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9. ABSTRACT

The primary objective of this study was to determine through conceptual analysis the adequacy of the Malaysian settlement program in stimulating, establishing, and maintaining self-sustained development in the new settlements so that living levels, in the long run, do not fall to subsistence levels. A subsidiary objective was to suggest alternative actions, based on experiences in other countries, which might be applicable to the Malaysian land settlement program. The procedure followed involved identifying those decisions in the design of a land settlement program that might increase the possibility of self-sustained development. Findings revealed that the present settlement program of the Malaysian Federal Land Development Authority is highly developed and efficient in the development of the land. However, a number of inadequacies in promoting self-sustained development arise, because the program emphasizes land development more than community development. From experiences in other countries, recommendations were made to remedy these inadequacies without excessive additional cost.

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LAND SETTLEMENT IN MALAYSIA: THE POSSIBILITY
OF SELF-SUSTAINED DEVELOPMENT

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the Graduate Council of
The University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
Teow Choo Ti
March 1971

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ABSTRACT

The Federal Land Development Authority in Malaysia organizes, manages and finances new land settlements. The program of guided land settlement has been successful in bringing approximately 250,000 acres of hitherto uncultivated land under rubber and oil palm cultivation. However, the physical development of the land and the successful creation of economical farm enterprises in the immediate future does not by itself assure that the settlers will be able to improve or at least maintain the planned level of living in the long run. There is a need to investigate and to project the long-term consequences of the present action program.

The primary objective of the study was to determine by way of conceptual analysis the adequacy of the Malaysian settlement program in stimulating, establishing and maintaining self-sustained development in the new settlements so that living levels do not fall to subsistence levels in the long run. A subsidiary objective was to suggest alternative courses of action in the light of experiences in other countries which might be applicable to the Malaysian land settlement program.

The procedure followed involved identifying those decisions in the design of a land settlement program that might increase the possibility of self-sustained development. The Malaysian program was then examined in detail according to the framework of decisions identified to determine its compatibility with, and adequacy in the promotion of self-sustained development. In the study of relevant experiences in other developing countries, preliminary literature review pointed to

Israel as the major source of successful land settlements in terms of self-sustained development and continuously improving living levels. The Israeli Moshav was studied in detail because of its similarity in ideology and operational rules to the Malaysian settlements and because of its apparent success. Relevant experiences in the Israeli Moshav supported by significant experiences in other developing countries were used to suggest modifications that might increase the possibility of self-sustained development in the Malaysian Federal Land Development Authority settlement projects. Possibly, applicable programs in the immediate future were also proposed.

The study revealed that the present settlement program of the Malaysian Federal Land Development Authority is highly developed and efficient in the development of the land. However, a number of inadequacies in promoting self-sustained development arise because the program emphasizes land development more than community development. The inadequacies are as follow:

1. There is lack of emphasis on diversified skills both agricultural and nonagricultural in the settler selection process.
2. Inadequate flexibility in resource allocation within the farm is a major problem.
3. The Federal Land Development Authority exercises an extremely paternalistic attitude in the decision-making process within the farm during the developmental stage.
4. There is an over-rigid financial arrangement.
5. Present planning and action to stimulate capital accumulation, investment and expansion of employment within the settlement by promoting

diversified agriculture, rural industry and supporting services is inadequate.

6. One program model is applied to all settlements in West Malaysia, thus failing to exploit the diversity in skills, resource ownership and ideological inclinations of the settlers.

Based on experiences in the Israeli Moshav and in specific land settlement projects in Sudan, Algeria, Nigeria, Tanzania, Thailand, and Ceylon, recommendations were made to redress the observed inadequacies in the Malaysian program without excessive additional cost to the Federal Land Development Authority and the government. Two alternative settlement programs--the Graduated Land Allocation Model and the Collective Farming and Individual Consumption Model--were proposed. The Graduated Land Allocation Model involves allocation of land by stages according to the ability of the individual settler. The Collective Farming and Individual Consumption Model attempts to provide an alternative to the existing oil palm projects that would emphasize settler community development. Additional work needs to be done to determine the feasibility of these programs in Malaysian land settlement.

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CHAPTER I

INTRODUCTION AND PROBLEM CONSIDERATIONS

I. INTRODUCTION

A country with a land area of 130,000 square miles and a population of 10 million, Malaysia is plagued with problems that are familiar in many developing countries. The more serious of these problems include a rapidly rising population, increasing unemployment and underemployment, and rural poverty. Among the various strategies that have been formulated to alleviate these problems, concerted and consistent efforts have been directed at accomplishing economic development and social progress through agricultural land settlement in West Malaysia since 1956. The land developing ordinance which established the Federal Land Development Authority, hereafter referred to as the F.L.D.A. or The Authority, was enacted on July 1, 1956. At that time, Malaysia as a nation did not exist, and the ordinance applied only to Malaya, now known as West Malaysia. Today, the activities of the F.L.D.A. are still limited to West Malaysia and discussions in this thesis will accordingly pertain to this region.

Since its formation, the F.L.D.A. has developed 81 projects comprising 256,859 acres of rubber trees and oil palm trees and has settled 18,400 families. Of the developed land, 53,320 acres of oil palm have matured and are being harvested.¹ In the fourteen years

¹"Federal Land Development Authority Draft Annual Report" (Kuala Lumpur: Federal Land Development Authority, 1970), p. 7. (Mimeographed.)

since its formation, the statistical records of the F.L.D.A. have been impressive. The apparent success has been due largely to the ability of the F.L.D.A. to change and to adapt its procedures to the changing circumstances as evidenced by the five amendment ordinances between 1957 and 1962 concerning finances, loans, powers of The Authority and organization. The program assumed its existing form in 1962.

