Felda's various corporations.

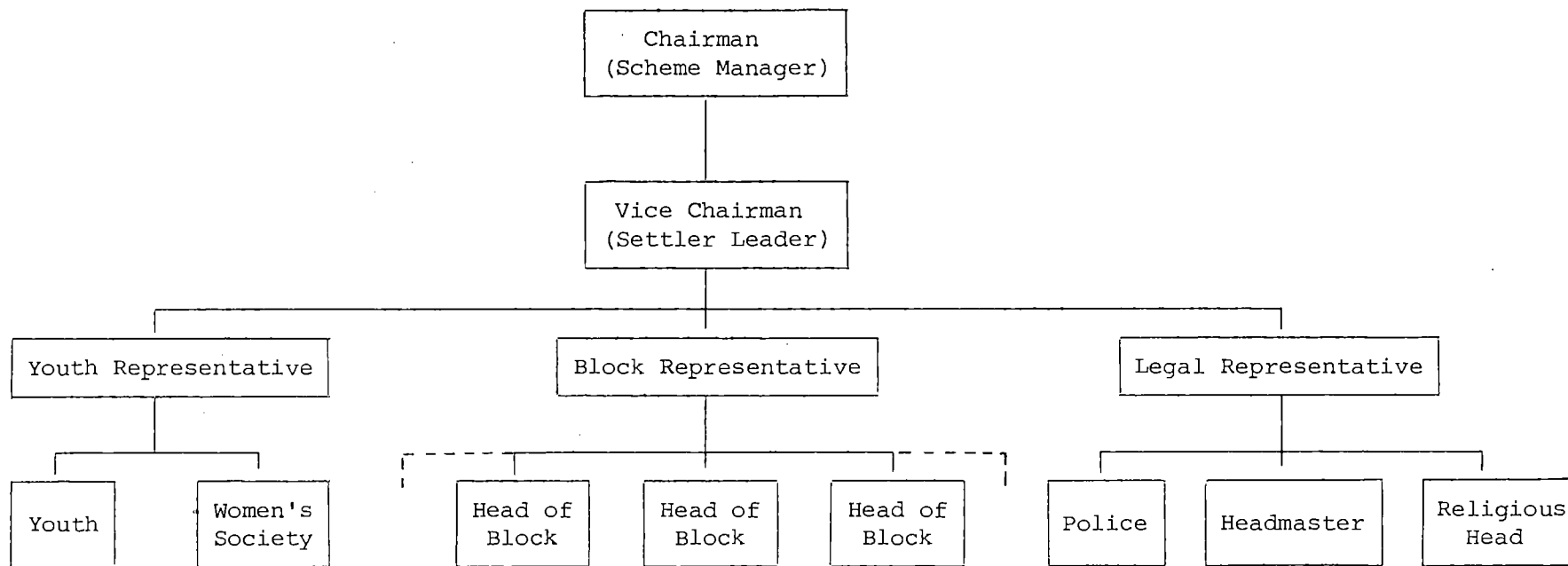
### 3.5 Implementation of Population Program

The population component of the Felda program is planned and formulated at the headquarters by the social development division. These programs are implemented through both scheme officers and local leaders at the scheme level. Typically at each scheme, social development includes women's action groups, religious classes, youth clubs, kindergarten classes, running of clinics, economic bureau, scheme cooperatives and social bureau.

Formally, population services are provided by the rural nurse through the health clinic. Identification and motivation of potential family planning acceptors are done by the women settler officer, the kindergarten teacher, the evening class teacher, the women's club leader, the agricultural extension officer and the scheme manager in their daily encounter with the settlers. Matters on other population activities and child health are also usually discussed formally in the meetings for the various social groups. In this sense, population is truly integrated with community development with the aim of achieving a family size that is in cognizance with the family welfare and resources available to support the future generations.

FIGURE 3.3

ORGANIZATIONAL CHART OF "SETTLER DEVELOPMENT COMMITTEE" (JKKR)



Source: Felda, Malaysia.

### 3.6 Overall Performance Evaluation of Felda

In this section, we discuss the overall performance impacts of Felda, in comparison with the performance impacts of traditional programs operating in the other rural areas in Peninsular Malaysia. This comparison will be centred on economic impact, population impact, health impact and education impact.

#### 3.6.1 *Economic Impact*

In Table 3.4, we present a summary of the various impacts of the Felda program vis-a-vis the traditional programs operating in the rural areas of Peninsular Malaysia. The impact measures of the Felda program is computed from our survey of 1,429 Felda settlers conducted in March 1982 (details of this survey will be given in the next chapter).

From the Table, it can be seen that with respect to the economic impact, the average income of a Felda household is about \$695 which is substantially higher than the average income of a rural household in Peninsular Malaysia of about \$355. On the basis of monthly expenditure too, we find that the monthly expenditure of an average Felda household amounts to \$356 which is very much higher than \$245, which is the expenditure per month of an average rural Malaysian household.

From the point of view of asset ownership, we found that the proportion of Felda's households owning consumer durables is much higher than the proportion owning similar durables in other rural areas in Peninsular Malaysia. For instance, a total of 68 per cent of Felda settlers own television sets in comparison with 43 per cent for other traditional rural areas. Similarly, a total of 35 per cent of Felda households own electric fans in comparison with about 17 per cent in rural Peninsular Malaysia. The above economic impact variables indicate quite clearly that Felda settlers enjoy a standard of living far above that of rural Malaysia.

TABLE 3.4

## IMPACTS OF FELDA PROGRAM IN COMPARISON WITH PENINSULAR MALAYSIA

Impact Variables	Peninsular Malaysia	Felda <sup>5</sup>
<u>Economic Impact</u> <sup>6</sup>		
Mean household income	\$ 355.00 <sup>1</sup>	\$ 695.62
Mean household expenditure	\$ 245.70 <sup>2</sup>	\$ 356.73
Ownership of consumer durables:		
- Television	43.0% <sup>3</sup>	68.7%
- Refrigerator	14.2% <sup>3</sup>	23.7%
- Electric iron	38.2% <sup>3</sup>	53.4%
- Electric fan	16.7% <sup>3</sup>	35.4%
<u>Population Impact</u> <sup>7</sup>		
% of women who adopted family planning	35.5% <sup>4</sup>	55.2%
Mean household size	5.20 <sup>1</sup>	5.97
Mean number of children ever born	3.9 <sup>4</sup>	3.8
Marital fertility rate	22.0% <sup>4</sup>	32.2%
<u>Health Impact</u> <sup>7</sup>		
Infant mortality rate	2.7%	2.6%
<u>Social Impact</u> <sup>7</sup>		
Educational enrollment		
- Primary level	95.9% <sup>1</sup>	86.7%
- Secondary level	61.6% <sup>1</sup>	68.7%

Source: 1 Malaysia, Fourth Malaysia Plan, 1981-1985, Government Press, Kuala Lumpur, 1981.

2 Malaysia, Summary Statistics, Household Expenditure Survey, 1973, Department of Statistics, Kuala Lumpur, 1973.

3 Fong Chan Onn, "Preliminary Findings of Household Survey on Electricity Consumption", Faculty of Economics and Administration, University of Malaya, Kuala Lumpur, 1977.

4 Nor Laily Aziz, et. al., The Malaysian National Family Planning Programme - Some Facts and Figures, National Family Planning Board, Malaysia, 1970.

5 From sample study done.

6 Data refers only to rural Peninsular Malaysia.

7 Data refers to total Peninsular Malaysia.

### 3.6.2 *Population Impact*

Table 3.4 also gives a number of population impact variables. An examination of the population impact measures reveal an interesting finding. From the Table, it can be seen that the proportion of married women between 15-49 years of age practising family planning in Felda (55.2%) is far higher than the corresponding figure for Peninsular Malaysia, as a whole (35.5%). However, in spite of this, the number of children ever born for a Felda married woman (3.8) is about the same as the number of children ever born for an average woman in Peninsular Malaysia (3.9).

Further, the marital fertility rate for Felda's married women is 322 per thousand. This is significantly higher than the marital fertility rate for Peninsular Malaysian women which is 220 per thousand. From the Table, it can also be seen that the mean Felda household size (5.97) is significantly higher than the average Malaysian household size (5.2).

These figures reveal clearly that although the Felda program has been successful in diffusing family planning practice, the marital fertility rate among its settlers is higher than the rest of the country. This contradiction is not surprising since the marital fertility rate for Peninsular Malaysia was computed based on both urban and rural areas. Strictly speaking we should compare the marital fertility rate of Felda settlers to that of rural Peninsular Malaysia. However, we are unable to obtain the required data for rural Peninsular Malaysia for the purpose of comparison.

Similarly, the fact that an average Felda household has a larger family size than the rest of the country is explained by the fact that the data used also includes the urban population. But what is interesting is that the proportion of eligible women in Felda schemes practising family planning is far greater than for the rest of the country

including the urban areas. This indicates quite clearly that the proportion of Felda women practising family planning is much higher than the proportion of rural married women practising family planning.<sup>2</sup>

### 3.6.3 *Health Impact*

A major indicator of health is the infant mortality rate. As can be seen in Table 3.4, the Felda infant mortality rate is about 2.6 per cent, compared with the infant mortality rate of 2.7 per cent for the whole country including the urban areas. This indicates that the health status of Felda settlers is relatively good. This picture is further reinforced by the fact that the average infant mortality rate for rural Peninsular Malaysia is about 4 per cent. The relatively good health status of Felda settlers may be a reflection of the better health amenities available to all Felda settlers in relation to the rest of rural Peninsular Malaysia.

### 3.6.4 *Social Impact*

One of the major aims of this research is to evaluate the social impact of the Felda program. Although various social development indicators (e.g. number of children attending kindergarten, number of women attending evening classes, etc.) are available from our Felda sample, the corresponding indicators for the rest of Peninsular Malaysia are not available.

The only major social indicator available for both Felda and Peninsular Malaysia is the primary and secondary school attendance rate. This indicator, is presented in Table 3.4. From the Table, it can be seen that the proportion of eligible Felda children attending primary

---

2 For example, in Trengganu, which is a predominantly rural state, about 30 per cent of eligible women are practising family planning.

school is about 87 per cent. This is far lower than its corresponding figure of 96 per cent for Peninsular Malaysia. However, in terms of secondary school enrolment, Table 3.4 shows that the proportion of eligible Felda children attending secondary school is about 69 per cent which is higher than 62 per cent for the rest of the country.

These figures reveal that a lower proportion of Felda children attend primary school but a higher proportion of them continue to secondary level. The lower primary school attendance rate amongst Felda children may be due to the fact that extensive on-farm working opportunities exist in Felda schemes and a significant proportion of these young children are attracted to working in the fields rather than attending school.

In summary these figures reveal clearly the substantial socio-economic and demographic impacts of Felda schemes. The average Felda scheme enjoys a higher level of income and living standard than the rest of rural Peninsular Malaysia. In addition, Felda also have a higher proportion of married women practising family planning, a lower incidence of infant mortality and a higher secondary school enrolment rate than the rest of Peninsular Malaysia.

The extent to which these impacts in the Felda schemes are attributed to the nature and intensity of integration in the Felda mode of delivery of these services will be the focus of subsequent chapters in this report.

4.1 Introduction

The focus of this study is the integration of population concepts with community development activities as implemented by Felda or the so-called Felda mode of integration. The universe of the study are all the 200 Felda schemes in Peninsular Malaysia, which are less than 10 years old. The remaining 108 schemes which are more than 10 years old are excluded from our study since for all intents and purposes, these schemes are not unlike traditional rural areas. In each of these schemes we are interested in evaluating the demographic and economic impacts of the Felda mode of integration. Specifically, we are interested to examine if the Felda mode of integration is more effective than the traditional (that is, the MCH/FP model) mode of integration. The stratification and sample selection methods utilized for this study are elaborated below.

4.2 Sample Selection

It was decided that in order to get a sample of schemes that is a fair representation of Felda schemes, the universe of schemes need to be stratified by the types of crops, the number of years of residence of settlers, and the number of years of agricultural production. The number of schemes and settler households in the scheme universe stratified by the mentioned criteria are given in Table 4.1.

The number of schemes selected in each stratification stratum is given in Table 4.2. From the Table it can be seen that a total of 24 schemes were selected, representing all the stratum in the universe.

The 24 schemes selected in Table 4.2 represent practically all the stratum in the universe. In the particular



TABLE 4.1

## SCHEMES AND SETTLER FAMILIES IN FELDA BY STRATIFICATION CRITERIA

		<u>Years of Settler Residence</u>			
		I = 0-2 years	II = 3-5 years	III = 6-10 years	Total
<u>Stage of Production</u>	Not yet in Production = A	Rubber - 13(2818) Oil palm - 26(4463)	Rubber - 9(2686) Oil palm - 12(1297)	Rubber - 1(192) Oil palm - 0	61(11456)
	In Production less than 2 years = B	Rubber - 0 Oil palm - 12(1178)	Rubber - 11(1983) Oil palm - 26(7449)	Rubber - 8(2131) Oil palm - 6(1447)	63(14188)
	In Production more than 2 years = C	Rubber - 0 Oil palm - 0	Rubber - 1(17) Oil palm - 13(1160)	Rubber - 12(2548) Oil palm - 50(11896)	76(15621)
Total		51(8459)	72(14592)	77(18214)	200(41265)

Source: Federal Land Development Authority

Note: Figures in brackets indicate the number of settler families.  
Total = 200 schemes and 41265 settler families. This excludes schemes in production for more than 10 years.

TABLE 4.2

## SAMPLE OF SCHEMES SELECTED FOR STUDY

		<u>Years of Settler Residence</u>			
		I = 0-2 years	II = 3-5 years	III = 6-10 years	Total
Stage of Production	Not yet in Production = A	Rubber - 2 s.s. Oil palm - 1 s.s.	Rubber - 2 s.s. Oil palm - 1 s.s.	Rubber - 1 s.s. Oil palm - 0 s.s.	7 s.s.
	In Production less than 2 years = B	Rubber - 0 s.s. Oil palm - 2 s.s.	Rubber - 2 s.s. Oil palm - 4 s.s.	Rubber - 2 s.s. Oil palm - 2 s.s.	12 s.s.
	In Production more than 2 years = C	Rubber - 0 s.s. Oil palm - 0 s.s.	Rubber - 0 s.s. Oil palm - 1 s.s.	Rubber - 2 s.s. Oil palm - 2 s.s.	5 s.s.
		Total	5 s.s.	10 s.s.	9 s.s.

Note: s.s. = scheme(s) selected

In each s.s. about 10-15 scheme officers and local community leaders are interviewed.

Further in each s.s., 60 settlers are selected randomly for the settler survey.

The 0 s.s. cells in the matrix represent nil state in the universe.

stratum where there are no schemes (e.g. rubber, in production less than 2 years, and settled for less than 2 years), of course, no scheme can be selected for the sample. Further, in the sample selection, we could not select the number of schemes in each cell strictly in proportion to their numbers in the universe because of logistical and geographical problems. Within the constraints of physical accessibility, we have selected a sample which is as representative of the universe as possible.

For each selected scheme, 60 settlers are randomly selected out of all the settlers in the scheme for the purpose of the settler survey. Further, for each selected scheme, all the scheme officers and local community leaders (about 15-20 persons) are included in the staff survey.

In the sample of 24 schemes a total of about 1500 settlers were selected for the settlers survey and about 400 staff/local leaders were selected for the staff survey.

The details of the schemes selected for study are given in Table 4.3. From Tables 4.2 and 4.3, it can be seen that the 24 schemes selected for the study constitute about 12 per cent of the total schemes and about 3.5 per cent of the total settler families. Tables 4.1, 4.2 and 4.3 also clearly indicate that the sample selected for our study is fairly representative of the scheme universe.

#### 4.3

#### Rationale for Scheme Selection

The main rationale utilised for scheme selection are that the demographic and socio-economic impacts of the Felda mode of integration are influenced by the type of crop grown in the scheme, the stage of

TABLE 4.3  
 DETAILS OF SCHEMES IN SAMPLE

Name and Phase of Scheme Selected	No. of Settlers	Type of Crop	Mean Settler Residence	Stage of Production
Sg. Behrang Phase 4	104	Rubber	I	A
Besout Satu Phase 1	150	Oil Palm	I	A
Medoi Phase 2	70	Rubber	II	A
Kemelah Phase 4	60	Oil Palm	II	B
Sg. Tenggi Phase 1	159	Oil Palm	III	C
Chemplak Barat Phase 1	196	Rubber	II	B
Bt. Senggeh Phase 1	442	Rubber	III	B
Palong Satu Phase 1	211	Rubber	III	C
Palong Enam Phase 2	304	Rubber	I	A
Palong Dua Phase 2	192	Rubber	III	A
Palong Tiga Phase 1	487	Rubber	II	B
Pasoh Empat Phase 1	304	Oil Palm	II	C
Tanjung Phase 1	461	Rubber	II	A
Retang Phase 4	101	Oil Palm	II	A
Padang Piul Phase 3	101	Oil Palm	I	B
Raya Phase 1	456	Rubber	III	B
Kota Gelangga Tiga Phase 1	191	Oil Palm	III	B
Kg. Sertik Phase 2	137	Rubber	III	C
Semarak Phase 1	385	Oil Palm	III	B
Kesumba Phase 1	335	Oil Palm	III	C
Siantan Phase 1	395	Oil Palm	II	B
Kahang Barat Phase 1	197	Oil Palm	II	B
Kahang Timur Phase 2	146	Oil Palm	I	B
Sg. Sibol Phase 1	343	Oil Palm	II	B

Note: I : 0-2 years of settler residence  
 II : 3-5 years of settler residence  
 III : 6-10 years of settler residence  
 A : Not yet in production  
 B : In production for 0-2 years  
 C : In production more than 2 years

agricultural production of the scheme, and the years of settler residence.

The years of settler residence is an interesting criterion and shall be elaborated further here. In this study, it is assumed that settlers who have recently moved into the schemes (that is, in the schemes with less than 2 years of settler residence) would be too recent to be influenced by the Felda mode of integration. We assume therefore, that the settlers in these schemes would still be influenced by the traditional mode of integration in the original areas of settlements (that is the MCH/FP model).

For settlers who have been in the schemes for a fairly long time (i.e. 3-5 years) we assume that the Felda mode of integration is beginning to have some influence on the household behaviour. However, in these areas we assume that the traditional method of integration as implemented in the original settlements would still have some residual influence on these households.

Finally, for settlers who have been in the Felda schemes for a long time (more than 5 years) we assume that the residual influence of the traditional method of integration as implemented in the original areas of settlement have been completely replaced by the Felda mode of integration.

Hence, by stratifying the settlers by years of settler residence, we can examine the impact of the Felda mode of integration vis-a-vis the MCH/FP model.