In addition to its adaptability, the wide range of powers and autonomy of action that accrued to it through legislation enabled the F.L.D.A. to alter and transform the role it had originally defined for itself. The F.L.D.A. commenced work in 1957, and, during the first four years, it assumed two roles. First, it functioned as a loans board to the various provincial land development boards and corporations. Fourteen land settlement projects ranging from 1,500 to 5,000 acres were financed by the F.L.D.A. during this period.² Second, it undertook direct financing, planning, and management of a project (the Bilut Valley Land Development Scheme) in 1958. With the launching of the second five-year national economic development plan in 1961, the F.L.D.A. had abandoned the previous role of a "loans board" for provincial development projects and assumed direct responsibility for the implementation of all projects financed by it.

In the early projects implemented in 1957, the settlers participated in and were responsible for all stages of land development including jungle clearing, planting as well as housing construction.

²Taib bin Haji Andak, "Land Development in Malaysia Under the Federal Land Development Authority: Description of Programme and Techniques of Implementation" (Kuala Lumpur: Federal Land Development Authority, October 1966), p. 2. (Mimeographed.)

This method was found to be impractical and uneconomical because the settlers were unskilled, achieved poor quality work and would have needed a longer period for the crops to reach maturity. Consequently, in 1958 the land was cleared by specialist contractors before the settlers moved into the area to perform the subsequent tasks of lining, holing, terracing and planting of the rubber trees. They had to build their own houses at the same time. The volume of work proved to be excessive and the quality of work was still poor. The F.I.D.A. decided in 1960 to implement all the tasks of jungle clearing, planting and housing construction before the settlers arrived. Specialist contractors were hired to undertake the jobs.

These adaptive changes in response to the urgent need for developing the rural sector through demonstrable economically successful investments have resulted in the evolution of a rigid settlement program-- precise and accurate in its procedures for implementation and uniform for all projects undertaken by the F.L.D.A. Very briefly, a typical land settlement project aims at settling 400 families on 4,500 acres of land. Each settler is allocated 10 acres of farm land and one-quarter acre of housing land in the village, the remaining land going to shopping centers, playing fields and community buildings. Development and settlement proceed in four annual phases involving 100 families per year. The land is cleared, planted and the houses are built before the settlers arrive. The settlers are given the responsibility of maintaining the crops under the direction of field officers of the F.L.D.A. Since the main crop takes several years to mature and the settlers' energies are fully utilized in the early years, subsistence

allowances in the form of loans are provided. Subsistence loans are based on the number of working days of each farmer.

The area of undeveloped but cultivatable land in West Malaysia approximates 6,000,000 acres. Forty-eight thousand acres have been scheduled for development in 1971 and plans have been laid to develop 50,000 acres per year for the period 1971 to 1975.³

II. STATEMENT OF THE PROBLEM

The nature of the present program is such that the guided approach assures that the land is successfully cleared of jungle, planted with oil palm or rubber trees, and settled with selected farm families. The successful record of land development and number of families settled since 1956 confirm the technical efficiency of the F.L.D.A. There is, however, a need to look beyond this achievement. A land settlement project is not a once-over attempt to create immediate employment, raise levels of living, earn foreign exchange or attain other national objectives. The settlement of a community on new agricultural land involves the long-term development of a group of individuals relocated from an economically and socially established environment to completely new and continuously changing circumstances.

Given the social and economic conditions in a developing country such as Malaysia, three relevant assumptions may be stated as follows:

1. The amount of government resources available for land settlement projects is limited and must be distributed among many alternative projects;

³Ibid., p. 19.

2. The expected improved living level within the settlement is very much dependent on the changing economic conditions such as prices and markets outside the settlement;

3. Other sectors of the economy outside the new settlements do not possess the capacity to absorb the expanding labor force of the new settlements.

These assumptions, the fact of rapid population growth and the probability of falling prices of palm oil and rubber in the future, make it important to direct attention to the following crucial question: is the design of the program model and overall pattern of development adequate for the evolution of settlements capable of effecting self-sustained development?

Self-sustained development in this context means continuous improvements in levels of living without the aid of special government resources beyond initial development aid in spite of possible adverse economic and demographic conditions in the future. More precisely, self-sustained development of a new land settlement can be defined as including three interrelated elements.

1. Emancipation: Emancipation of the settlers from the settlement agency is both a means towards self-sustained development and an end in itself. As a means, emancipation is the attainment of sufficient technical expertise, managerial skills and organizational ability by the settlers to make all the decisions in the operation of their farms and in the affairs of the community and to execute these decisions. Some of the constraints to optimum resource allocation that may have been created by the agency's rules and regulations are thereby removed.

This facilitates diversification of skills and individual specialization in a variety of enterprises. At the same time, barriers to business transactions are removed. On the part of the settlement agency and the government, emancipation means that scarce public resources of capital and skilled manpower can be diverted to other settlement projects. As an end, emancipation signifies the development of an independent self-reliant and progressive rural society--a stated goal of the present government.

2. Continuous increases in the total value product of the farm and settlement: As agricultural skills are acquired by the settlers, the productivity of existing resources increases. Coupled with improvements in the efficiency of existing market channels and exploitation of new markets, the total value product of the farm and net farm incomes increase continuously.

3. Expansion of employment opportunity: As the level of technology is raised and productivity increased, investments are made in farm and nonfarm enterprises resulting in the expansion of employment opportunity within the settlement as a means of absorbing the growing labor force.

A possible divergence between the defined national objectives and the less tangible objective of self-sustained development may arise because settlement projects tend to be regarded as tools to be used for national ends by the government while the long-term development of the settlement is crucial to the participants of the project. The underlying hypothesis of this thesis is that the physical development of the land and the successful creation of economical farm enterprises in the immediate future do not guarantee self-sustained

development. If the existing program model is not directly geared towards the attainment of self-sustained development in the development process, then improvements may be made by emphasizing certain program components and de-emphasizing others without much additional cost.

The problem of concern of this study is the lack of knowledge concerning the adequacy of the Malaysian F.L.D.A. program in facilitating and promoting self-sustained development of the new settlements. If the design of the program is inadequate, modifications should be made in the program to promote self-sustained development. There is also a need to evolve alternative program designs oriented more directly to different social and economic situations and for different groups of people in Malaysia.

III. OBJECTIVES OF THE STUDY

The specific objectives of the study are:

1. To determine by conceptual analysis and comparative evaluation the adequacy of the Malaysian Federal Land Development Authority settlement program for establishing new land settlements capable of self-sustained development.
2. To investigate possible modifications in the design of the existing land settlement program and to study alternative designs resulting from experiences in other countries which might increase progress toward self-sustained development.

IV. PROCEDURE

The analytical components of this study in sequence will be as follows:

1. Identification of those decisions in the design of a settlement program that have a special bearing on self-sustained development.

2. A critical examination of the Malaysian F.L.D.A. settlement program using the decision framework.

3. Review of ideas and experiences in other countries with special reference to land settlement in Israel that may be useful on the Malaysian scene.

4. Suggestion of possible alternatives in the rules, procedures and policies that might further the objective of self-sustained development in the Malaysian land settlement program.

CHAPTER II

DECISIONS IN THE DESIGN OF A LAND SETTLEMENT PROGRAM THAT ARE CONDUCTIVE TO SELF-SUSTAINED DEVELOPMENT

I. HOW GOALS AND RESOURCE CONSTRAINTS AFFECT PROGRAM FORMULATION

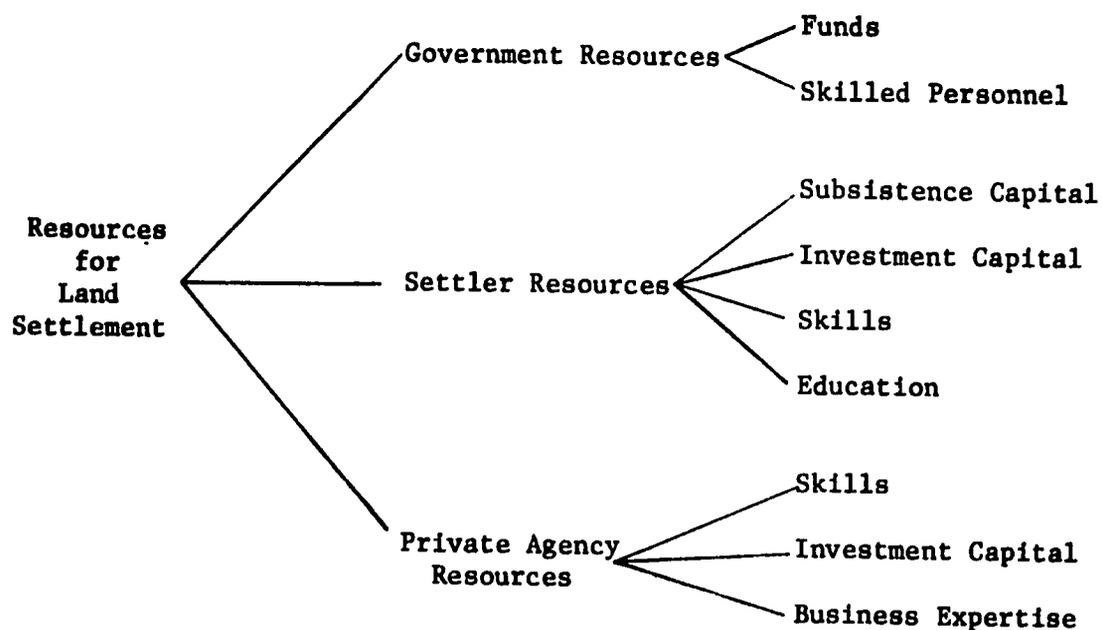
A settlement agency generally attempts to achieve a certain set of goals with usually limited quantity and quality of resources and within a particular socio-economic setting. In the formulation of a paternalistic land settlement program,¹ the decision-making process on alternative courses of action can proceed effectively only if the settlement agency knows precisely what it is attempting to achieve, fully appreciates the extent of its resources, and evaluates carefully the prevailing socio-economic circumstances.

In defining goals of the project, the settlement agency has to integrate the objectives of the government with the aspirations and expectations of the settlers. The national objectives may include food production, expanding employment, adding to foreign exchange earnings and reducing political discontent. On the other hand, the settlers are usually interested in maximizing farm family income. One method

¹Paternalistic land settlement is used here to denote guided land settlement under the auspices of a government agency, an independent agency set up by the government, or a private agency. Paternalistic land settlement means that the initiating body is the agency which offers, in varying degrees, aid to the settlers such as financial, technical and administrative skills and other public services. A measure of control is implied. The antithesis of the paternalistic land settlement is spontaneous land settlement which means settlement of land by individuals without the guidance of any agency.

of integrating these goals is to view the multiple goal framework as one primary goal and a set of subsidiary goals. As soon as the subsidiary goals are defined, they act as constraints to the primary goal because the alternative courses of action are reduced. Thus, a land settlement project may be directed at maximizing employment opportunities subject to the constraint that the settlers can derive a specified level of income and that the project adds to foreign exchange earnings. A list of primary maximizing objectives and subsidiary objectives is given in Table 1.

The goals and the extent to which they can be achieved are determined in part by the quantity and quality of available resources. Resources are categorized into government resources, settler resources, and private agency resources as shown below.



A knowledge of the total pool of available resources and the distribution within each category will enable the agency to define its goals precisely and set its targets according to a time schedule. The

TABLE 1

EXAMPLES OF SETS OF COMMON PRIMARY AND SUBSIDIARY GOALS^a OF LAND SETTLEMENT AGENCIES

Primary Goal	Subsidiary Goals		
Maximize employment	Specified level of income	Export crops	Regionally located for welfare purposes
Maximize farm family income	Precise number of jobs created	Food crops	Regionally located for political purposes
Maximize food production	Specified level of cash income	Reduction of population in congested areas	Regionally located for health purposes
Maximize foreign exchange earnings	Specified level of income	Agricultural diversification	Regionally located for purposes of national security
Maximize government taxes	Specified level of income	Settlement of the urban unemployed	Development of distant frontier land

^aThese sets of goals are not exhaustive. They include only the most common goals.

program of action and the method of implementation of the settlement project will be influenced by distribution of resources. For example, if skills and financial resources are lacking among the settlers, the method of implementation must be based on concentration of government or private agency funds and skills on a small number of settlers. If there is a large pool of capital, business expertise and agricultural skills in the private sector, investment opportunities can be created to attract these resources into the new settlements.