As was explained in Chapter 1, the rationale for stratifying the residents by crop is that the nature

of agricultural activity has an influence on the demographic and economic impacts of the Felda mode of integration. Further, the stage of production of the schemes, which determines the household income of the settlers, also has an influence on the demographic and socio-economic impacts on the Felda mode of integration. Hence, in order to examine the impact of the mode of integration on the household, these variables would also have to be controlled for.

#### 4.4 The Survey

The questionnaire for the staff and settlers survey are as presented in Appendices I and II. From the questionnaire, it can be seen that the main items of information that is gathered from the staff interview are as follows:

i) Background Information of Respondent

Information on age, sex, marital status and other information relating to their past and present position in the Felda land scheme were collected.

ii) Staff Observations

Questions were asked to elicit information concerning the structure of administrating the scheme, the work schedule of respondents and other information relating to job performance and satisfaction.

iii) General Information on Respondents

Information on respondents' attitudes and practice of family planning were gathered for this section.

iv) Service Outlet Facilities

Questions were utilized to obtain information on facilities available in the various service outlets, e.g. JKKR office, clinic, etc.

v) Interagency Linkages

In this section, the frequency of contact of respondents with the Felda Headquarters, Village Action Committee, the Women's Club etc. were determined.

vi) Organizational Variables

In this section information on goals, resources and evaluation of the performance of service outlets were collected.

vii) Involvement of Local People

In this section, information on the problems encountered by respondents with the settlers and the frequency of contact with the settlers were collected.

Similarly, the main information collected from the settler interview include the following:

i) Household Schedule and Basic Demographic Variables

Information on race, sex, educational level, employment status, marital status and fertility history of all household members were collected for this section.

ii) Wife's Occupation

In this section, information collected include wife's present and past employment, household asset ownership, expenditure and income patterns, and attitudes of wife and husband toward work and family life.

iii) Children's Upbringing

General information on children's age, sex, upbringing and education were obtained for this section.

iv) Marriage Profile

Information on date of marriage, number of marriages, number of children from each marriage and duration of present marriage were collected for this section.

v) Pregnancy History

Information on history of total number of pregnancies experienced, pregnancies that did not result in live births and abortions were collected for this section.

vi) Attitude and Family Planning Practice

Questions on attitudes toward family size, on desired and ideal family size, family planning practices, and on the use of contraceptives were asked.

vii) Usage of Maternal and Child Health Clinic Service

Information on child care after last live birth, mother's medical checkup



during the pregnancy, confinement period and breastfeeding were collected.

viii) Participation in Community Activities  
by Housewife

In this section, questions were asked both from the wife and husband regarding membership and position held in clubs, groups, or associations in the schemes and interaction between settlers and staff.

ix) Objective Effectiveness of Scheme  
Activity/Organization

In this section, the receptiveness of settlers to new ideas suggested by the various organizations in the scheme were assessed.

x) Household Facilities

Information on water supply facilities, toilet facilities, lighting facilities as well as cooking facilities were determined in this section.

Both the staff and settler interviews were conducted over the period August 1981 to March 1982. The extensive amount of information collected were coded and key-punched into over 70,000 card images. These data were then recoded into the required variables for the study and analysed via the SPSS package.

5.1 Introduction

In this Chapter, we shall define the various measures used as program performance variables, integration variables and organizational variables. Program performance variables are the dependent variables of interest in this study. Organizational variables, on the other hand, constitute the main group of independent variables utilized in this study while integration variables serve as the intervening variables relating organizational variables to program performance variables.

In this study, we conduct the analysis at two levels; namely, at the community level of the scheme itself and at the household level of the individual Felda settlers. After the appropriate definition of these variables, taking into account whether they are at the community or household level of analysis, we shall also examine the interrelationships among these three groups of variables.

5.2 Program Performance Variables

The performance of the various delivery outlets in Felda schemes are measured by a number of variables defined as follows:

i) Community level variables

Intermediate impact variables:

a) Family planning

- proportion of eligible married women practising family planning
- mean ideal number of children desired
- attitude of community towards family planning

b) Health

- proportion of eligible women who received pre-natal care
- proportion of eligible women who received post-natal care
- proportion of last live births delivered at medical facilities

c) Education

- proportion of eligible children attending kindergarten
- proportion of eligible children attending primary school
- proportion of eligible children attending secondary school

d) Economic

- proportion of husbands and wives involved in extra-mural income-generating activities.

Final impact variables:

a) Family planning

- marital fertility rate

b) Health

- infant mortality rate

c) Education

- average number of distinctions obtained by school-going children in official examinations

d) Economic

- mean expenditure of household
- mean income of household

ii) Household level variables

Intermediate impact variables:

- a) Family planning
  - family planning practice
  - ideal number of children desired
  - household attitude towards family planning
  
- b) Health
  - utilization of pre-natal care services in last pregnancy
  - utilization of post-natal care services after last pregnancy
  - mode of delivery of last live birth
  
- c) Education
  - proportion of eligible children attending kindergarten
  - proportion of eligible children attending primary school
  
- d) Economic
  - involvement of family in extra-mural income-generating activities
  - employment pattern of housewife

Final impact variables:

- a) Family planning
  - number of children ever-born
  
- b) Health
  - experience of infant mortality
  
- c) Education
  - average number of distinctions obtained by children in public examinations

d) Economic

- household monthly expenditure
- household income from non-Felda sources
- total household income

In summary, in this study, we have utilized a total of ten variables to measure the intermediate program impacts of Felda and a total of five variables to measure the final impacts of Felda at the community level. At the household level, this study utilized a total of ten variables to measure the intermediate impacts of Felda and a total of six variables to measure the final impacts of Felda.

5.3 Integration Variables

As was elaborated in the framework for analysis, we have distinguished the two important components of integration, namely, scheme integrative linkages and staff perception on extent of integration, at the scheme level. The variables used to define integrative linkages at the scheme level is applicable to both community level analysis and household level analysis since they will be similar at these two levels. The variables used to define these linkages are numerous and include:

- frequency and quality of contact amongst staff
- frequency and quality of contact between agency staff and other agencies
- frequency and quality of contact between agency staff and clientele
- time spent by staff on various service activities.

The full list of these variables are as given in Appendix III.

The second group of integration variables utilized in this study are variables that describe the community's perception on the extent of integration. The community's perception on the extent of integration in the Felda scheme is generated from the household survey. Each of these household's responses with respect to their perception can be utilized for the household level analysis. However, these perceptions will have to be aggregated at the community level before they can be utilized for the community level analysis. The variables utilized for describing households' perception on the extent of integration include:

- households' perception on commitment of staff to various activities
- households' perception on efficiency of various services offered
- extent of household participation in various activities
- extent to which ideas suggested by various programs are adopted by households.

The complete list of these variables are given in Appendices IV and V.

#### 5.4 Organizational Variables

The organizational variables, which constitute the independent variables utilized in this study, are generated from the survey of the staff and local community leaders in the schemes. Since these variables are similar for both the community level and household level analysis, they can be utilized for these two analyses. The variables utilized include variables that reflect the

- goal, structure and authority of the delivery units
- management style experienced at the delivery units

- resources available for the unit to provide its services
- staff personal and training characteristics.

The complete list of these variables are given in Appendix VI.

## 5.5 Control Variables

Since program performance and program impacts are obviously affected by socio-economic environmental variables, in this study we used a number of these variables as control variables for program performance and program impacts. At the community level, the control variables include:

- length of residence of the community
- type of crop grown in community
- status of agricultural production in the community.

At the household level, the control variables include:

- educational level of head of household
- age of head of household
- family size before entering scheme
- length of residence in the community
- type of crop grown in community
- status of agricultural production in the community.

## 5.6 Evaluation of Impact of Felda's Mode of Integration

In this section, we shall analyse the intermediate and final program impacts of the Felda mode of integration. This is done for the whole sample of 24 schemes consisting of 1,429 settlers, stratified by the various control variables.

In Table 5.1 we present the family planning, health, education and economic intermediate program impacts of

TABLE 5.1

INTERMEDIATE PROGRAM IMPACTS OF FELDA  
STRATIFIED BY ENVIRONMENTAL VARIABLES

Criterion of Stratification	Family Planning		Health		Educational			Economic	
	% of women practising PP	Ideal number of children desired	% of women who received pre-natal care	% of women who received post-natal care	% of last live births delivered at medical facilities	% of children attending kindergarten*	% of children attending primary school	% of children attending secondary school	% of households involved in extra-mural income-generating activities
1. Length of Residence:									
I (0-2 years)	62.0	5.69	98.0	74.8	17.4	34.6	90.6	67.4	45.2
II (3-5 years)	53.4	5.74	98.1	81.0	17.5	33.8	87.2	65.2	51.9
III (6-10 years)	53.4	5.55	98.0	78.8	11.8	32.0	84.0	73.3	42.2
2. Status of Production:									
A (not yet in production)	57.5	5.80	97.2	79.3	19.3	29.0	86.7	64.6	51.1
B (less than 2 years)	52.3	5.58	99.4	78.3	12.8	40.5	88.6	71.1	40.0
C (more than 2 years)	55.3	5.52	97.7	79.0	12.2	30.8	84.2	72.3	49.0
3. Type of Crop Grown in Community:									
Rubber	55.7	5.92	97.4	81.4	19.7	29.1	86.6	66.5	53.6
Oil Palm	54.8	5.43	98.6	76.8	11.6	36.9	86.9	70.6	41.2
Total	55.2 (35.5)	5.66 (4.40)	98.0	78.9	15.3	33.3	86.7 (95.9)	68.7 (61.6)	46.9

Note: \* For children aged between 5 and 6 years.

( ) Indicates national average. For sources, refer to Table 3.4.



Felda broken down by the duration of residence of the community, status of agricultural production in the community and the type of crop grown in the community. From the Table it can be seen that for the sample as a whole, the community are in general fairly favourable towards family planning. Of the eligible women, currently about 55 per cent are practising family planning. The ideal number of children they desire is between 5 to 6 children. This is somewhat higher than the national average of about 4.4 children desired.

In terms of health impact, for the sample as a whole, over 98 per cent of pregnant women received pre-natal care while about 79 per cent of pregnant women received post-natal care after their last delivery. These are very high percentages and indicate the extent to which modern medical practices have been adopted by the Felda community. However, in terms of proportion of deliveries at Felda clinics or hospitals, only about 15 per cent of the last delivery were delivered at these medical facilities. This indicates that among the Felda community, deliveries effected at home through the utilization of rural health nurses or traditional birth attendants are still very prevalent.

In terms of educational impacts, about one in three of the eligible children in Felda attends kindergarten. Further, about 86.7 per cent of the eligible children attends primary school. This figure is lower than the national average and indicates the indifference the community attaches to education.

In terms of economic impacts, the Table shows that about 47 per cent of the households in the community are involved actively in extra-mural income-generating activities. These extra-mural income-generating activities include small businesses and off-farm contract work undertaken by the settlers to supplement

their Felda income. The fact that a relatively high proportion of the households participate in extra-mural income-generating activities indicates that a high level of entrepreneurship exists among the Felda community. This is especially so when Felda settlers, on the average, earn a relatively comfortable income from Felda activities.

The Table also indicates fairly clearly that as far as the intermediate program impacts are concerned, no significant differences exist among Felda communities stratified by length of residence, status of production and type of crop grown in the scheme. For all the intermediate program impact variables, the deviation of each stratified stratum is less than 5 per cent from the total. This lack of difference among the stratified stratum in terms of the intermediate program impact variables indicate that the Felda mode of delivering population and socio-economic activities is uniform throughout its schemes and are adopted by the households in a similar manner irrespective of their socio-economic environment. This may not be surprising, since, as is elaborated in Chapter 3, Felda has a very intensive orientation program within the first year of a settler moving into a particular scheme and the results of Table 5.1 indicate that this orientation program has been very successful in encouraging the acceptance of the socio-economic activities advocated by the program, except possibly education.

Table 5.2(a) presents the final program impacts of Felda amongst the Felda households stratified by duration of residence, status of production and type of crop grown. The Table shows that in terms of final program impacts for the sample as a whole, Felda settlers have a marital fertility rate of 322 per thousand, an infant mortality rate of 2.6 per cent, an educational achievement rate of about 0.1 distinction per child

TABLE 5.2(a)

FINAL PROGRAM IMPACTS OF FELDA  
STRATIFIED BY ENVIRONMENTAL VARIABLES

Criterion of Stratification	Family Planning	Health	Educational	Economic
	Marital Fertility Rate (per 1000)	Infant Mortality Rate (%)	No. of distinctions obtained per child per public exam.	Total Income (\$) *
1. Length of Residence:				
I (0-2 years)	394	3.7	0.2	513.97
II (3-5 years)	338	2.4	0.1	519.56
III (6-10 years)	264	1.7	0.2	979.95
2. Status of Production:				
A (not yet in production)	345	3.3	0.1	160.80
B (less than 2 years)	340	2.5	0.1	822.59
C (more than 2 years)	260	1.4	0.2	1110.18
3. Type of Crop Grown in Community:				
Rubber	317	2.3	0.1	480.64
Oil Palm	326	2.9	0.1	879.97
Total	322 (220)	2.6 (2.7)	0.1	695.62 (355.00)

Note: \* Gross income from Felda in Malaysian dollars per month.  
About 20 per cent is deducted by Felda for the purpose of loan repayment, fertilisers, etc.

( ) indicates national average. For sources, refer to Table 3.4.

per public examination and a total household income of about \$695 per month. As was elaborated in Chapter 3, these final impact indicators are far better than the average in rural Peninsular Malaysia and indicates the effectiveness of Felda activities in effecting permanent improvements in population growth rates, health status, educational achievement and economic achievement.

The Table also shows that there exists significant differences among the various stratum in terms of the final program impact variables. For the marital fertility rate, in particular, it can be seen that there is a distinct negative relationship between marital fertility rate and length of residence in the Felda scheme. For new settlers, who have just moved into a Felda scheme, the average marital fertility rate is 394 per thousand. This declined to about 264 per thousand for settlers who have lived in the Felda schemes between 5 and 10 years.

In terms of the infant mortality rate, the Table also shows that on the average, the infant mortality rate declined as a function of their duration of residence in Felda schemes. For settlers who recently moved into Felda schemes, the infant mortality rate was about 3.7 per cent. This declined to 1.7 per cent for those who have stayed in Felda schemes for more than 5 years. The infant mortality rate is also related to the status of production. For settlers staying in schemes not yet in production, the infant mortality rate is about 3.3 per cent. This declined to 1.4 per cent for those settlers who stayed in schemes which are in production for more than 2 years.

In terms of educational achievement, the Table shows that no significant differences exist among households stratified by length of residence, status of production and type of crop grown in the community.

In terms of income, the Table shows that, not surprisingly, there is a significant difference between the household income of settlers who have lived in Felda schemes for a long time and of those who have recently moved into Felda schemes. The average income of settlers who recently moved into Felda schemes is about \$513 per month. This increased to about \$980 per month for those who have stayed in the schemes between 5 and 10 years. Similarly, the average income of settlers living in schemes not yet in production is about \$160 per month. This increased to about \$1110 per month for those living in schemes which are in full production. The average income of rubber households is about \$480 per month. This is very much lower than that for oil palm households which had an average income of about \$880 per month.

Tables 5.1 and 5.2(a) point out clearly that in the complete analysis for factors determining program impacts, control variables like duration of residence, status of production and type of crop will have to be used in the analysis for final program impacts. However, these control variables need not be used in the analysis of intermediate program impacts. This is because with respect to the intermediate impact variables, no significant differences exist among the various strata stratified by these control variables.

To examine the effects of environmental variables upon marital fertility rate in greater detail, in Table 5.2(b) we have stratified the effect by environmental variables as well as by the age of wife. From the Table it can be seen that even after controlling for the age of wife, the length of residence is seen to have a significant effect on the marital fertility rate. For example, the marital fertility rate amongst housewives 20-30 years of age is 437 per 1000 in schemes of less than 2 years of residence; the corresponding figure declined to

TABLE 5.2 (b)

MARITAL FERTILITY RATE STRATIFIED BY ENVIRONMENTAL  
 VARIABLES AND AGE OF WIFE  
 (PER 1000)

Environmental Variables  Age of Wife	Length of Residence			Status of Production		
	I (0-2 years)	II (3-5 years)	III (6-10 years)	A (not yet in production)	B (less than 2 years)	C (more than 2 years)
20 - 30 years	437	355	265	372	377	305
31 - 40 years	330	283	258	305	297	238
Total	394	331	260	345	337	260

265 per 1000 in schemes of between 6-10 years of residence.

Similarly, after controlling for age of wife, the status of production is also seen to have a significant effect on the marital fertility rate. The marital fertility rate amongst housewives 20-30 years of age in schemes not yet in production is 372 per 1000; the corresponding figure declined to 305 per 1000 in schemes in production for more than 2 years.

The results of Table 5.2(b) indicate quite clearly that the change in marital fertility rate is due mainly to the Felda scheme itself, and not because of differences in settler characteristics among the various categories of schemes.

In Table 5.3 we present the family planning, health, educational and economic intermediate program impacts of Felda stratified by the educational level of the head of household, the age of the head of household and the size of the household.

From the Table, it can be seen that the proportion of women practising family planning is about 56 per cent for those households in which the head of households had a primary education only. This proportion is slightly higher, that is, 61 per cent for the households in which the head of households had a secondary education. The proportion of households practising family planning is also seen to decline as the age of the head of household increases. However, no significant differences exist when the households are stratified by the size of household.

In terms of the ideal number of children desired, there does not exist any significant difference among the

TABLE 5.3

INTERMEDIATE PROGRAM IMPACTS OF FELDA  
STRATIFIED BY HOUSEHOLD VARIABLES

Criterion of Stratification	Family Planning		Health		Educational	Economic
	% of households practising FP	Ideal number of children desired	% of women who received pre-natal care	% of women who received post-natal care	% of children attending primary school	% of households involved in extra-mural income-generating activities
1. Educational level of Head of Household:						
Primary	55.5	5.37	98.1	79.8	85.7	46.4
Secondary	60.6	5.15	100.0	75.4	86.3	48.9
2. Age of Head of Household:						
20 - 30 years	57.5	5.09	99.3	78.1	72.4	45.1
31 - 40 years	54.9	5.35	98.3	79.3	87.3	43.2
41 - 50 years	53.7	5.95	96.3	76.7	74.5	48.4
> 50 years	50.0	5.20	90.9	53.3	58.2	40.9
3. Size of Household:						
< 5	54.1	4.60	98.7	76.6	79.4	46.2
5 - 9	55.4	5.84	97.9	80.0	85.9	45.8
> 9	53.3	7.14	97.4	69.7	81.4	55.3
Total	56.0	5.35	98.1	78.5	86.4	46.5



households stratified by both the educational level as well as the age of the head of household. A significant difference exists when the households are stratified by the size of the household. The ideal number of children desired increased as the household size increases, that is, increasing from 4.6 children for household size less than 5, to 7 for household size more than 9.