The goals are defined and the resources are used to achieve these goals within a particular socio-economic environment. The program of implementation must, therefore, be guided by such relevant variables as the market structure, prices of products, prices of inputs, the demographic distribution, the social and psychological characteristics of the settlers and the political situation. When considering these factors in the formulation of the program, the judgment of the policy-makers should, as far as possible, be based on research data and domestic as well as foreign experience.

Whatever the set of specifiable goals and environmental constraints, self-sustained development may be effected if certain key decisions are made to emphasize particular activities within the program. As defined in this thesis, self-sustained development involves emancipation, increases in total value product of the farm and expansion of employment opportunity.

II. KEY DECISIONS TO HASTEN EMANCIPATION

By definition, emancipation of the settlement from the paternalistic agency means that the agency relinquishes its authority over the

settlers and the responsibility of providing special technical and managerial personnel and financial resources for the development of the settlement. The resources can be diverted to other settlement projects. To the settlers, emancipation means that individually or collectively they assume full responsibility for the operation of the farm and community and bear the consequences of their actions. Without the constraints in the rules and regulations of the settlement agency such as those pertaining to land transactions, the agricultural enterprises to be undertaken and the business associations of the individuals, the best settlers will be able to exploit favorable opportunities for individual or collective advantage. In the long run, the survival of the most able settlers will contribute to the self-sustained development of the settlement.

The key decisions that will hasten the attainment of emancipation and increase the level of self-sustained development include the following:

1. The basis of settler selection.
2. The role of the settler.
3. The extent of agency participation.
4. The financial arrangements.

Settler Selection

If the settlers are selected on the basis of their agricultural and non-agricultural skills, the capital resources they own, their physical fitness and the level of education, then achieving emancipation from the settlement agency takes only a short period of time. However,

the multiple goal framework of the settlement projects dictates the consideration of other factors. Settlers are frequently chosen on the basis of need, moral character, or their political alliances. Given the frequent role of new land settlements in creating jobs for the unemployed and the unemployable and raising incomes of the subsistence farmers, the settlement communities cannot be expected to acquire rapidly the technical and managerial expertise necessary for emancipation.

In practice, usually both economic and social considerations are taken into account and numerical weights on a scale are attached to each factor to be considered in the selection of settlers. Emancipation leading to self-sustained economic growth of the settlement is hastened if greater weights are attached to skills, education, ownership of capital resources and a productive age group than to size of family, a landless status, marital status or state citizenship.

A factor that cannot be weighted on a numerical scale is the degree of community cohesion and social integration. These are important to prevent conflicts and to avoid the necessity for social adjustments among the settlers. Orderly transfer of responsibilities can proceed rapidly if the settlers are from the same community. Wherever possible, settlers from the same community should be settled in the same project.

Role of Settler

Delineating the role of the settler in the development period encompasses a multitude of decisions among which the following are most significant to attaining independence from the settlement agency:

1. Within farm decision-making structure.
2. Within project or community decision-making structure.
3. Disciplinary measures.

Given the usual situation where settlement agencies attempt to introduce the best methods of production and community life into the farm community, some form of agency participation in the day-to-day farm operation is inevitable. Where extremely strict agency controls in the farm operations are practiced, chances of successful implementation of the production activities are increased in the early stages. The less skilled, disciplined or educated the farmers are, the more controls are required. On the other hand, strict agency controls of day-to-day activities in the farm and production activities condemn the settlers to the status of a laboring class. This results in little or no pioneering spirit or the ability to gain independence from the agency. Are the farmers to have decisions made for them and play the role of farm laborer; are the farmers to assume an owner-operator status from the beginning and run the risk of failure of the whole project; or is the decision-making structure to follow clearly demarcated areas whereby certain technical advice has to be followed while decisions as to non-technical matters are left to the settler? The choice of alternatives is tied in with the type of people in the settlement. However, settler participation in farm decisions from the beginning is the dominant component in the program for achieving independence from the paternal agency.

The decision-making structure within the project deals with decisions affecting the community as a whole. There is a need to

create the organizational machinery to execute community projects before emancipation is possible. Emancipation from the paternal organization does not merely mean completion of loan repayments or even successful implementation of farm enterprises. It means:

1. The ability to make decisions as a group for the common good and to follow these decisions through to completion;
2. The availability of a functional group of leaders and specialized groups of settlers who can take advantage of any opportunity or withstand any exigency;
3. The ability to make spontaneous use of government services.

In order for the settlement to attain the level of maturity sufficient for independence and the first step toward self-sustained development, community development programs and settler participation in project planning from the initial stages is crucial.

A measure to assist settler and community development is the introduction of disciplinary measures against settlers who fail to fulfill the necessary quota of work or to abide by the rules and regulations. Disciplinary measures may include fines, social sanctions by the community or even expulsion when the continued presence of the settler threatens the smooth functioning of the settlement. The effectiveness of fines and social sanctions is doubtful because settlers seldom have the cash to pay the fines nor is the community prone to taking action against one of its members--perhaps a next-door neighbor. Expulsion is the most effective of the three methods and may be necessary from time to time. If practiced too often, however, the security of tenure is threatened. The best approach is to reduce

the necessity of enforcing disciplinary measures by more critical settler selection and improved teaching techniques.

Agency Participation

The kind and extent of agency participation affects the possibility of emancipation and self-sustained development. Participation of the agency usually includes the provision of financial assistance, skilled personnel and supporting services such as health, welfare, education and public works. An adequate level of assistance in finance, skills and supporting services is essential for emancipation.

The agency cannot usually participate in all three areas of assistance adequately. The question becomes one of priority. Should technical development be emphasized and financial resources concentrated on land development; should settler development involving vocational training and leadership training be given a higher priority; or should the welfare of the settlers come first and financial resources diverted for subsistence loans? If resources are limited, the best solution and perhaps the only one is to reduce the number of settlers in the project.

Another area of settler participation that would affect emancipation is the degree to which the agency manages and controls the settlers. Because skills have to be acquired and discipline under difficult conditions maintained, rules and regulations are necessary for the efficient functioning of the settlement. If the settlement project is viewed as an economic enterprise undertaken by the agency, then complete control and management according to the principles of the

firm are logical. However, if the individual settler is to be regarded as the basic unit, then the rules and regulations might create constraints in resource allocation. Therefore, the rules and regulations should be formulated in such a way that the constraints to specialization, land transactions, and credit arrangements that might be created are avoided.

Financial Arrangements

Paternalistic settlement as opposed to spontaneous settlement almost invariably involves some form of financial assistance in loans, grants or both. The terms of the loan involving interest rate, length of repayment period and the question of collateral affect the possibility of emancipation and productivity increases.

The prevailing rates of interest among banks and credit organizations alone cannot provide a good guide to the interest rate to be charged. Additional guides can be found in the expected returns to investment in the settlement project, the cost of servicing the loans in these projects, and the interest rate charged to the agency if it has to borrow its funds.

During the period of development when the agricultural enterprises gradually mature, capital is required to improve the land, to acquire better equipment, and to meet new and necessary expenses as they arise. Capital is usually the limiting factor in maximizing profits. When loans have to be repaid within a short period of time, the opportunity cost of its alternative investment is high. On this argument alone, long-term loans would contribute to self-sustained development better than short-term loans.

Because land titles are usually held as collateral against repayment of all loans, transactions involving the land are constrained. In the case of long-term loans, land transactions and credit based on the land as collateral are not possible for twenty to thirty years. The problem may be avoided if the agency stipulates that all transactions involving the land are three-party transactions and any outstanding loan is the responsibility of the settler and the third party. Alternatively, the settler may be made solely responsible if transactions are allowed only when outstanding loans do not exceed the capitalized value of the farm.

III. KEY DECISIONS TO INCREASE PRODUCTIVITY

Along with emancipation, continuous increases in the total value product of the settlement are required for self-sustained development to be possible. Increases in productivity can be expected to arise from two sources. In the initial stages of development, resources cannot be expected to yield the maximum product because the settlers are still learning techniques, exploring new enterprises and establishing markets. The total value product will usually increase as the settlers become more efficient and specialized. In the long run, improvements in technology will account for the major productivity increases. The ability of the settler to innovate and to exploit these innovations is contingent on certain key decisions within the settlement program. These decisions pertain to research and extension services, credit sources, input and product markets, and tenure arrangements.

Research and Extension

Research and extension activities on the part of the government and settlement agency provide the major innovations that can make productivity increases possible. In a situation where capital resources are limited and skilled personnel have to be distributed among very competitive projects, a major problem in allocation develops. The settlement agency understandably attempts to maximize the efficiency of its funds and personnel by transferring them to new projects as soon as the settlers have acquired the basic operational skills. On the other hand, research and extension in the early stages are crucial to increases in productivity. The decision to invest in research and extension during the initial stages of land development is indispensable if the total value product is to increase continuously.

A progressive phasing of investigations into the types of possible improvement would aid the efficient use of resources invested into research and extension. The settlement agency might begin with the diffusion and application of what is already known but could not be applied in the immediate circumstances under which the settlement was first developed. These innovations would include the introduction of better varieties of plants developed in other regions and the introduction of subsidiary enterprises. When these adaptive techniques have been exhausted, research could be directed at maximizing the use of labor if labor is abundant, and then at capital-intensive innovations.

Credit Sources

The possible sources of credit include government credit agencies, the settlement agency, local banks and businesses and professional

money-lenders. Agricultural credit, especially to small-scale farmers, is difficult to service and risky because the settlers can provide little or no collateral. Thus, local banks and businesses are usually reluctant to provide the credit, and professional money-lenders will only do so at an interest rate well above the prevailing rates. The facts point to the conclusion that the settlement agency is perhaps the best source of credit. With all the controls that a settlement agency holds over the settlers, there is little risk involved in setting up a loan fund whereby standard rates of interest may be charged for loans that go into productive investments.

All technological innovations are useless unless and until the settlers have access to capital. Whatever the source of capital, productivity increases cannot be expected unless the interest rate is low in the initial stages of development, perhaps even lower than the prevailing bank rates. It may be argued that some farmers have developed their farms without the need for credit. Credit facilities are not required only in situations where technology is static or in established communities where initial assistance arising from strong family ties replace formal credit organizations.

Input Sources and Factor Demand

Availability of capital and improved technology will not in themselves increase the productivity of existing resources unless factors of production are available to the settlers in quantity, quality, and at economical costs. According to Schultz, technology is always embodied in factors of production so that in a new technology is to be

introduced, a set of factors different in their quality and combination from the set formerly employed must be introduced. When these new combinations of factors have been identified, the farmers must somehow acquire, adopt and learn the use of these factors if productivity is to be increased.² The major concern in new land settlements is the distribution of these new factors and the demand for them assuming that the teaching methods are adequate.

Sources of factors of production may be private, public, or both. While public agencies may ignore the question of profitability, private firms must make their decisions on the basis of net returns to investment. Profitability depends on the costs of entry which are determined by adaptation of new factors to the community requirements, dissemination of information and overcoming political and other obstacles.³ When costs of entry have been determined, the two most important factors are size of the market and location of the community. Much can be done by the settlement agency to promote self-sustained development by removing the barriers to entry through undertaking those adaptive research abilities and extension services that the private firm finds unprofitable to implement because full returns to investment cannot be realized. Furthermore, size and location of the settlements can be planned to increase the volume of sales in a particular area and political obstacles removed even before the projects are implemented.

²Theodore W. Schultz, Transforming Traditional Agriculture (New Haven, Connecticut: Yale University Press, 1964), p. 132.

³Ibid., pp. 154-56.