Similarly, in terms of the health impacts, no significant differences exist among the households stratified by the educational level of the head of household, the age of the head of household as well as by the size of the household, for both the intermediate health impact variables.

For the intermediate educational impact variable, it can be seen that about 86.4 per cent of eligible children attends primary school. Again, there does not exist any significant difference in the primary school attendance rate when the households are stratified by the educational level of the head of household as well as by the size of households. However, a slight difference in this rate can be seen when the households are stratified by the age of the head of household. The primary school attendance rate is highest (87.3%) for the households in which the head is between 31 and 40 years of age and lowest (58.2%) for those who are more than 50 years old.

In terms of the economic impact variable, on the average, there does not exist any significant difference between the households stratified by both the educational level of the head of household as well as the age of the head of household. However, in terms of household size, it can be

seen that the larger the size of the household, the higher is the household participation in extra-mural income-generating activities. This could probably be due to the fact that these households have a greater need to supplement their Felda income as a result of the higher expenditure on the household necessities.

The final program impacts of Felda stratified by the educational level of the head of household, the age of the head of household and the household size is as shown in Table 5.4. The marital fertility rate is seen to be higher, that is, 394 per thousand, for households in which the head of household had a secondary education. This is in spite of the fact that family planning prevalence is higher among the households in which the head of household had a secondary education. For obvious reasons, the marital fertility rate is highest (404 per thousand) for the households in which the head of household is between 20 and 30 years old. This declined to 164 per thousand for those who are more than 50 years old. The marital fertility rate is also higher for those households with a size of more than four.

The final health impact variable, the infant mortality rate is 2.5 per cent for the households in which the head of household had a primary education. For the households in which the age of the head of household is between 20 and 30 years, the infant mortality rate is 3.0 per cent and for those in the age group 31 to 40 years, it is 2.6 per cent. The infant mortality rate is 3.0 per cent for the household size of more than 9. This is slightly higher than those households with less than 5 persons.

TABLE 5.4

## FINAL PROGRAM IMPACTS OF FELDA STRATIFIED BY HOUSEHOLD VARIABLES

Criterion of Stratification	Family Planning	Health	Educational	Economic
	Marital Fertility Rate (per 1000)	Infant Mortality Rate (%)	No. of distinctions obtained per child per public exam..	Total Income (\$)*
1. Educational level of Head of Household:				
Primary	311	3.0	0.1	688.10
Secondary	394	2.5	0.1	620.40
2. Age of Head of Household:				
20 - 30 years	404	3.0	0.0	530.60
31 - 40 years	310	2.6	0.2	722.50
41 - 50 years	203	2.1	0.2	762.10
> 50 years	164	1.9	0.1	464.40
3. Size of Household:				
< 5	296	2.5	0.1	512.50
5 - 9	320	2.7	0.2	733.00
> 9	320	3.0	0.2	730.70
Total	320	2.5	0.1	691.73

Note: \* Gross income from Felda in Malaysian dollars per month.  
About 20 per cent is deducted by Felda for the purpose of loan repayment, fertilisers, etc.

The educational achievement variable, measured by the number of distinctions obtained per child per public examination, did not show any significant difference whether stratified by the educational level of the head of household, the age of the head of household or the size of the household.

Total income also did not show any significant difference when stratified by the educational level of the head of household, the age of the head of household as well as the size of the household. However, the total income of those households in which the age of the head of household is between 41 and 50 years registered the highest at \$762 per month. This could probably be due to the children in these households contributing a substantial amount to the household income.

In summary, the above analyses indicate again that household socio-economic characteristics, as reflected by the educational level of the head of household, the age of the head of household and the household size are important determinants of the final program impact variables. These characteristics, however, do not have any significant effect on the intermediate impact variables. Hence, the household socio-economic characteristics should be included as control variables in the analysis of the factors affecting final program impacts at the household level.

#### 5.7' Organizational Factors

Given the number of organizational variables included in this study (this amounts to 21 , see Appendix VI), factor analysis was used to extract the main underlying factors of these 21 variables. This was done using the

SPSS through principal-component analysis of the data. The factors are extracted using the orthogonal rotation approach with Varimax as the criterion (Nie, et. al., 1970). This ensures that the underlying factors extracted from the variables will be independent of each other.

The results of the factor analysis is presented in Table 5.5. In the Table, we have included factor loadings whose absolute values are at least 0.3, and have assigned each variable to that factor for which it has the highest loading. The communality ( $h_i^2$ ) of each variable is given in the last right-hand column of each variable. From the Table, it can be seen that the major factors that emerge from the organizational variables are:

- Organizational Factor I ( $OF_1$ ) - Staff satisfaction with work environment and community
- Organizational Factor II ( $OF_2$ ) - Resources available for service outlet
- Organizational Factor III ( $OF_3$ ) - Staff general background
- Organizational Factor IV ( $OF_4$ ) - Intensity of Staff training
- Organizational Factor V ( $OF_5$ ) - Spread of staff training

The above 5 factors were found to explain about 65.4 per cent of the variance of the 21 variables, indicating that these factors are very representative of the original larger set of variables.

## 5.8

### Integration Factors

As was explained previously, the integration variables utilized in this study consisted of 27 variables defined to measure integrative linkages that exist amongst the staff of the service outlet and between the staff and the community (see Appendix III). These variables are the same for both the community level

TABLE 5.5

## FACTOR ANALYSIS OF ORGANIZATIONAL VARIABLES - COMMUNITY AND HOUSEHOLD ANALYSIS

Variables	Factors					$h^2$ $h_1$
	I	II	III	IV	V	
R1	0.862					0.82
R2	0.895					0.90
R3	-0.069		-0.343		0.504	0.39
R4	0.649					0.44
R7	0.479					0.42
R48	0.783	0.482				0.88
R18		0.468				0.24
R19		0.781			-0.302	0.73
R20		0.496				0.32
R5		0.470	-0.704			0.78
R6			0.833			0.79
R13	0.359			-0.651		0.57
R14				0.375		0.29
R15				0.492		0.35
R16				0.348		0.14
R17			0.508	0.635		0.75
R8					0.432	0.54
R9					0.970	0.99
R10				0.634	0.054	0.57
R11		0.356	0.529		0.077	0.44
R12	0.316	0.640			-0.026	0.55

analysis and the household level analysis. The results of the factor analysis performed to extract the main underlying factors from this set of variables is presented in Table 5.6. In the Table, we have again included factor loadings whose absolute values are at least 0.3, and have assigned each variable to the factor to which it has the highest loading. From the Table, it can be seen that the main integrative linkage factors are:

- |  |  |
|--|--|
| Integration<br>Factor I (IF <sub>1</sub> )   | - Coverage of service outlet<br>activities   |
| Integration<br>Factor II (IF <sub>2</sub> )  | - Cooperativeness of staff<br>within scheme  |
| Integration<br>Factor III (IF <sub>3</sub> ) | - Intensity of FP services<br>and motivation |
| Integration<br>Factor IV (IF <sub>4</sub> )  | - Intensity of scheme<br>activities          |
| Integration<br>Factor V (IF <sub>5</sub> )   | - Frequency of inter-staff<br>contact        |
| Integration<br>Factor VI (IF <sub>6</sub> )  | - Frequency of intra-staff<br>contact        |

The above 6 factors were found to have explained 65.5 per cent of the variance of the original variables, again indicating that these factors are very representative of the original data.

The second set of variables utilized for measuring integration are the variables on staff and community perception on the extent of integration. These variables differ at the community and household levels and we have utilized 20 variables to capture the staff and community perception on extent of integration at the community level and 17 variables to capture the household's perception on the extent of integration of the individual household level (see Appendices IV and V). The results of the two factor analyses performed on these two sets of variables are given in Tables 5.7 and 5.8 respectively.

TABLE 5.6

## FACTOR ANALYSIS OF INTEGRATIVE LINKAGE VARIABLES - COMMUNITY AND HOUSEHOLD ANALYSIS

Variables	Factors						$h_i^2$
	I	II	III	IV	V	VI	
R31 Coverage of service outlet for Agricultural extension activities	0.161					0.344	0.97
R32 Coverage of service outlet for Community/social development activities	-0.002			-0.379			0.98
R33 Coverage of service outlet for FP/Health activities	0.326						0.92
R34 Coverage of service outlet for Economic activities	0.284						0.96
R30 Cooperation and assistance between service outlet staff		0.390					0.99
R35 Frequency community discuss their problems with service outlet staff		0.437					0.94
R47 Cooperativeness between service outlet staff		0.197	0.351				0.99
R37 Time spent on FP/Health services by service outlet staff			0.456				0.96
R38 Time spent on FP motivation and follow-up by service outlet staff			0.488				0.96
R36 Time spent on scheme administration by service outlet staff				0.221			0.97
R39 Time spent on agricultural services by service outlet staff				-0.053		0.401	0.94
R40 Time spent on home economics classes by service outlet staff	0.479			0.043			0.94
R41 Time spent on youth club activities by service outlet staff				0.150			0.97
R42 Time spent on women's association activities by service outlet staff	0.327			0.339			0.98
R43 Time spent on JKKR activities by service outlet staff				0.352			0.96
R44 Time spent on further education classes by service outlet staff		0.476		0.167			0.96
R45 Time spent on kindergarten activities by service outlet staff				0.133			0.95
R26 Frequency of interaction between service outlet staff regarding Agricultural issues						0.507	0.93
R27 Frequency of interaction between service outlet staff regarding FP/Health issues		0.356				0.077	0.89
R28 Frequency of interaction between service outlet staff regarding Community/social development issues						0.360	0.88
R29 Frequency of interaction between service outlet staff regarding Administrative/leadership/finance issues						0.579	0.92
R21 Frequency of interaction between service outlet staff and agencies outside the community regarding Agricultural issues				0.436		0.131	0.91
R22 Frequency of interaction between service outlet staff and agencies outside the community regarding FP/Health issues						0.023	0.96
R23 Frequency of interaction between service outlet staff and agencies outside the community regarding community/social development issues			-0.328	0.300		0.105	0.95
R24 Frequency of interaction between service outlet staff and agencies outside the community regarding Administration/leadership/finance issues						0.264	0.99
R25 Cooperation and assistance between service outlet staff and agencies outside the community						0.523	0.98



TABLE 5.7

## FACTOR ANALYSIS OF COMMUNITY PERCEPTION AND PARTICIPATION VARIABLES

Variables	Factors					$R^2$ $R_i^2$
	I	II	III	VI	V	
R56 Confidence of community in FP/Health recommendations of local leaders	0.900	-0.311				0.98
R57 Confidence of community in Agricultural recommendations of local leaders	0.924					0.96
R58 Confidence of community in Community/social development recommendations of local leaders	0.910				-0.313	0.98
R59 Confidence of community in Administrative/leadership/finance recommendations of local leaders	0.929					0.93
R60 Community understanding of FP/Health recommendations of local leaders	0.866					0.84
R61 Community understanding of Agricultural recommendations of local leaders	0.937					0.96
R62 Community understanding of Community/social development recommendations of local leaders	0.874	0.306				0.87
R63 Community understanding of Administrative/leadership/finance recommendations of local leaders	0.751	0.450	-0.310			0.86
R64 Extent FP/Health recommendations are adopted by community		0.780			-0.488	0.90
R65 Extent Agricultural recommendations are adopted by community		0.765				0.67
R66 Extent Community/social development recommendations are adopted by community		0.891				0.85
R67 Extent Administrative/leadership/finance recommendations are adopted by community		0.700		-0.350		0.62
R49 Proportion of housewives who participated in community activities			0.875	0.303	-0.306	0.96
R50 Number of community activities that housewives participated in	0.329		0.604			0.58
R51 Housewife attendance in meetings of community activities		-0.576	0.369			0.51
R55 Intensity of interaction between community and local leaders				0.765		0.59
R52 Confidence of community in issues recommended through official programs	-0.914				0.189	0.97
R53 Community understanding of issues recommended through official programs	-0.876				0.312	0.89
R54 Degree recommendations of official programs are adopted by community		-0.395			0.728	0.81
R68 Proportion of households in community that adopted recommendations of official programs					0.204	0.67

TABLE 5.8  
 FACTOR ANALYSIS OF HOUSEHOLD PERCEPTION AND PARTICIPATION VARIABLES

Variables	Factors					$h_i^2$
	I	II	III	IV	V	
SR11 Household confidence in Administrative/leadership/finance recommendations of local leaders	0.919					0.88
SR15 Household understanding of Administrative/leadership/finance recommendations of local leaders	0.981					0.99
SR19 Extent Administrative/leadership/finance recommendations are adopted by household	0.884					0.83
SR8 Household confidence in FP/Health recommendations of local leaders		0.868				0.79
SR12 Household understanding of FP/Health recommendations of local leaders		0.970				0.98
SR16 Extent FP/Health recommendations are adopted by household		0.784				0.68
SR10 Household confidence in Community/social development recommendations of local leaders			0.795			0.72
SR14 Household understanding of Community/social development recommendations of local leaders			0.966			0.99
SR18 Extent Community/social development recommendations are adopted by household			0.728			0.63
SR9 Household confidence in Agricultural recommendations of local leaders				0.773		0.70
SR13 Household understanding of Agricultural recommendations of local leaders				0.950		0.97
SR17 Extent Agricultural recommendations are adopted by household				0.820		0.75
SR4 Household confidence in recommendations of official programs in community					0.687	0.51
SR5 Household understanding of recommendations of official programs in community					0.961	0.94
SR6 Extent recommendations of official programs in community are adopted by household					0.730	0.57
SR20 Proportion of recommendations of official programs in community adopted by household					-0.041	0.07

In the Tables, we have presented only factor loadings whose absolute values are at least 0.3. From the Tables, it can be seen that the main staff and community perception factors at the community level are:

- |  |   |
|--|---|
| Community<br>Factor I (CF <sub>1</sub> )   | - Community's trust in abilities of local leaders                   |
| Community<br>Factor II (CF <sub>2</sub> )  | - Community's response to resolve problems                          |
| Community<br>Factor III (CF <sub>3</sub> ) | - Community participation in scheme activities                      |
| Community<br>Factor IV (CF <sub>4</sub> )  | - Intensity of community interaction with local leaders             |
| Community<br>Factor V (CF <sub>5</sub> )   | - Community perception of 'efficacy' of official programs in scheme |

The above factors explained about 87.2 per cent of the variance of the original data.

Further, the main factors with regard to household's perception on the extent of integration are:

- |  |  |
|--|--|
| Household<br>Factor I (HF <sub>1</sub> )   | - Household perception of Administrative/leadership/finance abilities in official programs |
| Household<br>Factor II (HF <sub>2</sub> )  | - Household perception of FP/Health abilities in official programs                         |
| Household<br>Factor III (HF <sub>3</sub> ) | - Household perception of Community/social development abilities in official programs      |
| Household<br>Factor IV (HF <sub>4</sub> )  | - Household perception of Agricultural abilities in official programs                      |
| Household<br>Factor V (HF <sub>5</sub> )   | - Household perception of efficacy of official programs in the community                   |

The above factors explained about 76.9 per cent of the variance of the original data.

In summary, we have reduced the large number of organizational and integration variables into four smaller sets of organizational and integration factors. Each of the set of factors was found to be able to explain a large proportion of the variance in the original data, indicating that the factors can be used in place of the (far larger number of) original variables for analysis without much loss of information. Further, the factors extracted were found to have meaningful interpretation, suggesting the reliability and validity of the extraction process. One advantage of using the factors extracted for analysis is that the factors within each factor set are orthogonal (independent) of each other. This minimizes the degree of inter-dependence amongst the factors within each factor set, ensuring that multi-collinearity amongst the organizational and integration variables (factors) are not serious sources of errors in the subsequent analysis.

#### 5.9 Correlational Analysis of Impact Variables

Given the large number of program impact variables utilized in this study, it will be interesting to examine the extent of interrelationships that exist among the program impact variables. We shall do this through correlational analysis.

In Table 5.9 we present the correlational matrix for the four principal intermediate impact variables and four principal final impact variables at the community level. The correlation coefficients presented are significant at the 90 per cent level of confidence. With respect to the interrelationships that exist among the set of intermediate impact variables, the Table indicates that these variables are relatively independent of each other except for the variable proportion of eligible children attending kindergarten, which is positively correlated with proportion of women who received pre-natal care but negatively correlated with proportion of women practising

TABLE 5.9

COMMUNITY LEVEL ANALYSIS: CORRELATION COEFFICIENTS FOR SELECTED IMPACT VARIABLES

Variables		INTERMEDIATE IMPACT VARIABLES				FINAL IMPACT VARIABLES			
		% of women practising FP	% of women who received pre-natal care	% of children attending kindergarten	% of husbands and wives involved in extra-mural income-generating activities	Marital fertility rate	Infant mortality rate	No. of distinctions per child per public examination	Total expenditure
INTERMEDIATE IMPACT VARIABLES	% of women practising FP	1.00							
	% of women who received pre-natal care	n.s.	1.00						
	% of children attending kindergarten	-0.29	0.35	1.00					
	% of husbands and wives involved in extra-mural income-generating activities	n.s.	n.s.	n.s.	1.00				
FINAL IMPACT VARIABLES	Marital fertility rate	n.s.	n.s.	0.22	-0.17	1.00			
	Infant mortality rate	0.16	n.s.	n.s.	0.17	-0.15	1.00		
	No. of distinctions per child per public examination	n.s.	-0.16	n.s.	-0.39	n.s.	n.s.	1.00	
	Total Expenditure	n.s.	n.s.	-0.20	-0.22	-0.45	-0.46	0.15	1.00

Note: Sample Size = 24 schemes

family planning. This indicates that at the intermediate program impact level, communities which have a higher proportion of children attending kindergarten tend to have a higher proportion of women who utilize pre-natal health care services, but also tend to have a lower proportion of women who practise family planning. This demonstrates the importance of encouraging the kindergarten teachers to interact more with the students' mothers on family planning matters.

In terms of interrelationships among the final program impact variables, the Table shows that the infant mortality rate is negatively correlated with marital fertility rate, which supports, to a certain extent, the child-survival hypothesis. Further, total expenditure is negatively correlated with marital fertility rate and infant mortality rate, indicating that communities which are richer have a lower marital fertility rate and a lower infant mortality rate. Further, total expenditure is also positively correlated with educational achievement of children, indicating that richer communities tend to have children who perform better in examinations.

With respect to the interrelationships amongst the intermediate and final impact variables, the Table shows that the marital fertility rate is positively correlated with the number of children attending kindergarten, and negatively correlated with the proportion of households involved in extra-mural income-generating activities. This again indicates the importance of encouraging the kindergarten teacher to interact more with the students' mothers on matters relating to family planning.

The Table indicates that there is a high degree of relationship between the proportion of households involved in extra-mural income-generating activities and the final program impact variables. This variable, as was previously stated, is negatively correlated with the

marital fertility rate, positively correlated with infant mortality rate, and negatively correlated with educational achievement and total expenditure. This suggests that households who are more actively involved in extra-mural income-generating activities tend to be poorer households, whose children have a lower level of educational achievement, and experience a higher rate of infant mortality. Other than the relationships described, there do not seem to be much relationship among the intermediate program impact variables and final program impact variables.

At the household level, Table 5.10 presents the correlational matrix for the six impact variables which are computable at the household level. On the whole, the interrelationships that exist among the impact variables, at the household level, are similar to the interrelationships that exist among the impact variables, at the community level, and shall not be described here.

The lack of substantial interrelationship amongst the intermediate program impact variables and the final program impact variables indicates that each program impact is independent of the other. This suggests that, in order to measure accurately the impacts of the Felda program, one should use all the main program impact variables simultaneously. Only then can the various dimensions of the program impacts be evaluated accurately.

The lack of strong relationship between the intermediate and final program impact variables is not surprising. Correlation coefficients only indicate bivariate relationships. As was pointed out previously, socio-economic control variables do have a substantial effect on the final impact variables. Possibly, after the incorporation of the control variables, some meaningful relationship between the intermediate and final impact variables may emerge. This line of analysis will be pursued further in the next Chapter.

TABLE 5.10  
HOUSEHOLD LEVEL ANALYSIS: CORRELATION COEFFICIENTS FOR SELECTED IMPACT VARIABLES

Variables		INTERMEDIATE IMPACT VARIABLES			FINAL IMPACT VARIABLES		
		Household FP practice	Did housewife receive pre-natal care?	Is husband involved in extra-mural income-generating activities?	No. of children ever born	No. of distinctions per child per public examination	Total income
INTERMEDIATE IMPACT VARIABLES	Household FP practice	1.00					
	Did housewife receive pre-natal care?	n.s.	1.00				
	Is husband involved in extra-mural income-generating activities?	n.s.	0.08	1.00			
FINAL IMPACT VARIABLES	No. of children ever born	-0.03	0.06	n.s.	1.00		
	No. of distinctions per child per public examination	n.s.	0.05	n.s.	0.02	1.00	
	Total income	n.s.	-0.06	-0.06	0.05	0.05	1.00

Note: Sample Size = 1429 households



CHAPTER 6      INFLUENCE OF ORGANIZATIONAL AND INTEGRATION  
FACTORS ON PROGRAM IMPACTS

6.1              Introduction

In this Chapter, we shall analyse the interrelationships that exist between the organizational and integration factors (as represented by integrative linkage factors and perception factors) and intermediate program impacts. We shall also analyse the effect that the intermediate program impacts have on the final program impacts with the inclusion of the control variables. Essentially, in this Chapter we shall utilize the framework of analysis as explained in Chapter 1 to examine the direct and indirect effects of the organizational factors upon intermediate program impacts, and also the direct and indirect impacts of integration factors on intermediate program impacts. The final program impact variables are assumed to be affected by the intermediate program variables and environmental control variables. This analysis is achieved through path analysis using the SPSS package. We shall perform this path analysis to evaluate the data at both the community and household levels.

6.2              Path Analysis at Community Level

In this section, we shall describe the results of the path analysis obtained at the community level. The organizational and integration factors utilized are those as explained in Chapter 5. In this path analysis, we shall focus our attention on the causal effects of organizational and integration factors upon the four principal intermediate impact variables, namely, family planning prevalence, post-natal health service utilization rate, proportion of children attending kindergarten and proportion of households involved in extra-mural income-generating activities. The final

program impact variables utilized are the marital fertility rate, infant mortality rate, educational achievement and total expenditure. The causal variables assumed for the final program impacts are intermediate program impacts and the control variables consisting of length of residence, status of production and type of crop grown in the community. Since some of the Felda schemes have been in existence for more than 5 years, in this analysis we could, therefore, analyse the causal factors affecting final program impacts after including the various control variables.

Figure 6.1 summarizes the results of the path analysis performed at the community level. From the Figure the following relationships can be inferred:

- i) Causal effects of organization on integrative linkage

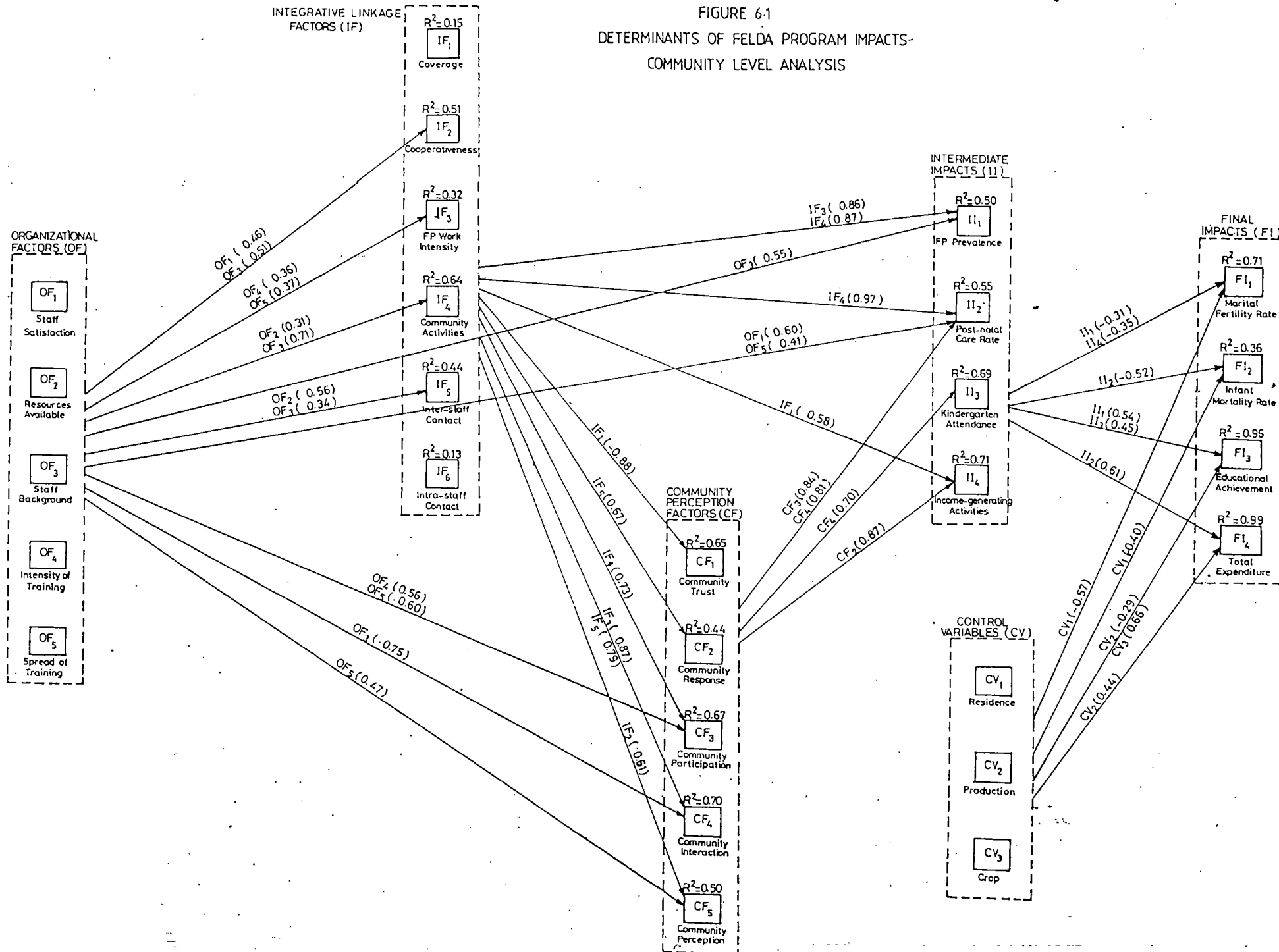
From the Figure, it can be seen that the extent of cooperation that exists among scheme staff is influenced by the staff satisfaction with the scheme organization and the staff general background. The better the staff satisfaction and the better the staff general background, the greater is the cooperation amongst staff.

Similarly, the amount of time that the staff spend on family planning is positively influenced by the intensity and spread of staff training.

With respect to the amount of time that the staff spend on community activities, this is influenced by the resources available in the organization and the staff general background.

FIGURE 6.1  
DETERMINANTS OF FELDA PROGRAM IMPACTS-  
COMMUNITY LEVEL ANALYSIS

119



The other important integrative linkage factor, namely, the frequency of contact among staff within the scheme is influenced by the resources available in the organization for such activities and the staff general background. The more educated the staff and the younger the staff, the greater is the extent of interaction that exists amongst the staff.

The above results indicate in detail the extent that organizational factors have on integrative linkage factors.

ii) Causal effects of organizational and integrative linkage on community perception

From the Figure, it can be seen that the first two community perception factors, namely, community trust in abilities of local leaders and community response to local leaders' suggestions are mainly influenced by integrative linkage factors. The community trust factor is influenced by the extent of coverage of service outlet activities. Surprisingly, the greater the coverage, the less is the community's trust on the staff's abilities. This indicates that in the eyes of the community there is a limit to which the same staff can extend the variety of service to which he or she can offer. If the variety of service offered by a particular staff is too numerous, it tends to lead to less community trust in the ability of the staff.

With respect to the second community perception factor, which is the community's response to the recommendations of the staff,

the results indicate that inter-staff linkage is a strong causal factor for positive community response.

For the third community perception factor, which is community participation in scheme activities, it was found that organizational factors like intensity of training and spread of training and the integrative linkage factor intensity of community activities are causal factors leading to increased community participation in scheme activities.

The main causal factors leading to improved interaction between community and staff are staff background variables, intensity of family planning workload of staff and frequency of inter-staff contacts.

Finally, the causal factors that can lead to improved community perception of the scheme organization as a whole is the organizational factor spread of training amongst staff, and the integrative linkage factor degree of cooperativeness amongst staff and between staff and the community.

These results indicate that the community's perception on ability of staff and the structure of scheme activities as a whole is influenced strongly by both organizational factors and integrative linkage factors. On the whole, the more highly trained the staff are, the better is the community perception. Similarly, the better is the linkage that exists amongst staff and between staff and the community, the better is the community perception of the scheme organizations.

The only exception to this result is that the extent of coverage is inversely related to community trust in the abilities of the scheme staff. This seems to indicate that Felda settlers as a whole have more confidence in specialized single-purpose staff than in general multi-purpose staff.

iii) Causal factors affecting intermediate impacts

The four intermediate program impact variables included in the path analysis are family planning prevalence, post-natal health care utilization rate, kindergarten attendance rate and proportion of households involved in extra-mural income-generating activities.

With respect to the family planning prevalence variable, the results indicate that this is strongly affected by the staff general background and the intensity of family planning workload and other community activity workload. The better qualified the staff, the greater is the intensity with which the staff apply themselves to family planning workload and other community activities, the higher is the family planning prevalence.

The main causal factors influencing post-natal health care utilization rate are the spread of training of staff and the extent to which the community interacts with the local scheme staff. The integrative linkage factor, intensity to which the staff apply themselves to community activities seems to increase the post-natal health care utilization rate.

With respect to the kindergarten attendance rate, the results show that the only significant causal factor affecting this impact variable is the extent of community interaction with the local staff and leaders.

Finally, for the impact variable proportion of households involved in extra-mural income-generating activities, the results indicate that the main causal factors affecting this variable are coverage of service outlet and community response to suggestions of local leaders.

In summary, the results show that the two groups of factors, organizational factors and integration factors, have significant and intimate effects on program impacts. In general, it is seen that the intensity and spread of staff training, the intensity to which the staff apply themselves to family planning and other community activities, the extent to which the community interacts with the local leaders and the staff and the extent to which the community adopt the suggestions of the staff are causal factors leading to better intermediate program impacts.

iv) Causal factors influencing final program impacts

From Figure 6.1, it can be seen that after controlling for environmental variables, the intermediate impact variables, in general, have significant impacts on the final program variables.

Specifically, the results indicate that the higher rate of participation in extra-mural

income-generating activities result in lower marital fertility rate.

Health care utilization rate as represented by post-natal health care utilization rate is the main causal factor resulting in lower infant mortality rate.

The main intermediate impact variables found to result in higher educational achievement are family planning prevalence and the kindergarten attendance rate.

With respect to total expenditure, the results indicate that after controlling for the environmental variables, the only significant causal intermediate impact is the post-natal health care utilization rate. Surprisingly, household's participation in extra-mural income-generating activities is not a causal factor for total expenditure.

In summary, the relationships between the intermediate and final program impacts, after controlling for the environmental variables, indicate that except for expenditure, there exists strong specific relationships between intermediate impacts and final impacts. For example, higher family planning prevalence is found to result in lower marital fertility rate, a higher post-natal health care utilization rate is found to result in lower infant mortality, and a higher rate of attendance at kindergarten is a causal factor of higher educational achievement. The intermediate impact variables, however, do not have a significant impact on total expenditure. Total expenditure is found to



be best explained by the environmental variables, in particular, the status of production of the scheme.

### 6.3 Path Analysis at Household Level

In this section, we shall present the results of the factors influencing intermediate and final program impacts at the household level. This is done through path analysis using each of the 1,429 households as unit observations. A summary of the results of this analysis is presented in Figure 6.2.

#### i) Influence of organizational factors on integration linkage

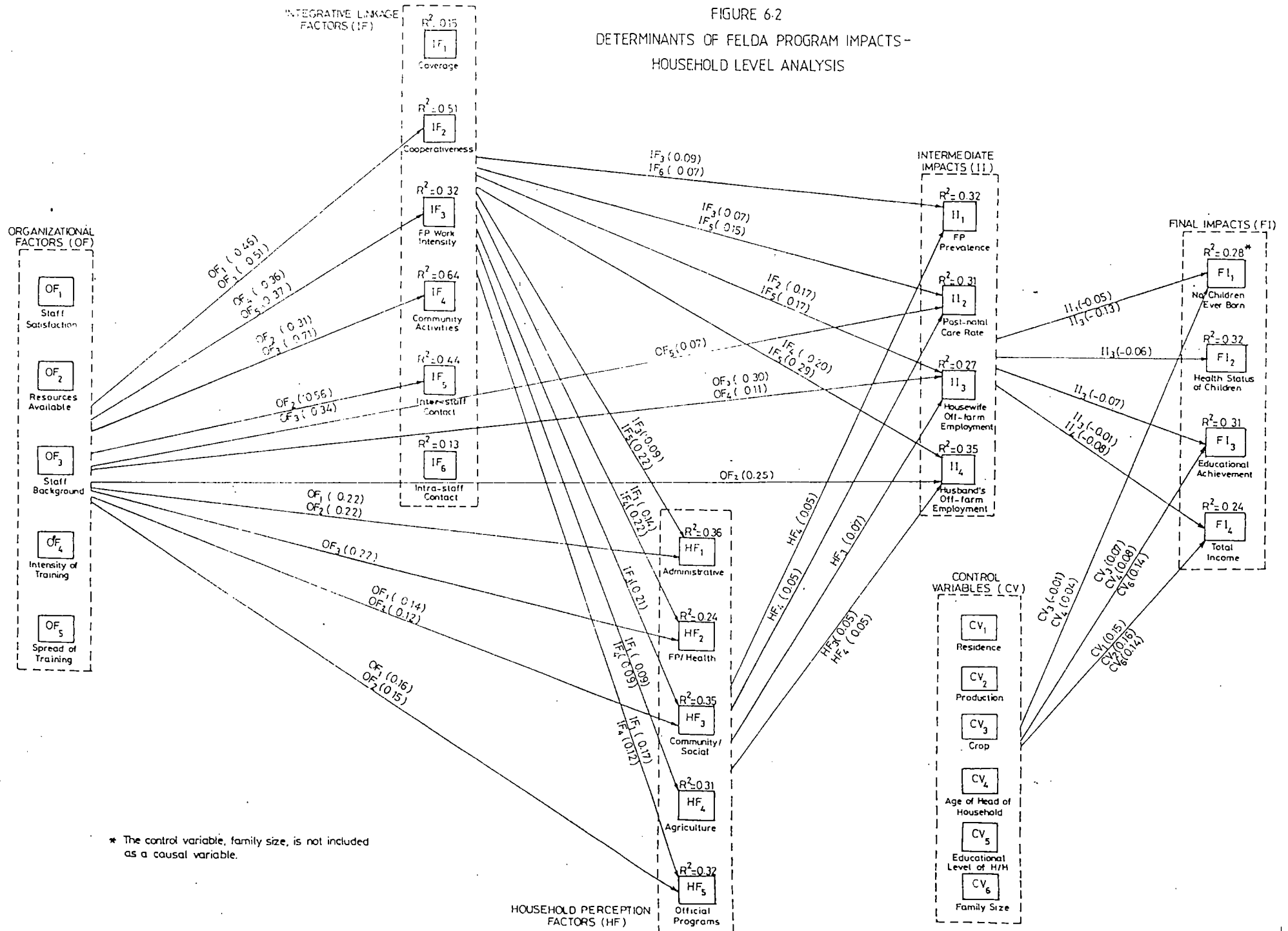
Since the organizational factors and integrative linkage factors are the same for the community level analysis and household level analysis, the influence of organizational factors on the integrative linkage factors are as discussed in the community level analysis section, and shall not be repeated here.

#### ii) Effects of organizational and integrative linkage factors upon household perception

As in the community level analysis, in the household level analysis, it is assumed that the household's perception of community organizations and programs are influenced by the scheme organizational factors and integrative linkage factors.

From Figure 6.2, it can be seen that the household's perception on the general administrative leadership in the scheme is positively influenced by the staff's satisfaction with his community and work

FIGURE 6.2  
DETERMINANTS OF FELDA PROGRAM IMPACTS-  
HOUSEHOLD LEVEL ANALYSIS



\* The control variable, family size, is not included as a causal variable.

environment and the resources available to his organization for delivering his services. Similarly, it is also influenced by the frequency of contact amongst the staff and between the staff and the community.

With respect to the household's perception on the family planning/health dimension of the scheme organization, this perception is positively influenced by the staff background factor and the extent of coverage of the services offered, and the time the staff spend on various scheme activities.

The community's perception on the community/social development dimension of the scheme organization is again influenced by the staff's perception of the environment and the community, the resources available to the organization, and the time spent by the staff on family planning services and motivation.

The household's perception on the agricultural dimension of the scheme organization is seen to be strongly influenced by the extent of coverage of the services and the time spent by the staff on the various scheme activities.