Supply and distribution of new factors above will not increase productivity unless the settlers demand these new factors. Here again the profitability principle is crucial. Absolute increases in yield relative to prices of factors and products, tenure arrangements which determine share of returns between the settler and the credit agency, and the level of skills determine demand. The settlement agency should and can increase demand for factors by appropriate research and extension activities and tenure arrangements.

The Tenure System

Four major categories of tenure systems may be distinguished throughout the world today.

1. Owner-operated family farms. They range from the full ownership concept which gives the owner full responsibility to utilize the land in any way he wishes, to the lease-hold system which specifies the use to which the land is to be put and the period of time.
2. Centrally operated estates sometimes pay the workers a daily wage while at other times a contract arrangement is made with the worker.
3. Group farming systems. These systems differ on the basis of how the produce is shared. In the kibbutz-style farming system in Israel, all property is held in common, all risks borne in common, all labor pooled and most consumer goods and services commonly provided. Almost the same arrangement prevails in Soviet and Chinese communes except that the net income is shared according to individual quantity and quality of work.

4. The landlord tenancy system. Variations of this system exist in terms of how the farm is financed and the method of sharing the produce such as cash, rent or share-cropping arrangements.

Tenure systems are usually reserved for new land settlements on the basis of political and philosophical considerations. Jacoby argues that

. . . the perfect system which infallibly guarantees promotion of agricultural efficiency and social well-being has never existed. At one time or another, all systems have been adequate or inadequate under certain stages of economic development, and good or bad farming or progressive and regressive agriculture have been encountered under almost every conceivable form of land tenure.

The decisive point of view he contends should be

. . . which system under existing conditions secures to the man on the land an adequate standard of living from an economically sized farm and assures him at the same time of a dignified place in his community and in society as a whole.⁴

Whichever system is selected on a philosophical and political basis, productivity increases can be stimulated by certain conditions of tenure such as the following:

1. Security of Tenure: Long-term capital-intensive investments will be undertaken only if the settler is assured of long-term tenure and creditors are sure that tenancy will outlast the investment.

2. Minimum Number of Lease-Hold Conditions: Lease-hold conditions that specify the type of crop to be grown may be expedient for the government to maintain the desirable mix of crops in the country. However, the settler must be free to allocate his resources according

⁴E. H. Jacoby, "Types of Tenure and Economic Development," Malayan Economic Review, IV, 1 (April 1959), 10.

to the market conditions if total value product is to be maximized. Such lease-hold conditions should be minimized.

3. Flexibility of Tenure Conditions: Conditions of tenure within a particular system must be flexible. The system should allow consolidation or fragmentation if such actions are made according to economic considerations of profit maximization. It should allow conversion from agricultural land to housing or other commercial land if total value product is to be increased continuously. In short, the tenure system should change with the economic and social circumstances.

IV. KEY DECISIONS TO INCREASE INVESTMENT AND EXPAND EMPLOYMENT OPPORTUNITY

As the labor force within the settlement increases, through population expansion and possible immigration of relatives and friends from the surrounding areas because of the higher level of living, unemployment can become a serious problem. Under the previously stated assumption of limited employment opportunity outside the new settlements, the settlement program must include far-sighted measures to prevent unemployment and underemployment. These decisions are important:

1. Location and size of projects.
2. Flexibility of resource allocation.
3. Employment expansion.

Location and Size of Projects

The returns from agricultural investment are largely dependent on the productivity of the land, the prices the settlement gets for

its products, and its accessibility to the urban markets. Assuming that prices are beyond the control of the settlement agency, then the physical characteristics of the land (fertility, topography, water availability, etc.) that determine its productivity and its accessibility both to product and input markets are the main factors to contend with in locating the project. Although both factors are complementary in promoting self-sustained development, highly productive land is usually non-accessible while accessible land is not already developed because it is unproductive.

Within a range of cultivatable land where particular crops can be selected to suit the physical attributes of the land, the decision must rest heavily on accessibility for many reasons. Easy access in terms of distance from urban areas and over an all-weather road means that the settlers are exposed to a whole range of available farm inputs like fertilizers, agricultural chemicals, implements and others. The availability of these inputs increases productivity, stimulates investment and increases the use of labor within the farm. The settlers are exposed to the advertising campaigns and technical advisors of the chemical firms, and, in some instances, these firms provide short-term credit. Easy access also means that the cheaper transport costs will allow higher earnings and the undertaking of subsidiary enterprises that may not have been possible for isolated projects because of the perishability of the products. Most important of all, employment opportunities are created only through investments. Accessibility to capital markets in the urban areas is acquired through accessibility to product markets.

The size of the population in a new land settlement or a group of settlements located together influences the path of employment expansion in two areas. In the first place, the products of the settlement must be of sufficient volume to interest the buyers in the cities. Secondly, economic activities within the settlement do not depend mainly on the commodities exported to the urban areas. Residentiary activities such as retailing, carpentry, construction and other service activities contribute towards full employment of resources. Such residentiary activities can create employment opportunity only if the number of productive farm households is large enough to render such activities profitable. A large population of settlers also provides a sufficient volume of off-farm labor to attract labor-intensive industries to the area.

Flexibility in Resource Allocation Within the Farm

Investment and employment expansion within the settlement are dependent on the demand for the products of the settlement and prices received. Demand conditions do not remain static so that resource allocation within the farm and settlement must be flexible to cope with adverse conditions or to exploit new opportunities.

Flexibility in resource allocation within the farm and settlement is improved if the settler-training program emphasizes diversification in technical skills and business expertise. The settler must develop a variety of skills in a variety of enterprises not only for the purpose of applying these skills to subsidiary enterprises, but with the intention of using them to change the main enterprises should the

need arise. Resources can be shifted from one enterprise to another only if permanent or long-term investments for specific uses are avoided. Thus, it is unwise to plant only one permanent crop when prices of the product fluctuate and show a downward trend in the future. Finally, operational and investment capital is required for any shifts in resource allocation within the farm. Special short-term credit facilities are essential and annual loan repayments should be spread over a long period.

Employment Expansion

In the long run, when available resources are fully utilized, employment can be created only with increased investments. The first requirement is capital which may be mobilized from settlers in the form of loans and investment capital. The settlement program must, therefore, include plans to discourage present consumption, increase vocational skills, and existing raw material, exploit the locational advantage of the settlement and publicize the cheap labor in the settlements.

The kind of investments made within the settlement will determine the efficiency of capital in creating productive employment. In the early stages of development when capital is scarce, labor intensive agricultural investments and investments in residentiary activities (carpentry, bakeries, coffee houses, retail stores) will provide some employment. The long-term program of employment expansion must include the exploitation of labor-intensive export-based industries which may be categorized into linked industries and auxiliary industries. Linked industries are those industries that are associated with the agricultural

activities such as rice milling, tobacco curing and food canning. Auxilliary industries include those enterprises that are unrelated to agriculture and make use of local talent in traditional crafts. These enterprises do not conflict with the settlers' work schedule on the farm and provide employment for teenagers and old people. Finally, the government can offer tax incentives to those business firms that set up factories in the vicinity of the settlement. The priorities given to alternative types of industries must depend on the amount of capital available, the markets, the skills in the settlement, the labor force and the raw materials.

CHAPTER III

THE MALAYSIAN FEDERAL LAND DEVELOPMENT AUTHORITY PROGRAM

I. HISTORICAL BACKGROUND

To understand why an independent statutory corporation was set up to undertake the process of new agricultural land settlement, it is necessary to go back to the Second World War. During the period 1941 to 1945 when the country (Malaya) was under Japanese occupation, there was little, if any, land alienation.¹ In response to the food shortages, thousands of acres of crown land were illegally cultivated though there was little indication that the squatters considered these areas anything more than temporary settlements. The insecurity and the anarchy which prevailed during the period excluded the possibility of permanent investment and prudent agricultural practices. In this situation of wartime uncertainty, legal land ownership was the least of the problems, and land distribution was at a standstill. After the War Years and before the chaotic land records could be rectified, the communist insurgency broke loose in 1948. The massive resettlement schemes instituted by the British High Commissioner, Sir Gerald Templer, whereby about half a million peasants were concentrated in resettlement villages to deny food to the communists, complicated the situation. Both legally and illegally occupied land had to be abandoned in many

¹"Land alienation" is a term used commonly in Malaysia to denote transfer of land from public to private ownership.

areas leading to further insecurity of tenure and other more serious problems. The occurrences between 1941 and 1955 served to explain the fact that, by 1956 when the communists had for all practical purposes been defeated, there were an estimated 200,000 land applications which had not been acted on.² The country's administrative and survey departments beset with a multitude of problems during the emergency years could not handle the volume of applications. This and many other indicators such as unemployment and underemployment in both the rural and urban areas stressed the primacy of creating a supplementary organization besides the existing district land offices that could speed up the process of land alienation.

A government working party was appointed in 1955 to study the development of new areas for agricultural settlement. The findings and recommendations were accepted, and the Land Development Ordinance was passed by the Legislative Council on July 1, 1956. The Federal Land Development Authority was not set up to take over completely the function of land alienation but rather to stimulate and assist the other existing measures already taken up by the states. These measures were:

1. Local, state and district officials were being pressed to speed up the processing of applications for land.
2. Fringe alienation schemes had been organized whereby crown lands on the fringe of existing villages were allocated to applicants from the villages.

²D. E. M. Fiennes, "The Malayan Federal Land Development Authority," Journal of Local Administration Overseas, 1, 3 (1962), 156.

3. Group of block settlement schemes by which blocks of crown land were divided up in six- to nine-acre lots and made available to groups of applicants had been started.

II. THE LAND DEVELOPMENT ORDINANCE OF 1956

The Land Development Ordinance of 1956 established the Federal Land Development Authority (F.L.D.A.). The areas of particular relevance to this study pertain to the duties, the powers, and the financial aspects of the F.L.D.A. and its relationships with two other related bodies--the land development boards and corporations.

Duties, Powers, and Financial Provisions

The Legislative Council originally intended that the F.L.D.A. should assist rather than replace the existing government departments dealing with land development. The duty of the F.L.D.A. is specified as follows:

It shall be the duty of The Authority to promote and assist in the investigation, formulation and carrying out of projects for the development and settlement of land in the Federation.

And in the same section,

. . . to carry on such activities in association with boards, corporations or other bodies or persons (including departments of the Government of the Federation or any State Government) or as managing agents or otherwise on their behalf.³

Thus the duties included both development of land and the settlement of people on the land.

³Malaysia, The Land Development Ordinance 1956, 20 of 1956, Pt. 2, Sec. 3.

In accordance with the government's goal of setting up an organization capable of solving the multitude of land problems arising from the War and the communist insurrection of the previous ten years, the legislators had to provide a certain amount of flexibility with room for the F.L.D.A. to maneuver in its relationship with the State Governments. Additional flexibility in its duties was accorded also in the following section of the Ordinance:

In addition to the duties imposed by this Ordinance, The Authority may undertake such other functions and administer and expend such other monies for such purposes as the Government of the Federation or of any State may assign to The Authority and, in so doing, The Authority shall be deemed to be fulfilling the purposes of this Ordinance and the provisions shall apply to The Authority in respect of such functions and the administration and expending of such monies; provided always that the accounts of such monies shall be kept separate and apart from those of the fund and of every board.⁴

One clause in the Ordinance is indicative of the wide range of powers conferred on the F.L.D.A. in the performance of its duties:

. . . to do anything and to enter into any transaction (whether or not involving expenditure, borrowing in accordance with the provisions of this Ordinance in that behalf, granting of loans or investment of money, the acquisition, use and disposal of any movable or immovable property including rights) which in its opinion is calculated to facilitate the proper discharge of its functions or is incidental or conducive thereto.⁵

In the exercise of these powers, the F.L.D.A. is constrained by two conditions. These conditions are not designed to curb its powers but instead to promote cooperation between the F.L.D.A. and both the State and Federal Governments. First, the F.L.D.A. cannot act without consulting with the government of the state concerned or with any

⁴Ibid., Pt. 2, Sec. 6.