Finally, the household's perception of the official structure for the implementation of the various community programs are strongly influenced by the staff's satisfaction with the community, and the resources available to the scheme; as well as by the extent of coverage of the program and the time spent by the staff on the various programs.

In general, from the above discussions, it can be seen that at the household level, the main organizational factors that have a strong influence on the household perception of the various dimensions of the integrated program are the staff's satisfaction with the work environment and the community, and the resources available to the organization. The happier is the staff with the work environment, and the more the resources are available to the organization, the more positive is the household perception of the integrated program. Similarly, the most important integrative linkage factors that influence the household's perception of the integrated program are, the extent of coverage of the integrated program, and the time spent by staff on family planning activities and other scheme activities. The greater is the coverage of the integrated program, the more positive is the household's perception of the various dimensions of the organization. Similarly, the greater the effort that the staff puts into the family planning services and other scheme activities, the more positive is the household's perception of the integrated program.

iii) Influence of organizational and integration factors on intermediate program impacts

In this sub-section, we shall elaborate on the influence of organizational and integration factors on the intermediate program impacts.

With respect to the family planning prevalence impact variable, it is seen that organizational factors do not have much influence on this variable. Only integration factors in the form of intensity of family planning services, and the extent of interaction between scheme staff and staff of other agencies, have a strong influence on family planning prevalence.

With respect to the variable on post-natal health care utilization rate, this impact variable is influenced by the spread of staff training, and the integrative linkage factors intensity of family planning workload and the frequency of contact between staff in the scheme. The household perception factor on the agricultural services dimension, also has a strong influence on post-natal health care utilization rate at the household level.

The intermediate impact variable, housewife's off-farm employment, is found to be influenced by the organizational factors staff general background and intensity of staff training, and integration factors cooperativeness of the staff in the scheme and the frequency of inter-staff contact.

Finally, the intermediate impact variable extent to which husbands participate in extra-mural income-generating activities, is seen to be strongly influenced by the organizational factor resources available to the scheme organization, and the integrative linkage factors extent to which the staff apply themselves to the scheme activities and the extent of contact that exists between the staff and households. To a limited extent,

this intermediate impact variable is also influenced by the household's perception on the agricultural dimension of the integrated program, and the community development dimension of the integrated program.

In brief, the above results indicate that intermediate program impacts are influenced mainly by integrative linkage factors such as extent of cooperation that exists amongst staff, extent to which staff apply themselves to family planning services and other scheme activities, and extent of contact frequency among staff and between staff and households. Organizational factors like resources available to the scheme organization and the spread of training that exists among staff appear to have some specific influence on some of the impact variables. In general, the household perception on extent of integration do not appear to have very strong influence on the intermediate program impact variables.

iv) Influence of intermediate program impact variables on final program impacts

The final family planning program impact variable, number of children ever born to the households, is seen to be strongly influenced by family planning prevalence and participation of household in extra-mural income-generating activities. The higher the family planning prevalence, the lower tends to be the number of children ever born. Similarly, the higher the incidence of household participation in extra-mural income-generating activities, the lower the number of children ever born.

The household's participation in extra-mural income-generating activities is found to be the main variable that has a significant influence on the other final program impact variables, namely, the health status of children, educational achievement, and the total income of households. Household's participation in extra-mural income-generating activities is seen to have a negative influence on both the health status of the children and the educational achievement of the children, indicating that households participating more actively in income-generating activities are the households that tend to neglect the health and educational status of the children. However, after controlling for the environmental variables, household's participation in extra-mural income-generating activities is found to have a positive influence on total household income indicating the economic benefit of this entrepreneurship variable.

In summary, after controlling for the environmental variables, the intermediate impact variable, family planning prevalence, is found to have a negative influence on number of children ever born. Further, the entrepreneurship intermediate impact variable, household's participation in extra-mural income-generating activities, is found to have a significant general influence on the final program impact variables. It tends to result in higher family income, lower number of children ever born, but lower health and educational status of the children in the household.

## CHAPTER 7 CONCLUSIONS AND POLICY IMPLICATIONS

### 7.1 Introduction

In this Chapter, we shall summarize the main conclusions that emerge from the analysis and discuss the policy implications of these conclusions.

### 7.2 Summary of Conclusions

#### 7.2.1 *Intermediate Program Impacts*

Our survey of the sample of 1,429 Felda households spread over 24 schemes clearly indicates that in terms of intermediate program impacts, the Felda mode of delivery of population and community services has been effective. Over 55 per cent of the eligible women were found to be practising family planning while over 98 per cent of the pregnant women were found to utilize pre-natal health care services. At the same time, about 47 per cent of the surveyed households were involved in some form of non-Felda income-generating activities.

These intermediate impact figures are far above the comparative figures for rural Malaysia and indicate the depth and spread of the Felda program impacts. While the economic impact of Felda is very well documented, this study clearly shows that Felda has also been successful in making significant non-economic impacts like improvement in practice of family planning, improvement in health practices and entrepreneurship quality. The study also shows that these intermediate impacts are independent of the length of residence of the settlers and other environmental characteristics of the scheme, indicating that the Felda mode of delivery has been able to achieve its impacts equally effectively among the settlers within a short time of their settlement.

However, with respect to educational impact, the result shows that only about 86.7 per cent of eligible children



are enrolled in primary schools. This is significantly lower than the comparative figure for Peninsular Malaysia which is about 95.9 per cent. This finding is disturbing and it does suggest that Felda should seriously look into the causes why over 15 per cent of the eligible children do not attend primary school. Nevertheless, it was found that the proportion of eligible children attending secondary school is significantly higher than the corresponding figure for the nation. This suggests that on the average, a lower proportion of the Felda children attends school and they tend to stay on until they have completed secondary education.

#### 7.2.2 *Final Program Impacts*

Since some of the Felda schemes have been in existence for over 2 decades, this study has been able to evaluate the final program impacts made by Felda among its settlers. In terms of household income, the results indicate that the average household income of a Felda household is \$695 per month, which is substantially above the average rural household income of \$355 per month in Peninsular Malaysia.

However, the household income is found to vary significantly by environmental characteristics. For example, oil palm households earn an income of \$880 per month which is almost double that of the average income of a rubber household. Similarly, households that are in schemes that are in agricultural production earn an income of between \$800 to \$1,100 per month. This is far above the average household income of settlers staying in schemes that are not yet in production, which amounts to only about \$160 per month.

In terms of marital fertility, Felda settlers are found to have a marital fertility rate of 322 per thousand. Although this is above the average marital fertility rate of 240 per thousand for Malaysia, the figure is still below the marital fertility rate of rural Peninsular Malaysia of about 350 per thousand. The survey found that

marital fertility rates among Felda settlers declined significantly by length of residence, indicating that Felda settlers who have been in the schemes for a long period of time tend to have a lower fertility rate than new settlers. This may be on account of the fact that marital fertility rate is a final impact and there is a considerable time lag between improved family planning prevalence and lower marital fertility rate. Hence, although family planning prevalence is high among all Felda settlers, the translation of this into reduced marital fertility rate is evident only among those who have stayed in Felda for a long time.

A similar kind of finding emerges with respect to the infant mortality rate. The average infant mortality rate of Felda settlers is 2.6 per cent, which is about equal to the national average. However, the infant mortality rate is much lower among established Felda settlers than among new Felda settlers. This again could be accounted by the fact that infant mortality rate is a final impact, and although utilization of health care is uniformly high among all Felda settlers, the effect of this practice into lower infant mortality rate is evident only in the established settlers.

In terms of educational achievement, the survey found that on the average, a Felda child obtains 0.1 distinction per public examination. Although no comparative figure is available for rural school children, the figure by itself suggests that the level of educational achievement among Felda children is relatively low. This, coupled with the finding that primary school attendance rate among Felda children is lower than the comparative rate for Malaysia, does indicate that with reference to the educational impact, the Felda mode of service delivery should not only concentrate on getting more children to attend school but should also ensure that they are provided with the necessary motivation and inspiration to perform well. This includes motivating the parents

to provide their school-going children the necessary spare time and interest to do their school work at home.

### 7.3 Organizational Factors

The results of the factor analysis on the large number of the organizational variables indicate that each Felda scheme can be essentially classified on the basis of 5 independent organizational factors. These include staff satisfaction with the work environment, resources available, the general and training background of the staff. These factors indicate the important role that the staff characteristics play in determining the organizational factors confronting the Felda schemes.

Further, the fact that the large number of organizational variables can be reduced into such a small set of organizational factors enhances the efficacy and value of changing scheme organizational characteristics as a means of enhancing the management of the schemes. It implies that Felda policy planners need only to concern themselves with these small set of organizational factors when they wish to modify the organizational characteristics of the scheme in order to improve its management and performance.

### 7.4 Integration Factors

The factor analysis of the integration variables indicate that both the integrative linkage variables and the community perception variables can each be aggregated into a small number of factors. The principal integrative linkage factors were found to be extent of coverage of the scheme delivery units, extent of cooperativeness that exist among the staff, extent to which the staff dedicate themselves to family planning and other community activities and frequency of contact amongst the staff and between the staff and other agencies.

With respect to the community perception variable it was found that these variables could be separated into 5 main factors. At the community level, these factors include the extent of community's trust in abilities of staff, community's response to staff's recommendations, community's participation in scheme activities, and community's perception on efficacy of official programs in scheme.

At the household level, these factors include the household's perception on the staff's and local leaders' ability in administrative matters, in family planning/health services, in community/social development services, in agricultural services and in the general efficacy of official programs.

Again, the fact that the integration variables could be classified into a small number of integrative linkage factors and a small number of perception factors suggest that the analysis have successfully operationalised the concept of integration. If Felda planners wish to improve upon the integrative linkage factors, this study reveals the main factors they should focus on. Further, if Felda planners wish to improve on the community's and household's perception of the integrated program, this study has also uncovered the main factors they should focus upon for improvement.

#### 7.5 Influence of Organizational Factors on Integration

The results of the path analysis at both the community and household level of analyses indicate that organizational factors can have a strong but specific influence upon integration, as operationalized by integrative linkages and community/household perception on extent of integration.

At the community level, for example, staff general background as reflected by their educational level has a significant influence on the extent of cooperativeness among staff, extent to which they dedicate themselves to

community activities and the frequency of contact that exists amongst the staff and between the staff and the community.

Similarly, the extent to which resources are made available in the scheme is found to have a strong influence on the extent to which the staff dedicate themselves to community activities, and the frequency of contact among the staff and between the staff and the community. Further, the intensity and spread of training that exists among the staff is found to have a positive influence on the proportion of households who participate in the community activities, and the community's perception of the efficacy of the official programs.

At the individual household level, the path analysis also revealed that the extent of satisfaction of the staff with their work and environment, and the extent to which resources are made available in the scheme are important organizational factors that influence household perception. These factors are found to have a strong positive influence on the household's perception on the administrative ability of the staff, and the staff's ability to deliver social services. These factors also positively influence the household's perception on the general efficacy of the official programs.

#### 7.6 Influence of Organizational and Integration Factors on Intermediate Program Impacts

With respect to the influence of the organizational and integration factors upon intermediate program impacts, the major finding at both the community and household level of analysis is that the organizational factors do not directly influence the intermediate program impact variables. Integration, as conceptualised by integrative linkages and community/household perception, is found to have the major direct causal influence upon intermediate

program impacts. Organizational factors do influence significantly the intermediate program impacts. This influence, however, is made indirectly through the intervention of integration variables. This simply means that organizational factors have a strong influence on integration (as explained in section 7.4) which, in turn, influences intermediate program impacts.

With respect to the influence that integration linkages have on intermediate program impacts, the extent to which the staff dedicate themselves to family planning and community/social development activities is found to have a strong influence on family planning prevalence and the utilization of post-natal health care services. The extent of contact amongst staff and between staff and community is found to have a strong influence on the household's participation in off-farm income-generating activities.

Further, with respect to the community/household perception on the extent of integration, the extent to which the community participate in the scheme activities, is found to have a strong positive influence on post-natal health care utilization rate and the kindergarten attendance rate. Further, the extent to which the community/household interacts with the scheme's staff is also found to have a strong positive effect on post-natal health care utilization rate and the kindergarten attendance rate.

#### 7.7 Influence of Intermediate Program Impacts on Final Program Impacts

After controlling for environmental variables, the results reveal that the intermediate program impact variables do make a substantial, but specific, influence upon the final program impact variables. For example, improvement in family planning prevalence is found to result in lower number of children ever born at the household level. Similarly, improved post-natal health care utilization

rate is found to result in lower infant mortality rate. Further, a higher rate of attendance in kindergarten is found to result in higher educational achievement among children.

On the other hand, the study also found that at the household level, the household's participation in off-farm employment results in lower number of children ever born, lower health status of children, lower educational achievement, and lower total household income. This suggests that Felda's households' participation in non-Felda employment is more prevalent amongst the poorer Felda settlers. Possibly, this may be because of the fact that off-farm employment is dictated by the necessity of some Felda families having to supplement their Felda income. This may be especially true in the case of households in schemes not yet in production. Through the households' participation in these off-farm income-generating activities, the health and educational status of the children are neglected. On the positive side, however, these households make a conscious decision of having small size families.

## 7.8 Policy Implications

### 7.8.1 *Enhancing Program Impacts*

Notwithstanding the favourable health, family planning, and economic intermediate impacts made by Felda upon its settlers, the study reveals that with respect to the attendance rate at kindergartens, only about 33 per cent of the children between the ages 5 and 6 years attend kindergarten.

The official policy of Felda is to encourage all children of 6 years of age to attend kindergarten and, only where places are available, to allow for the enrolment of 5 year olds. This has resulted in a large number of 5 year old children not attending kindergarten, when, by educational norm, they should be. Since the study has revealed that

kindergarten attendance do result in improved educational achievement, Felda should make every effort to expand kindergarten facilities in the schemes to cater to all children between 5 and 6 years old and, possibly, even for children from 4 years of age. Given the existence of the basic kindergarten facilities in each scheme, an expansion of the facilities would be relatively easy and should be undertaken. This is especially important when it is realised that, on the average, the educational achievement of Felda children in school is relatively low at present.

Further, the study revealed that about 15 per cent of eligible children do not attend primary school. This is a fairly high proportion by the national average and it does indicate that Felda planners should make a much greater effort to encourage the settlers to send their eligible children to schools. Families should be discouraged, in particular, to try to maximize their short-term household income through the utilization of their children as labour in the farm. The message of value in education should be strongly instilled amongst the Felda families.

With respect to family planning, although the results indicate that the proportion of eligible women practising family planning is relatively high, nevertheless, the number of children desired by Felda families is still relatively large. This may be reflective of the fact that Felda settlers, by and large, are still not convinced of the value of small families and are practising family planning out of the housewife's necessity to involve herself in on-farm or off-farm activities. This suggests that it is necessary for Felda to not only motivate family planning acceptors but also to impart the message of the value of a small but healthy and "well-looked-after" family.



With respect to health practice, the study revealed that although a large proportion of mothers utilize pre-natal and post-natal health care, most deliveries are effected at home with the help of traditional birth attendants. Deliveries at home is a traditional rural practice and there is nothing much Felda can do to change this attitude. Nevertheless, what Felda can and should do is to reduce the health hazard of babies delivered at homes in the Felda schemes through intensifying the training of the traditional birth attendants in the schemes. These training programs could include teaching these attendants the use of modern medical practices. For Felda pregnant women who return to their original villages for deliveries, Felda nurses should instill into these women the value of modern medical practices.

With respect to participation of households in non-Felda income-generating activities, the results indicate that this is mainly prevalent among poor Felda settlers. These settlers have to supplement their Felda income through participation in non-Felda income-generating activities. Although, this participation results in a smaller number of children ever born, these children are, on the average, less healthy and less educationally oriented. This implies that Felda planners should pay more emphasis on the welfare of poor settlers, especially settlers who are living in schemes not yet in production. More emphasis should be given to provide off-farm employment opportunities nearer to their place of residence, so that, besides supplementing their income, the family can also spend more time looking after the welfare of their children.

#### 7.8.2

##### *Enhancing Integration*

The study found that integration, as operationalised by integrative linkages and community/household perception and participation, do make a substantial and positive influence on intermediate program impacts. This demonstrates the necessity of Felda planners to implement

policies that can improve integrative linkages and community perception and participation. Policies that could be implemented to improve integrative linkages at the scheme level include:

- i) At present, it is the responsibility of the scheme manager to keep in contact with settler leaders and individual settlers. It is suggested that more scheme staff be encouraged to interact with each other as well as to interact with the local leaders and individual households. Ways in which this could be achieved could involve their conduct of regular informal dialogue sessions amongst scheme staff and between scheme staff and the settlers. In these dialogue sessions all problems concerning the socio-economic well-being of the schemes could be resolved. It should be noted that these dialogue sessions should be conducted locally but informally, so that the settlers could feel free to bring up all their grievances. Further, these dialogue sessions are not substitutions of the regular JKKR sessions which are held between the scheme manager and the local leaders.
  
- ii) At present, all staff working in the schemes are unifunctional in the sense that each staff is responsible for one particular component of the service (for e.g., the scheme manager is responsible for the general administration of the scheme and the kindergarten teacher is responsible for the kindergarten classes, etc.). The results of this study revealed that Felda settlers operating as a community and individually

prefer staff who exhibit high competence and dedication to their area of work. This implies that more training should be given to Felda staff to develop their area of specialty. At the same time, the staff should also be exposed to the other specialties (for e.g. the agricultural extension worker should have more appreciation for family planning) so that there is a greater degree of appreciation and cooperativeness amongst staff for each other's work.

- iii) The study also shows that the extent of dedication to which the staff demonstrate towards their work and community have a very strong bearing on the settlers confidence in their abilities. It is recommended that a systematic procedure for encouraging dedication and performance among scheme staff be instituted. This procedure could involve periodic self-evaluation of one's work in conjunction with the performance level established by the supervisors. It must be emphasized that this periodic self-evaluation exercise should be informal and confidential and should not, under any circumstances, be used as a basis of victimisation of staff. On the reverse, the positive aspects of the self-evaluation exercise should be emphasized, namely, that of trying to raise one's level of output and performance in an atmosphere of mutual encouragement.

The policy measures that could be implemented to improve community perception of Felda programs and community participation in Felda activities could include:

- i) At present, in each scheme, there are numerous extra-mural income-generating activities involving Felda households. However, our study revealed that only a small proportion of the households involve themselves in these activities. It is recommended that the various scheme managers should directly encourage the involvement of more settlers in scheme activities through a greater dispersal of the leadership and management of the scheme activities. For example, the scheme manager could see to it that different settlers are entrusted with the responsibility of organizing and leading different scheme activities. The present practice in which the same settler is the leader of the block and other scheme organizations should be discouraged, if at all possible.
  
- ii) The study shows that the community's trust and confidence in the efficacy of the scheme constitute important dimensions of their perception. In order to increase the level of trust and confidence that exists among the community, it is essential that Felda scheme managers should adopt a more open style of management in which all information available on the various facets of the scheme's activities are made available to Felda settlers. For example,

Felda settlers should be exposed to all the current information concerning health services, family planning and children's education. Similarly, all data on the present and projected performance of the scheme should also be made available to the settlers so that they can appreciate the role they play in the overall achievement of the Felda program.

- iii) The study shows that at the individual level, the household's perception on the efficacy of the integrated program towards the various components of the services play an important role in their perception on the extent to which the program is integrated. In this sense, it is recommended that in order to enhance the perception of the settlers towards the various components of the integrated program, the Felda staff should be encouraged to perform their function in congruence and not in conflict with the aims of the other components. For example, agricultural extension workers should not, in their daily work, demonstrate negative attitudes towards other programs like the kindergarten or youth club activities. Demonstration of lack of congruence among the Felda staff would lead to confusion amongst the settlers regarding the extent to which the program is integrated and hence, can lower the effectiveness of the integrated program.

The study has revealed that organizational factors have a positive influence on extent of integration. However, organizational factors have very little direct influence on program impacts. Its influence on program impacts operates mainly indirectly through influencing the extent of integration. Given that this indirect influence via integration on program impacts is very significant, it is necessary that Felda planners also put emphasis on enhancing organizational factors that can result in improving integration.

Some of the policies that can be implemented to enhance organizational influence on integration can include the following:

- i) It has been found that the extent to which resources are made available to the scheme is an important organizational factor that results in higher integration. Although it would not be realistic to suggest that more resources in the form of more money and more staff be allocated to the schemes, nevertheless, it may be possible for scheme managers to devise procedures that can result in more optimal utilization of resources. For example, the procedure for settling overtime and travelling claims could be improved such that staff's claims are settled within a short period of time.
- ii) The results indicate that staff general and training background are also important organizational factors that enhance integration. This suggests that all categories of staff working in the scheme should be provided with training in not

only their areas of specialty but also on general scheme management and an appreciation of other components of services offered in the scheme. Through this exposure, the staff would be encouraged to involve themselves more actively with their jobs, their peer group and their community. These courses should also be evaluation oriented so that the staff would be continuously aware of their performance implication in their daily work.

- iii) The analysis suggests that the extent of staff satisfaction with their organizational environment is an important organizational factor. This implies that scheme managers should be encouraged to be more aware of the needs of the individual staff and wherever possible, these needs should be met so that the staff can be completely dedicated to their work. Further, the scheme managers should also be aware of the individual attitudes and biases of the staff and, wherever possible, the scheme managers should ensure that the staff's individual attitudes towards their work and community are in congruence with that of Felda. For example, the scheme managers should ensure that all staff working in a particular scheme are supportive of Felda's goal of improving the livelihood of the people through modern agricultural methods. Staff whose goals are not in congruence with that of the scheme should be offered re-orientation courses or assignments where they are not in direct contact with the settlers.

*Impacts of Felda Program Vis-a-Vis Traditional Programs*

An important finding of the study is that the Felda mode of integration has been able to make significant intermediate impacts, in terms of family planning, health and economic well-being, on Felda households, irrespective of length of residence and other environmental characteristics. This indicates the almost immediate effectiveness of the Felda mode of delivery of services.

Further, it was found that the intermediate program impacts are strongly related to final program impacts after controlling for environmental variables, leading to improved final impacts amongst the more established Felda settlers. This suggests that the Felda mode of service delivery not only results immediately in better practices (of family planning, health and economic well-being), but ultimately, in improved final impacts (lower marital fertility rate, lower infant mortality rate and higher income).

It should be recalled that Felda settlers were all migrants from traditional rural areas where traditional programs like single-purpose agricultural organizations and FP/MCH services, etc., operate. If one assumes that new Felda settlers have final impact values resembling that of the traditional areas (for example, a marital fertility rate equivalent to the settlers in traditional areas), the finding that the established Felda settlers have better final impact characteristics (i.e., lower marital fertility rate, lower infant mortality rate and higher income) suggests that the Felda mode of delivery has been able to make a more effective impact on the rural population than the traditional programs.

Further, the fact that the intermediate impacts of Felda are felt immediately by all the settlers and that



intermediate impacts is significantly related to final impacts suggests that the Felda mode of delivery has been able to make its impact through improving the immediate practices of the settlers.

The findings of improved intermediate impacts among Felda settlers leading ultimately to final impacts, which are better than that experienced in the traditional rural areas, suggest that the Felda mode of integration is a much more effective and efficient mode of delivery than the traditional services offered via single purpose agricultural organizations in conjunction with FP/MCH.

Notwithstanding the differences that do exist with respect to community structure between traditional rural areas and Felda schemes, the fact that the Felda mode of integrated service delivery is more effective than the traditional mode of many single-purpose delivery organizations, suggests that policy planners should make attempts to replicate the Felda mode of service delivery in the traditional rural areas.

This replication process should not be a straight-forward full replication of the Felda model, but should adopt aspects of the Felda model that is replicable without requiring the support of the Felda infrastructure. For example, in some traditional rural areas, organizations like women's clubs (sponsored by KEMAS), FP/MCH clinics (managed by Ministry of Health), youth clubs (sponsored by Ministry of Culture, Youth and Sports), kindergarten classes (sponsored by KEMAS) and agricultural extension services (provided by Ministry of Agriculture), are in existence. However, each of these organizations work very independently of the other. What would be required in this case would be the appointment, whether formally or informally, of a coordinator (playing somewhat like the role of a scheme manager) who can 'integrate' all

these activities so that the rural community would not perceive duplication and conflict in roles played by these independent organizations. Rather, it would be the responsibility of the coordinator to bring all these organizations together so that, from the viewpoint of the rural community, these services are offered as a full package, with the aim of improving the livelihood of the rural poor.

APPENDIX I

QUESTIONNAIRE FOR STAFF WORKING IN FELDA SCHEME ONLY

DEMOGRAPHIC AND SOCIO-ECONOMIC IMPACTS OF INTEGRATING  
FAMILY DEVELOPMENT WITH COMMUNITY DEVELOPMENT  
IN NEW LAND SETTLEMENTS IN MALAYSIA

Interviewer: \_\_\_\_\_

Date of Interview: \_\_\_\_\_ Started \_\_\_\_\_ am \_\_\_\_\_ pm

Completed \_\_\_\_\_ am \_\_\_\_\_ pm

Name of Respondent: \_\_\_\_\_

Official position and address of respondent:

Position: \_\_\_\_\_

Address: \_\_\_\_\_

District: \_\_\_\_\_  State: \_\_\_\_\_

Telephone No. (if any) \_\_\_\_\_

Respondent works with: MOH

Felda

Others (specify \_\_\_\_\_)

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Sample No.	<input type="text"/>
------------	----------------------

A.

BACKGROUND INFORMATION OF RESPONDENT

a. Present Position:

- \_\_\_\_\_ (1) Felda Scheme Manager
- \_\_\_\_\_ (2) Felda Assistant Scheme Manager
- \_\_\_\_\_ (3) Vice Chairman, Scheme Planning & Development Committee
- \_\_\_\_\_ (4) Head, Scheme Women's Club
- \_\_\_\_\_ (5) Settler Development Assistant (women)
- \_\_\_\_\_ (6) Kindergarten teacher
- \_\_\_\_\_ (7) Phase Supervisor (State Phase \_\_\_\_\_)
- \_\_\_\_\_ (8) Nurse/Rural Nurse/Government Midwife
- \_\_\_\_\_ (9) Chairman, Economic Bureau
- \_\_\_\_\_ (10) Chairman, Cooperative
- \_\_\_\_\_ (11) Chairman, Youth Movement
- \_\_\_\_\_ (12) Chairman, Social Bureau
- \_\_\_\_\_ (13) Headmaster
- \_\_\_\_\_ (14) Others (specify) \_\_\_\_\_

b. Length of time in present position: \_\_\_\_\_ years \_\_\_\_\_ months

c. Previous experience before present position

- \_\_\_\_\_ (1) This is my first job
- \_\_\_\_\_ (2) Promoted to present position within organization
- \_\_\_\_\_ (3) Worked elsewhere, but previous job related to present
- \_\_\_\_\_ (4) Worked elsewhere, but previous job not related to present

d. Education:

- \_\_\_\_\_ (1) No formal education
- \_\_\_\_\_ (2) Primary
- \_\_\_\_\_ (3) Lower Secondary
- \_\_\_\_\_ (4) Malaysia Certificate of Education
- \_\_\_\_\_ (5) Form VI
- \_\_\_\_\_ (6) University
- \_\_\_\_\_ (7) Others (specify)

e. Training (including formal training and in-service training)

- i. Family planning/health - Total duration of courses \_\_\_\_\_ yrs. \_\_\_\_\_ mths. \_\_\_\_\_ days
- ii. Agriculture - Total duration of courses \_\_\_\_\_ yrs. \_\_\_\_\_ mths. \_\_\_\_\_ days
- iii. Community/social development - Total duration of courses \_\_\_\_\_ yrs. \_\_\_\_\_ mths. \_\_\_\_\_ days
- iv. Administrative/leadership/finance - Total duration of courses \_\_\_\_\_ yrs. \_\_\_\_\_ mths. \_\_\_\_\_ days
- v. Others (specify) - Total duration of courses \_\_\_\_\_ yrs. \_\_\_\_\_ mths. \_\_\_\_\_ days  
 (e.g. education courses)

f. Do you feel that the training given to you is adequate in carrying out the duties expected of you?

	1	2	3	4	5
i. For family planning/health	_____	_____	_____	_____	_____
ii. For agriculture	_____	_____	_____	_____	_____
iii. For community/social development	_____	_____	_____	_____	_____
iv. For administrative/leadership/finance	_____	_____	_____	_____	_____
v. For others (specify)	_____	_____	_____	_____	_____

Note: 1 - Very adequate  
 2 - Adequate  
 3 - Average  
 4 - Not adequate  
 5 - Not adequate at all

g. Age: \_\_\_\_\_ years

Sex: \_\_\_\_\_ (1) Male \_\_\_\_\_ (2) Female

h. Marital status: \_\_\_\_\_ (1) Single \_\_\_\_\_ (2) Married  
\_\_\_\_\_ (3) Divorced \_\_\_\_\_ (4) Widowed  
No. of children: \_\_\_\_\_ (1) Male \_\_\_\_\_ (2) Female

i. How long have you lived in or near this scheme?

\_\_\_\_\_ (1) All my life  
\_\_\_\_\_ (2) Most of my life (over 5 years)  
\_\_\_\_\_ (3) A few years (1-5 years)  
\_\_\_\_\_ (4) Less than 1 year

j. How well do you know the people in this place?

\_\_\_\_\_ (1) Know very well, my own people  
\_\_\_\_\_ (2) Know some of them fairly well  
\_\_\_\_\_ (3) Don't know them fairly well  
\_\_\_\_\_ (4) Don't know them at all

k. How long have you been working in your present position in this scheme?

\_\_\_\_\_ years \_\_\_\_\_ months

B. STAFF OBSERVATIONS

a. Staff Observations on Scheme Administration Structure

i. Compared with other schemes, to what extent do the staff in your scheme work as a team?

- \_\_\_\_\_ (1) To a great extent (i.e. a lot of cooperation among staff)
- \_\_\_\_\_ (2) To some extent
- \_\_\_\_\_ (3) To a little extent
- \_\_\_\_\_ (4) To a very little extent
- \_\_\_\_\_ (5) Not at all

ii. Concerning the friends with whom you get along well, do they work within your scheme or outside of it?

- \_\_\_\_\_ (1) More friends within the scheme
- \_\_\_\_\_ (2) Some friends inside the scheme, some outside scheme
- \_\_\_\_\_ (3) More friends outside scheme

iii. How would you rate the morale of staff in your scheme?

- |                     |                |
|---------------------|----------------|
| _____ (1) Very high | _____ (2) High |
| _____ (3) Average   | _____ (4) Low  |
| _____ (5) Very low  |                |

b. Your Supervisors

i. Who is your immediate supervisor?

\_\_\_\_\_

ii. How well do you cooperate with your immediate supervisor?

- \_\_\_\_\_ (1) A great deal
- \_\_\_\_\_ (2) Good
- \_\_\_\_\_ (3) Average
- \_\_\_\_\_ (4) Comparatively little
- \_\_\_\_\_ (5) Not at all

iii. How much recognition does your immediate supervisor give to your work achievements?

- \_\_\_\_\_ (1) A great deal
- \_\_\_\_\_ (2) High
- \_\_\_\_\_ (3) Average
- \_\_\_\_\_ (4) Little
- \_\_\_\_\_ (5) None at all

iv. In this scheme suppose there were two types of superiors, which type would you prefer to work under?

- \_\_\_\_\_ (1) A man who always sticks to the work rules and never demands any unreasonable work, but on the other hand never does anything for you personally in matters not connected with work.
- \_\_\_\_\_ (2) A man who sometimes demands extra work in spite of rules against it, but on the other hand looks after you personally in matters not connected with work.

v. Which of the following statements best describes, in general terms, your immediate supervisor?

- \_\_\_\_\_ (1) He or she makes decisions on the basis of his/her own judgement, clearly explains the task to be done, and asks his/her subordinates to do their jobs without any complaints.
- \_\_\_\_\_ (2) He or she makes decisions on the basis of his/her judgement. However, he/she tries to get the approval of his/her subordinates prior to putting these decisions into practice. In general, he or she believes it is better to implement decisions after explaining them to his/her subordinates' satisfaction, as opposed to ordering them to do something.
- \_\_\_\_\_ (3) Before making decisions, he or she will discuss the matter with subordinates and will make the decision only after listening to and scrutinizing the opinions of subordinates.
- \_\_\_\_\_ (4) Whenever it is necessary to make a decision, he or she will hold a meeting to discuss the matter with subordinates and will follow the opinion of the majority even if it conflicts with his/her own judgement.



c. Your Job

Considering reasons for working diligently, probably everyone has a different reason. Which one of the following job-related items is the most important reason for you.

<u>Code</u>	<u>Item</u>
1	The job is for the good of the society
2	The job is worthwhile
3	The job has variety
4	The job enables communication with various kinds of people
5	The job fulfills a need for responsibility
6	The job raises my status or social reputation
7	The job provides opportunity for promotion
8	The job provides money for living
9	The job offers good salary and bonuses
10	Others (please specify) _____

<input type="checkbox"/>	Most important
<input type="checkbox"/>	Which would you rate second?
<input type="checkbox"/>	Third?

d. Your Performance

Are you anxious to fulfill each day's target goal fixed by your superior/organization?

- \_\_\_\_\_ (1) Very anxious
- \_\_\_\_\_ (2) Anxious
- \_\_\_\_\_ (3) Average
- \_\_\_\_\_ (4) Not very anxious
- \_\_\_\_\_ (5) Not anxious at all

e. Work Schedule

How many hours per week do you spend on the following activities?  
(whichever is relevant)

Scheme administration	_____	hours
Family planning service/health	_____	hours
Family planning motivation and follow-up	_____	hours
Agricultural extension services	_____	hours
Home economics classes	_____	hours
Youth club activities	_____	hours
Women's association activities (Gerakan Persatuan Wanita)	_____	hours
Scheme Development Committee (JKKR) activities	_____	hours
Further education classes	_____	hours
Kindergarten activities	_____	hours
Others (specify _____)	_____	hours
Others (specify _____)	_____	hours

f. Your Clientele

Answer the following questions using code:

- |                       |            |
|-----------------------|------------|
| 1 - To a great extent | 2 - High   |
| 3 - Average           | 4 - Little |
| 5 - Not at all        |            |

- |  |                          |
|--|--------------------------|
| i. Do you feel the local people around here are receptive to new ideas?                            | <input type="checkbox"/> |
| ii. Do you feel that the local people around here are quite kind and polite?                       | <input type="checkbox"/> |
| iii. Do you feel that the local people around here are supportive of the activities of the scheme? | <input type="checkbox"/> |
| iv. Do you think your scheme gives a great deal of help to those who need it?                      | <input type="checkbox"/> |

g. General Satisfaction

i. To what extent are you satisfied:

- (Use code: 1 - Very satisfied  
2 - Satisfied  
3 - Average  
4 - Not very satisfied  
5 - Not satisfied at all)

- \_\_\_\_\_ (a) With your job?  
\_\_\_\_\_ (b) With your pay?  
\_\_\_\_\_ (c) With your supervisors in general?  
\_\_\_\_\_ (d) With your fringe benefits?  
\_\_\_\_\_ (e) With the organization's promotion system?  
\_\_\_\_\_ (f) With your working hours?  
\_\_\_\_\_ (g) With the way your performance is evaluated?  
\_\_\_\_\_ (h) With your supervisors from the Regional and  
Head Office?

ii. How would you rate your overall satisfaction with this scheme at the present time?

- \_\_\_\_\_ (1) Very satisfied  
\_\_\_\_\_ (2) Satisfied  
\_\_\_\_\_ (3) Average  
\_\_\_\_\_ (4) Not very satisfied  
\_\_\_\_\_ (5) Not satisfied at all

C.

OTHER QUESTIONS

a. Ever practised family planning?

\_\_\_\_\_ (1) Yes \_\_\_\_\_ (2) No

b. Currently practising family planning?

\_\_\_\_\_ (1) Yes \_\_\_\_\_ (2) No

If yes, state current method used:

---

---

D.

SERVICE OUTLET FACILITIES

1. Where do you carry out your duties for the provision of your services? (e.g. Felda office, JKKR Office, Clinic, Community Hall, etc.)

---

2. Approximate floor space \_\_\_\_\_ sq. ft.

3. How long has this outlet been providing services?

Since \_\_\_\_\_ years ( \_\_\_\_\_ months)

Question 4 to be answered by Manager only

4. Staff position:	<u>Manager</u>	<u>Assistant Manager</u>	<u>SDA (W)</u>	<u>SDA (religious)</u>	<u>Staff Supervisor</u>	<u>Clerk</u>	<u>Typist</u>	<u>Others (specify)</u>
i. No. allocated	_____	_____	_____	_____	_____	_____	_____	_____
ii. No. present	_____	_____	_____	_____	_____	_____	_____	_____
iii. No. resigned during last 6 months*	_____	_____	_____	_____	_____	_____	_____	_____
iv. Average tenure in Felda	_____	_____	_____	_____	_____	_____	_____	_____

\*Reasons for leaving:

---



---



---



---

Equipment	<u>Available</u>	<u>Not available</u>
5. Tables and chairs	_____	_____
6. Black board	_____	_____
7. Sporting equipment	_____	_____
8. Kindergarten teaching equipment (e.g. record player, etc.)	_____	_____
9. Cooking equipment (e.g. kettle, pots & pans, etc.)	_____	_____
10. FP private exam. facility	_____	_____
11. Others (e.g. typewriter, calculator, etc.)	_____	_____

E. INTERAGENCY LINKAGE:

	Frequency How often do you contact the person on Agricultural Extension matters per month (PM)?			Frequency How often do you contact the person on FP/Health matters per month (PM)?			Frequency How often do you contact the person on Community/Social Development matters per month (PM)?			Frequency How often do you contact the person on Administration/Finance/Leadership matters per month (PM)?			Adequacy of Information How adequate is the information you usually get from the person? Use Code A	Cooperation and Assistance How do you feel about cooperation and assistance between you and the person? Use Code B
	Letters	Phone	In Person	Letters	Phone	In Person	Letters	Phone	In Person	Letters	Phone	In Person		
Outside Scheme	Felda Hq./Regional Office													
	State Education Office													
	MOH Hq./State Office													
	District Office Staff													
	Village Action Committee													
	Local Agri. Officer													
	Local Welfare Office													
	Local NFPB Clinic													
	Local MOH Clinic													
	Local Police													
In Scheme	Political Organization													
	Local Rel. Organization													
	Scheme Manager													
	JKKR													
	Imam													
	Women's Club													
	Youth Club													
	Kindergarten Teacher													
	Midwife/Rural Nurse													
	Head, Block Committee													
Headmaster/School Teacher														
SDA (woman)														
Phase Supervisor														
Others (specify)														

Code A  
 1 - Very inadequate  
 2 - Inadequate  
 3 - Adequate  
 4 - Very adequate  
 5 - Don't know

Code B  
 1 - Very cooperative  
 2 - Cooperative  
 3 - Not cooperative  
 4 - Not cooperative at all

F. ORGANIZATIONAL VARIABLES

a. Goals

What are the major activities and goals your service outlet is designed to achieve?

---

---

---

---

b. Resources

For the following questions answer with the code:

- 1 - Far too little
- 2 - Too little
- 3 - Adequate
- 4 - More than adequate
- 5 - Much more than adequate
- 6 - No staff in this category but require them
- 7 - No staff in this category but do not require them

i. Do you feel you have sufficient staff in the following categories to do the work expected of the service outlet?

- \_\_\_\_\_ (a) Professional (e.g. doctors, managers)
- \_\_\_\_\_ (b) Semi-professional (e.g. nurses, HAS, comm. workers)
- \_\_\_\_\_ (c) Skilled (e.g. midwives, trained assistant nurses)
- \_\_\_\_\_ (d) Clerical
- \_\_\_\_\_ (e) Unskilled (e.g. labourers)

ii. Are there sufficient funds for you to do the work that is expected of you?

- \_\_\_\_\_ (a) For overtime
- \_\_\_\_\_ (b) For travel
- \_\_\_\_\_ (c) For other items



iii. Are there any items/equipment/medicine in short supply in your service outlet?

	<u>Name of Item</u>	<u>Degree of shortage</u> (use code)
(a)	_____	_____
(b)	_____	_____
(c)	_____	_____
(d)	_____	_____

iv. Are your building facilities and utilities (e.g. electricity, water, etc.) adequate for you to do the work expected of you?

\_\_\_\_\_ (1) Yes                      \_\_\_\_\_ (2) No

d. Evaluation

i. In terms of coverage among the people in your area how do you think your service outlet is performing?

For agricultural extension activity

\_\_\_\_\_ (1) Very good                      \_\_\_\_\_ (2) Good  
 \_\_\_\_\_ (3) Adequate                      \_\_\_\_\_ (4) Inadequate  
 \_\_\_\_\_ (5) Very inadequate

For community/social development activities

\_\_\_\_\_ (1) Very good                      \_\_\_\_\_ (2) Good  
 \_\_\_\_\_ (3) Adequate                      \_\_\_\_\_ (4) Inadequate  
 \_\_\_\_\_ (5) Very inadequate

For family planning/health

\_\_\_\_\_ (1) Very good                      \_\_\_\_\_ (2) Good  
 \_\_\_\_\_ (3) Adequate                      \_\_\_\_\_ (4) Inadequate  
 \_\_\_\_\_ (5) Very inadequate

For economic activities (animal husbandry, Green Book, small-scale businesses, etc.)

\_\_\_\_\_ (1) Very good                      \_\_\_\_\_ (2) Good  
 \_\_\_\_\_ (3) Adequate                      \_\_\_\_\_ (4) Inadequate  
 \_\_\_\_\_ (5) Very inadequate

ii. How is your service outlet's performance during 1981 compared to that during 1980?

For agricultural extension activity

_____ (1) Much better	_____ (2) Better
_____ (3) Same	_____ (4) Worse off
_____ (5) Much worse off	

For community/social development activities

_____ (1) Much better	_____ (2) Better
_____ (3) Same	_____ (4) Worse off
_____ (5) Much worse off	

For family planning/health

_____ (1) Much better	_____ (2) Better
_____ (3) Same	_____ (4) Worse off
_____ (5) Much worse off	

For economic activities (animal husbandry, Green Book, small-scale businesses, etc.)

_____ (1) Much better	_____ (2) Better
_____ (3) Same	_____ (4) Worse off
_____ (5) Much worse off	

G.

INVOLVEMENT OF LOCAL PEOPLE

a. Please rank the following problems by their degree of seriousness:

- 1 - Very serious
- 2 - Serious
- 3 - Not serious
- 4 - Not a problem at all

- \_\_\_\_\_ (a) Low agricultural productivity/development
- \_\_\_\_\_ (b) Low educational level
- \_\_\_\_\_ (c) Unemployment
- \_\_\_\_\_ (d) Large families, high fertility
- \_\_\_\_\_ (e) Poor health or nutrition
- \_\_\_\_\_ (f) High infant mortality rate
- \_\_\_\_\_ (g) Lack of basic utilities (e.g. water, electricity, etc.)

b. What means exist in this area for the people to express what they want and desire out of the services provided by the government?

---

---

---

c. How vocal are the settlers in bringing up their problems to your attention?

- \_\_\_\_\_ very vocal
- \_\_\_\_\_ vocal
- \_\_\_\_\_ average
- \_\_\_\_\_ do not reveal their problems at all

d. How frequent (i.e. times per month) do you have settlers coming to see you about their problems?

---

---

---

APPENDIX II

QUESTIONNAIRE FOR SETTLERS IN FELDA SCHEME ONLY

DEMOGRAPHIC AND SOCIO-ECONOMIC IMPACTS OF  
INTEGRATING FAMILY DEVELOPMENT WITH COMMUNITY  
DEVELOPMENT IN NEW LAND SETTLEMENTS IN MALAYSIA

Interviewer: \_\_\_\_\_

Date of Interview: \_\_\_\_\_ Started \_\_\_\_\_ am \_\_\_\_\_ pm

Completed \_\_\_\_\_ am \_\_\_\_\_ pm

Name of Respondent: \_\_\_\_\_

Address: Scheme \_\_\_\_\_ Phase \_\_\_\_\_

District \_\_\_\_\_  State \_\_\_\_\_

Year of Entry into Scheme \_\_\_\_\_

Principal Crop of Scheme \_\_\_\_\_

Year Production Started (rubber) \_\_\_\_\_

Year Block System Started (oil palm) \_\_\_\_\_

Sample No.	
------------	--

SECTION A: HOUSEHOLD SCHEDULE (INCLUDING THOSE LIVING AWAY FROM HOME) AND BASIC DEMOGRAPHIC VARIABLES

No. of Household Members	Name of Household Member (start with the Head of Household)	Relationship with the Head of Household (e.g. wife, son, brother) <sup>a</sup>	Race <sup>b</sup>	Sex <sup>c</sup>	Date of Birth		Age on Last Birthday	Education (For those 4 years and above)			Employment Status (for those 10 years and above) <sup>f</sup>	Marital Status for those aged 15 and over <sup>g</sup>	Fertility for All Ever Married Women (15-49 years)					
					Month	Year		Has he/she ever been to school or kindergarten? <sup>d</sup>	For those currently in school/ kindergarten, state the standard/form he/she is in. (e.g. kindergarten, Std. 2, Form 3, etc.)	What is the highest certificate he/she obtained? <sup>e</sup>			No. of children currently staying at home		No. of children living elsewhere		No. of live births	No. of live births but died
													Male	Female	Male	Female		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

A19

Code: a : Head of Household - 1      b : Malay - 1      c : Male - 1      d : Never - 0      e : Standard 6 - 0      f : Not applicable - 0      g : Unmarried - 1  
 Wife - 2      Chinese - 2      Female - 2      Attended school but not kindergarten - 1      LCE - 1      Employer - 1      Married - 2  
 Parents - 3      Indian - 3      Attended school and kindergarten - 2      MCE - 2      Employee - 2      Separated - 3  
 Children - 4      Others - 4      University - 4      HSC - 3      Own farm worker - 3      Divorced - 4  
 Relatives - 5      Vocational - 5      Religious - 6      Unpaid family worker - 4      Widow - 5  
 Friends - 6      No certificate - 7      Not applicable - 8      Others - 9

SECTION B: WIFE'S OCCUPATION

B.1 Apart from housework, are you working now, for example in a shop, helping your husband in the field, or elsewhere?

Yes   
(Go to B.8)

No

B.2 Have you ever worked before?

Yes

No   
(Go to B.5)

B.3 In what year did you stop working?

Year \_\_\_\_\_

B.4 Why did you stop working?

Not interested

Husband does not agree

To look after children

Was terminated

Others (specify) \_\_\_\_\_

B.5 Would you like to work?

Yes

No   
(Go to B.7)

B.6 Why would you like to work?

Finance - family

Finance - self

Children are grown up

Trained/Skilled

Free time is boring

Others (specify) \_\_\_\_\_  
(Go to B.13)

B.7 Why not?

Not interested

Do not need extra income

Children are still young

No suitable work

No skill

Others (specify) \_\_\_\_\_  
(Go to B.13)


B.8 Why do you work?

Finance - family

Finance - self

Children are grown up

Trained/skilled

Free time is boring

Others (specify) \_\_\_\_\_


B.9 If respondent works, state and ask the following questions for each job:

Type of work done (state occupation)	Where do you work? (state place of work)	No. of hours spent on work per day	For how long have you worked in this occupation?	If outside home	
				How far is work place from home?	How do you commute to work place?
1.					
2.					
3.					
4.					

B.10 What major family problems do you encounter while working, for example, in the shop, in the field or in other places?

Nobody to look after the children

Not able to give full attention to husband

No problems

Others (specify) \_\_\_\_\_


B.11 To what extent has your work affected your family in the following matters?

	Better	Good	Same	Bad	Worse
1. Children's education					
2. Children's behaviour					
3. Expenditure:					
On essentials					
On luxuries					
4. Savings					
5. Attention towards husband/children					

B.12 To what extent has your work affected the number of children that you want?

More children

Same

Less children


B.13 Does your husband engage in other forms of income generating activities (e.g. carpentry, hair-dressing, business, etc.) apart from his work in the fields?

Yes

No   
(Go to B.15)



B.14 If Yes, explain the type of work done:

---

---

B.15 Estimated monthly income (based on previous month's income)

Household Member	\$
1. Income from Felda field	
2. Husband: Income from additional work in Felda scheme	
Income from additional work outside Felda scheme	
3. Wife: Income from additional work in Felda scheme	
Income from additional work outside Felda scheme	
4. Children's contribution	
5. Others (e.g. pension, rent, etc.)	
Total	

(From Felda Office Records)

Gross Income of Settler: \_\_\_\_\_ per month

Net Income of Settler: \_\_\_\_\_ per month

B.16 Estimated monthly expenditure (based on previous month's expenditure)

Expenditure	\$
1. Food and drinks	
2. Tobacco/cigarettes	
3. Clothing	
4. Medical expenses	
5. Water, fuel and electricity	
6. Transport	
7. Education	
8. Entertainment	
9. Cultural and religious	
10. Others	
Total	

B.17 Do you have any of the following in this house:

Item	Yes (specify no. of items owned)	No
a. Television		
b. Gas burner		
c. Rice cooker		
d. Electric fan		
e. Refrigerator		
f. Washing machine		
g. Motor car		
h. Motor cycle		
i. Bicycle		
j. Sewing machine		
k. Iron		
l. Radio transistor		
m. Camera		
n. Newspapers (last week)		
o. Magazines (last month)		

Presently, I would like to obtain your opinion regarding matters on family life.

B.18 Is it alright for a mother to be active in associations and other outside activities before the children matures?

Agree strongly

Agree

Indifferent

Do not totally agree

Do not agree at all


B.19 Is it alright for a mother to leave her children with others so that she can earn extra income for the family?

Agree strongly

Agree

Indifferent

Do not totally agree

Do not agree at all


B.20 Fathers should assist in child-rearing.

Agree strongly

Agree

Indifferent

Do not totally agree

Do not agree at all


B.21 Mothers should work only if absolutely necessary financially; otherwise their role is to take care of the children at home.

Agree strongly

Agree

Indifferent

Do not totally agree

Do not agree at all


B.22 What are your feelings towards household chores like cooking and cleaning?

Like all of them

Like most of them

Like a few

Do not like at all


SECTION C: CHILDREN'S UP-BRINGING

C.1 Interviewer: List the names and ages of all children under 13 years (last birthday at 12 years) from the household schedule. Ask the following questions for each child.

Name of Child	Age	Height	Weight	Who normally takes care of him/her?	Where is child looked after? (Name place, town)	How much do you pay for this? (per day/per month)	Are you satisfied with arrangement?	
							Yes	No
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

C.2 Before you entered this scheme, who looked after your child(-ren)?

Own self

(Go to C.4)

Elder children

Relatives

Neighbours

Others (specify) \_\_\_\_\_

C.3 Does this arrangement allow you the opportunity to work?

Yes

No

C.4 Do you feel that shifting to Felda has given you the opportunity to work?

Yes

No   
(Go to C.6)

C.5 If Yes, why?

---

---

(Go to C.7)

C.6 If No, why not?

---

---

---

C.7 For respondents with children between 6 and 19 years:

Name of Child	Age	How far is school from home? Miles/Time	How does he/she go to school?	Does he/she attend tuition classes?	If Yes,		Did he/she attend kindergarten when of kindergarten age?	Results of all major examinations or position in class (Std. 5, LCE, MCE, HSC, etc.)
					Where?	How much do you pay for this?		
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								

C.8 Did any of your children stop school before reaching Form III?

Yes

No   
(Go to C.11)

C.9 Why?

To take care of younger brothers  
and sisters


Financial reasons

No interest

Others (specify) \_\_\_\_\_

C.10 List them

Name	Present Age	Age when stopped schooling
1.		
2.		
3.		
4.		
5.		
6.		
7.		

C.11 How much time did you spent with your children yesterday?

Feeding \_\_\_\_\_ mins.

Teaching \_\_\_\_\_ mins.

Bathing \_\_\_\_\_ mins.

Playing \_\_\_\_\_ mins.

Others (specify) \_\_\_\_\_ mins.



SECTION D: MARRIAGE PROFILE

D.1 In what month and year did you and your husband marry?

\_\_\_\_\_ , 19\_\_\_\_  
 month year

D.2 Have you been married more than once?

Yes  No   
 (Go to D.4)

D.3 How many times have you been married?

\_\_\_\_\_ times  
 (Go to D.4)

D.4

Marriage Order	In what month and year did your (first, second ...) marriage begin?	How did the marriage end?	In what month and year did you stop living together?	In what month and year did he die?	How many live births do you have from this marriage?		
					S	D	T
i.	Mth _____ Yr _____	Death <input type="checkbox"/> Divorce/ Separation <input type="checkbox"/>	Mth _____ Yr _____	Mth _____ Yr _____			
ii.	Mth _____ Yr _____	Death <input type="checkbox"/> Divorce/ Separation <input type="checkbox"/>	Mth _____ Yr _____	Mth _____ Yr _____			
iii.	Mth _____ Yr _____	Death <input type="checkbox"/> Divorce/ Separation <input type="checkbox"/>	Mth _____ Yr _____	Mth _____ Yr _____			
iv.	Mth _____ Yr _____	Death <input type="checkbox"/> Divorce/ Separation <input type="checkbox"/>	Mth _____ Yr _____	Mth _____ Yr _____			
v.	Mth _____ Yr _____	Death <input type="checkbox"/> Divorce/ Separation <input type="checkbox"/>	Mth _____ Yr _____	Mth _____ Yr _____			

SECTION E: PREGNANCY HISTORY

E.1 Some pregnancies end in a miscarriage or a still birth.  
Did you ever have any pregnancy that did not result in a live birth?

Yes

No   
(Go to E.3)

E.2 How many such pregnancies have you experienced?

\_\_\_\_\_

E.3 Some women have something done, either through a doctor, a midwife or in some other way to end a pregnancy that they did not want. Has this been the case with you?

Yes

No   
(Go to E.5)

E.4 On how many occasions?

\_\_\_\_\_

E.5 Are you pregnant now?

Yes

No   
(Go to Section F)

E.6 How many months have you been pregnant now?

\_\_\_\_\_ months

E.7 Before this pregnancy, had you any plans for another child sometime in the future?

Yes

Indifferent

No

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

SECTION F: ATTITUDE AND FAMILY PLANNING PRACTICE

I. Attitude towards Family Size and Family Planning

F.1 Would you like to have any (more) children?

Yes

No

(Go to F.3)

Don't know

(Go to F.3)

F.2 How many (more) children would you like to have?

\_\_\_\_\_

F.3 If you were just married and could have just the number of children that you want, how many children would you want to have by the time you reach 50 years old?

Number of boys

\_\_\_\_\_

Number of girls

\_\_\_\_\_

No answer

\_\_\_\_\_

F.4 Many couples do something to delay or prevent a pregnancy so that they can have just the number of children they want. How do you feel about this? Do you approve or disapprove?

Approve strongly

Approve

Indifferent

Do not totally approve

Do not approve at all

F.5 If do not approve, why?

\_\_\_\_\_  
\_\_\_\_\_

F.6 Does the community here approve of family planning?

Approve strongly  
Approve  
Indifferent  
Do not totally approve  
Do not approve at all


F.7 If do not approve, why?

---

---

II. Family Planning Practice

F.8 Have you ever used anything or tried any method to delay or avoid getting pregnant?

Yes

No   
(Go to F.17)

F.9 What method was that?

---

F.10 Are you currently practising any method?

Yes

No   
(Go to F.14)

F.11 State method

---

F.12 Are you also currently practising any other method?

Yes

No   
(Go to F.16)

F.13 State method used

---

(Go to F.16)

F.14 Why did you stop using this method?

Would like to have a child

Afraid of side-effects

Religious reasons

Others (specify) \_\_\_\_\_


F.15 When did you stop using this method?

---

F.16 Where do you obtain your supplies?

State Place	Location

F.17 Why is it that you never used any method to delay or avoid getting pregnant?

Would like to have children

Do not believe in family planning

Afraid of side-effects

Religious reasons

Never heard about family planning practices


SECTION G: USAGE OF MATERNAL AND CHILD HEALTH CLINIC SERVICES

G.1 Date of last live birth

\_\_\_\_\_, 19\_\_\_\_  
month                      year

G.2 Sex of last live birth

\_\_\_\_\_

G.3 Live birth was delivered

at: Own home


by: rural nurse/

government midwife


Government hospital

government nurse

Private maternity  
hospital

private midwife/nurse

Own village

private doctor

Others (specify)

Others (specify)

\_\_\_\_\_

\_\_\_\_\_

G.4 Is this child still alive?

Yes   
(Go to G.7)

No

G.5 Age when child died

\_\_\_\_\_ year                      \_\_\_\_\_ month

G.6 Cause of death

\_\_\_\_\_  
\_\_\_\_\_

G.7 Was any medical checkup done when pregnant with this child?

Yes

No   
(Go to G.9)

G.8 Where was checkup done and how many times?

MCH clinic	<input type="checkbox"/>	_____ times/month
Rural clinic	<input type="checkbox"/>	_____ times/month
Private clinic	<input type="checkbox"/>	_____ times/month
Others (specify) _____		_____ times/month

G.9 Was any medical checkup done after the child was delivered?

Yes  No   
(Go to G.11)

G.10 Where was checkup done and how long after delivery?

MCH clinic	<input type="checkbox"/>	_____ weeks after delivery
		_____ weeks after delivery
		_____ weeks after delivery
Rural clinic	<input type="checkbox"/>	_____ weeks after delivery
		_____ weeks after delivery
		_____ weeks after delivery
Private clinic	<input type="checkbox"/>	_____ weeks after delivery
		_____ weeks after delivery
		_____ weeks after delivery
Others (specify) _____	<input type="checkbox"/>	_____ weeks after delivery
_____		_____ weeks after delivery
		_____ weeks after delivery

G.11 How long did you observe the confinement period?

\_\_\_\_\_ days

G.12 Was the youngest child breastfed?

Yes  No   
(Go to G.16)

G.13 Up to what age were your children breastfed?

Number of Births	Age stopped breastfeeding	Currently breastfeeding
	yrs. mths.	
	yrs. mths.	
	yrs. mths.	
	yrs. mths.	
	yrs. mths.	
	yrs. mths.	
	yrs. mths.	

G.14 Did you continue to breastfeed the child for some time along with other food?

Yes  No

G.15 For how long was the child breastfed for at least once a day before it was stopped altogether

\_\_\_\_\_ months      Currently breastfeeding at least once a day

G.16 When you or your family falls sick, where do you obtain treatment?

Rural clinic in scheme	<input type="checkbox"/>
Government clinic outside scheme	<input type="checkbox"/>
Government hospital outside scheme	<input type="checkbox"/>
Private clinic outside scheme	<input type="checkbox"/>
Private hospital outside scheme	<input type="checkbox"/>
Village midwife	<input type="checkbox"/>
Bomoh/dukun	<input type="checkbox"/>
Others (specify) _____	



G.17 Have you or your family ever visited the rural clinic in the scheme?

Yes

No

(Go to G.19)

G.18 Reasons for visiting the rural clinic in the scheme?

Pregnancy

Family planning

Injection for children

Sickness: Self

Children

Husband

G.19 Why not?

---

---

SECTION H: PARTICIPATION IN COMMUNITY ACTIVITIES BY HOUSEWIFE

H.1 Have you ever been a member of any bodies/groups/clubs or associations in the scheme?

Yes

No   
(Go to H.3)

H.2 Complete the table below:

Name of Club/ Association	Currently Member	Position Held	How often did you attend meetings in the last 3 months? (0,1,2,3,4,5)	From Scheme Office: frequency activities are carried out (0,1,2,3,4,5)
Scheme Planning and Development Committee/Block Committee				
Women's Association				
Youth Movement				
Kindergarten Committee				
Scheme Cooperative				
Ad Hoc Health Committee				
Scheme Business Committee				
Others _____ Others _____				

(For others e.g. P.T.B.G., rubber collection committee, green book project committee)

Code: 0 - never  
1 - once in 2 to 3 months  
2 - monthly  
3 - fortnightly  
4 - weekly  
5 - more than once a week

H.3 What discussions are usually undertaken in the activities of these organizations?

Topics	Response		If Yes,			
	Yes	No	Do you have confidence in the opinions expressed by the _____?	Do you find you can discuss very easily with the _____ regarding this topic?	Do you feel that the discussion has led to a better understanding of your problems?	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem?
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
<u>Scheme Planning and Development Committee/Block Committee</u>						
On agricultural and marketing of output methods	W					
	H					
On participation in home economics activities and classes	W					
	H					
On health status and utilization of clinic	W					
	H					
On family planning practices and utilization of clinic	W					
	H					
<u>Women's Club</u>						
On home economics activities and the availability of general economic opportunities	W					
	H					
On general social problems in the scheme	W					
	H					
On educational progress and child-rearing practices of children	W					
	H					
On health status and utilization of clinic	W					
	H					
On family planning practices and utilization of clinic	W					
	H					
<u>Youth Movement</u>						
On general social problems faced by youths in the scheme	W					
	H					
On organization of sports activities	W					
	H					
On health problems and utilization of the MCH clinic	W					
	H					
On family planning and utilization of clinic	W					
	H					
<u>Kindergarten Committee</u>						
On educational progress of children	W					
	H					
On health problems and the utilization of the MCH clinic	W					
	H					
On family planning and utilization of clinic	W					
	H					
<u>Scheme Cooperative</u>						
On schedule and marketing of production	W					
	H					
On the availability of economic opportunities elsewhere	W					
	H					
On general socio-economic problems faced by the scheme	W					
	H					

Topics	Response		IF Yes,			
	Yes	No	Do you have confidence in the opinions expressed by the _____?	Do you find you can discuss very easily with the _____ regarding this topic?	Do you feel that the discussion has led to a better understanding of your problem?	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem?
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
<u>Business Committee</u>						
On entrepreneurial development	W					
	H					
On marketing methods for production	W					
	H					
<u>Ad Hoc Health Committee</u>						
On family planning practice	W					
	H					
On general health situation and the utilization of the clinic	W					
	H					
On welfare/recreational projects for the children and community	W					
	H					

- |                          |                              |                          |                        |
|--------------------------|------------------------------|--------------------------|------------------------|
| 1 - No confidence at all | 1 - Cannot discuss at all    | 1 - No change at all     | 1 - No response at all |
| 2 - Little confidence    | 2 - Cannot discuss very well | 1 - Little understanding | 2 - Little response    |
| 3 - Confident            | 3 - Can discuss              | 3 - Better understanding | 3 - Better response    |
| 4 - Full confidence      | 4 - Can discuss very well    | 4 - Full understanding   | 4 - Full response      |

H.4 Interaction between settlers and local community leaders

Felda Scheme Manager

How often do you meet the Felda Scheme Manager in a formal or informal setting?

	W	H
More than once a week		
Weekly		
Fortnightly		
Monthly		
Once in 2 to 3 months		
Never/Never heard of such person		

When you meet the Felda Scheme Manager, what topics do you discuss?

Topics	Response		If Yes,			
	Yes	No	Do you have confidence in the opinions expressed by him/her? 1 2 3 4	Do you find you can discuss very easily with him/her on this topic? 1 2 3 4	Do you feel that the discussion with him/her on this topic has led to a better understanding of the problem on your part? 1 2 3 4	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem? 1 2 3 4
Family Planning/ Health	W					
	H					
Agriculture	W					
	H					
Community/Social Development	W					
	H					
Administrative/ Leadership/Finance	W					
	H					
Others (specify)	W					
	H					

- |                          |                              |                          |                        |
|--------------------------|------------------------------|--------------------------|------------------------|
| 1 - No confidence at all | 1 - Cannot discuss at all    | 1 - No change at all     | 1 - No response at all |
| 2 - Little confidence    | 2 - Cannot discuss very well | 2 - Little understanding | 2 - Little response    |
| 3 - Confident            | 3 - Can discuss              | 3 - Better understanding | 3 - Better response    |
| 4 - Full confidence      | 4 - Can discuss very well    | 4 - Full understanding   | 4 - Full response      |

Felda Assistant Scheme Manager

How often do you meet the Felda Assistant Scheme Manager in a formal or informal setting?

	W	H
More than once a week		
Weekly		
Fortnightly		
Monthly		
Once in 2 to 3 months		
Never/Never heard of such person		

When you meet the Felda Assistant Scheme Manager, what topics do you discuss?

Topics	Response		If Yes,			
	Yes	No	Do you have confidence in the opinions expressed by him/her? 1 2 3 4	Do you find you can discuss very easily with him/her on this topic? 1 2 3 4	Do you feel that the discussion with him/her on this topic has led to a better understanding of the problem on your part? 1 2 3 4	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem? 1 2 3 4
Family Planning/ Health	W					
	H					
Agriculture	W					
	H					
Community/Social Development	W					
	H					
Administrative/ Leadership/Finance	W					
	H					
Others (specify)	W					
	H					

- |                          |                              |                          |                        |
|--------------------------|------------------------------|--------------------------|------------------------|
| 1 - No confidence at all | 1 - Cannot discuss at all    | 1 - No change at all     | 1 - No response at all |
| 2 - Little confidence    | 2 - Cannot discuss very well | 2 - Little understanding | 2 - Little response    |
| 3 - Confident            | 3 - Can discuss              | 3 - Better understanding | 3 - Better response    |
| 4 - Full confidence      | 4 - Can discuss very well    | 4 - Full understanding   | 4 - Full response      |

Vice-Chairman, Scheme Planning and Development Committee

How often do you meet the Vice Chairman of the SPDC in a formal or informal setting?

	W	H
More than once a week		
Weekly		
Fortnightly		
Monthly		
Once in 2 to 3 months		
Never/Never heard of such person		

When you meet the Vice-Chairman of the SPDC, what topics do you discuss?

Topics	Response		If Yes,			
	Yes	No	Do you have confidence in the opinions expressed by him/her?	Do you find you can discuss very easily with him/her on this topic?	Do you feel that the discussion with him/her on this topic has led to a better understanding of the problem on your part?	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem?
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Family Planning/ Health	W					
	H					
Agriculture	W					
	H					
Community/Social Development	W					
	H					
Administrative/ Leadership/Finance	W					
	H					
Others (specify)	W					
	H					

- |                          |                              |                          |                        |
|--------------------------|------------------------------|--------------------------|------------------------|
| 1 - No confidence at all | 1 - Cannot discuss at all    | 1 - No change at all     | 1 - No response at all |
| 2 - Little confidence    | 2 - Cannot discuss very well | 2 - Little understanding | 2 - Little response    |
| 3 - Confident            | 3 - Can discuss              | 3 - Better understanding | 3 - Better response    |
| 4 - Full confidence      | 4 - Can discuss very well    | 4 - Full understanding   | 4 - Full response      |

Chairman, Women's Club

How often do you meet the Chairman of the Women's Club in a formal or informal setting?

	W	H
More than once a week		
Weekly		
Fortnightly		
Monthly		
Once in 2 to 3 months		
Never/Never heard of such person		

When you meet the Chairman of the Women's Club, what topics do you discuss?

Topics	Response		If Yes,			
	Yes	No	Do you have confidence in the opinions expressed by him/her?	Do you find you can discuss very easily with him/her on this topic?	Do you feel that the discussion with him/her on this topic has led to a better understanding of the problem on your part?	Do you feel that as a result of the discussion, you have taken positive steps to rectify the problem?
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Family Planning/ Health	W					
	H					
Agriculture	W					
	H					
Community/Social Development	W					
	H					
Administrative/ Leadership/Finance	W					
	H					
Others (specify)	W					
	H					

- |                          |                              |                          |                        |
|--------------------------|------------------------------|--------------------------|------------------------|
| 1 - No confidence at all | 1 - Cannot discuss at all    | 1 - No change at all     | 1 - No response at all |
| 2 - Little confidence    | 2 - Cannot discuss very well | 2 - Little understanding | 2 - Little response    |
| 3 - Confident            | 3 - Can discuss              | 3 - Better understanding | 3 - Better response    |
| 4 - Full confidence      | 4 - Can discuss very well    | 4 - Full understanding   | 4 - Full response      |



## REFERENCES

1. Alladin Hashim, "Development and Planned Population Distribution - Some Aspects on the Role of the Federal Land Development Authority (FELDA)", Paper presented at the UNFPA/NUPRI International Seminar on Planned Population Distribution for Development: Hokkaido Experience, Sapporo, Japan, 1980.
2. Alladin Hashim, "Land Development under Felda: Some Socio-economic Aspects", Conference on Rural Development in South-east Asia, Kuala Lumpur, January 1975.
3. Bhatia, Shushum, et. al., "The Matlab Family Planning/Health Services Project", Studies in Family Planning, Vol. 11, No. 6, June 1980.
4. Bongaarts, John, "Relation between Foetal-infant Mortality and Fertility", Proceedings of the World Population Conference, Belgrade, 1965, New York, United Nations, 1967.
5. Castadot, Robert, G., et. al., "The International Postpartum Family Planning Program: Eight Years of Experience", Reports on Population/Family Planning, No. 18, November 1975.
6. Chander, R., General Report: 1970 Population Census of Malaysia, Vol. 1, Department of Statistics, Malaysia, 1977.
7. Cross River State, Ministry of Health, The Calabar Rural Maternal and Child Health Family Planning Project 1975-1980, Final Report, Calabar, Nigeria, 1981.
8. ESCAP, "Activating Inter-Related Links in Population, Food and Nutrition Programmes: Theory and Practice", Population Research Leads, No. 7, ESCAP, Bangkok, September 1980.
9. FELDA, Annual Report 1981, Kuala Lumpur, 1981.
10. Fisek, Nusret, H., "An Integrated Health/Family Planning Program in Estimesgut District, Turkey", Studies in Family Planning, Vol. 5, 1974, pp. 216-220.
11. Fong Chan Onn, "A Model for Analysis of the Malaysian Family Planning Programme" to appear in European Journal of Operational Research, 1982.
12. Fong Chan Onn, Organizational Determinants of Integrated Family Planning Program in Peninsular Malaysia, ESCAP, Bangkok, 1979.
13. Fong Chan Onn, "Preliminary Findings of Household Survey on Electricity Consumption", Faculty of Economics and Administration, University of Malaya, 1977.

14. Ghana, Pacific Project Final Report, The University of Ghana Medical School, Ghana, 1970.
15. Hirschman, Charles, "Recent Urbanization Trends in Peninsular Malaysia", Demography, 13(4), November 1976.
16. IGCC, Seminar on Effect on Internal Migration, Urbanization and Resettlement in the IGCC Region on its Population/Family Planning Programs, Jakarta, Indonesia, March 1980.
17. Johnston, Bruce F. and Anthony J. Meyer, "Nutrition, Health and Population Strategies for Rural Development", Economic Development and Cultural Change, 26, 1, October 1977.
18. Likert, R., The Human Organization, McGraw-Hill, New York, 1967.
19. Mackenzie, Paul, "The Delivery of Basic Health Care by the Calabar Rural Maternal-Child Health/Family Planning Program (Nigeria)", Paper No. 6, International Programs, The Population Council, June 1979.
20. Malaysia, Economic Report 1979/80, Ministry of Finance, Kuala Lumpur, 1979.
21. Malaysia, First Malaysia Plan 1966-1970; Second Malaysia Plan 1971-1975; Mid-Term Review of Second Malaysia Plan 1971-1975; Third Malaysia Plan 1976-1980; Mid-Term Review of Third Malaysia Plan 1976-1980; Fourth Malaysia Plan 1981-1985, Government Press, Kuala Lumpur.
22. Malaysia, Social Statistics Bulletin, 1977, Department of Statistics, Kuala Lumpur, 1978.
23. Malaysia, Statistical Bulletin, 1980, Department of Statistics, Kuala Lumpur, 1981.
24. Malaysia, Summary Statistics, Household Expenditure Survey, 1973, Department of Statistics, Kuala Lumpur, 1973.
25. McCord, Colin, "Integration of Health, Nutrition and Family Planning: The Companiganj Project in Bangladesh", Food Research Institute Studies, Vol. XVI, No. 2, 1977, pp. 91-105.
26. Nie, Norman H., et. al., SPSS, Statistical Package for the Social Services, McGraw-Hill, New York, 1970.
27. Nor Laily Aziz, et. al., The Malaysian National Family Planning Programme - Some Facts and Figures, National Family Planning Board, Malaysia, 1979.
28. Parado, James, P., et. al., Final Report of the Bohol Project, 1974-1979, Tagbilaran City, Philippines, March 1980.

29. Population Council, Maternal and Child Health Family Planning Program, Technical Workshop Proceedings, November 1979, New York, The Population Council, New York, 1980.
30. Rural Health Research Centre, The Narangwal Population Study: Integrated Health and Family Planning Services, Narangwal, Punjab, India, 1975.
31. Saunders, Lyle and Gordon Perkin, Population and Family Planning in Malaysia, Ford Foundation, Bangkok, 1968.
32. Saw Swee Hock, "Trends and Differentials in International Migration in Malaya", Ekonomi, Vol. 4, December 1963.
33. Seward, Shirley B. and Fong Chan Onn, Integrated Family Planning Programs: Rationale, Concepts and Methodology for Evaluation, International Development Research Centre Manuscript Reports, Canada, 1982.
34. Taylor, Carl E., et. al., "Interactions Between Health and Population", Studies in Family Planning, April 1976 (a).
35. Taylor, Carl E., et. al., "The Child Survival Hypothesis", Population Studies, 30, 2, July 1976 (b).
36. Taylor, Howard C. Jr. and Bernard Berelson, "Maternity Care and Family Planning as a World Program", American Journal of Obstetrics and Gynaecology, April 1968.
37. Tunku Shamsul Bahrin and P.D.A. Perera, Felda, 21 Years of Land Development, Ministry for Land and Regional Development, Malaysia, 1976.
38. Tunku Shamsul Bahrin, P.D.A. Perera and Lim Heng Kow, Land Development and Resettlement in Malaysia, Department of Geography, University of Malaya, 1979.
39. UNFPA, Organizational Determinants of Family Planning Clinic Performance, Policy Development Studies No. 5, New York, 1980.
40. Yu, Hoon and Kwang Woong Kim, "A Study on the Organizational Determinants of Family Planning Programme Performance: Evaluation of Integrated Family Planning Programmes in the ESCAP Region (Korean Case)" - Mimeo., Presented at the Second Study Directors' Meeting held in Bangkok, November 1979.