⁵Ibid., Pt. 2, Sec. 3.

department of the Federal Government associated with the project.

Second, the Ordinance provides for the Minister to give directions of a general nature to the F.L.D.A. in matters which appear to him to affect the interest of the country, and the F.L.D.A. must give effect to such directions. Since it is to the advantage of every State Government to cooperate with the F.L.D.A. so that financial assistance can be obtained and since it is prudent for the F.L.D.A. to carry out its activities in accordance with the priorities set by the existing government (the chairman of the board of directors and the directors are appointed by the Minister), these two constraints do not amount to much.

To finance the work, a land development fund was established by the Ordinance and placed under the control of the F.L.D.A. The sources of this fund include:

1. Capital sums provided by the House of Representatives from time to time
2. Capital sums allocated from government loan funds
3. Sums borrowed by the F.L.D.A.
4. Any property, investments, mortgages, charges or debentures acquired by or vested in the F.L.D.A.
5. All other capital assets accruing to the F.L.D.A.

There appears to be negligible restriction in the use of these funds apart from the specification that revenues be sufficient to cover depreciation, interest on loans, a reserve fund and all chargeable sums.

Land Development Boards and Corporations

The Land Development Ordinance of 1956 gave each state the power to create a land development board to assist the existing state land office. In the exercise of their duties, the boards could set up corporations along the lines of business corporations to carry out and manage the land development projects. The F.L.D.A. was supposed to extend financial, managerial and technical assistance to these state-established boards and corporations. At the same time, the F.L.D.A. was also authorized to create corporations for special projects with the concurrence of the State Governments. This working relationship between the F.L.D.A., boards, and corporations was established because land is under the control of the individual states, and a system had to be devised whereby the state could preserve its autonomy in land matters.

III. GOALS OF THE SETTLEMENT PROJECTS IN MALAYSIA

By delineating its goals, the F.L.D.A. has had to contend with two sets of considerations. On the one hand, there were the national goals. The first and second Malayan five-year development plans of the newly independent country were drawn up to solve these problems, and a picture of the kind of problems that were involved can be obtained from the second five-year plan, 1961-1965, which emphasized rural development. Basically, this aspect of the plan involved these objectives:

1. To provide facilities and opportunities for the rural population to improve its level of economic and social well-being.
2. To provide employment for the country's population of working-

age which is likely to increase by about 15 percent during the plan period.

3. To raise the per capita output of the economy and to protect per capita living standards against the adverse effects of a possible decline in rubber prices.

4. To widen the variety of Malaysian production, emphasizing the development of other suitable agricultural products in addition to rubber, and giving every reasonable encouragement to industrial expansion.

5. To improve and expand the social services needed to provide educational opportunities for the rapidly growing school-age population; to extend the public health services over a wider coverage of the rural as well as urban populations; to assist in large measure in the provision of housing; and to provide more adequately for rural and urban utilities.⁶

On the other hand, the settlement agency has had to take a close look at the aspirations of the rural people. With the advent of independence and the corresponding promises made by politicians seeking election, the rural population not only expected a better life but a measure of equality with the urban population. Taib, utilizing data from the Household Budget Survey of the Federation of Malaya 1957, illustrates in Table 2 that rural families, as a group, had lower incomes than urban families.⁷ Another factor that complicated

⁶ Andak, "The Work of the Federal Land Development Authority," p. 2.

⁷ Taib bin Haji Andak, "The Application of Strategy to Tactics-- F.L.D.A.--A Case Study," Report on Regional Seminar on Development

TABLE 2
 RANGE OF MONTHLY INCOMES OF MALAYAN RURAL AND URBAN
 HOUSEHOLDS IN 1957

Range of Monthly Income (M\$) ^a	Percentage Rural Households	Percentage Urban Households
Up to \$25	1.3	0.5
Over \$25 up to \$50	7.7	1.5
Over \$50 up to \$75	15.0	2.8
Over \$75 up to \$100	20.0	5.2
Over \$100 up to \$125	20.0	10.0
Over \$125	36.0	80.0

^aThe exchange rate in 1970 is M\$3.06 to US\$1.00.

matters was the fact that the poor rural population, from whom the new settlers were to be drawn, was engaged in rice farming in contrast to the richer rubber planters. Rubber with all its price uncertainties still yielded a much higher income and security from crop failures, and there was an assured market. Besides, there was a wealth of knowledge in the country about rubber planting but little else. The prospective settlers favored rubber cultivation. This was a direct contradiction to the government's plans to diversify the existing rubber-based agriculture. (Of the approximately 6,000,000 acres then in cultivation, some 4,000,000 acres were in rubber.) Thus, two factors dominated the settlers' concerns:

1. The expectation of a much higher income than the average rice farmer or even the average rubber planter, and
2. The desire to engage in the production of a crop which could be marketed without any problem and which possessed the advantage of a permanent crop such as assurance of a regular harvest. Increasing capitalized value of the rubber or oil palm holding was a further attraction.

The F.L.D.A. has attempted to delineate a framework of functions for itself that would be in harmony with the economic and social policies of the government and, at the same time, take into consideration the aspirations of the people. After a ten-year period of adjustment and adaptations, the present Chairman of the F.L.D.A., Taib bin Haji Andak, defined these functions and objectives in 1968:

1. To settle landless rural families on newly developed agricultural land and provide these families with a reasonable standard of living.

2. To provide these rural families congenial living conditions in nucleated settlements which would, therefore, have to cater for reasonable standards of housing and public and social amenities.

3. To make training and extension facilities available to settlers so that they could become good farmers.

4. To arrange for the processing and the marketing of agricultural produce of the new settlements so that the farmers get a fair return for their labor.⁸

A justifiable interpretation that can be given to this set of goals at this stage is that, although settling landless people was the original intention of the government, the F.L.D.A. was not as concerned with creating as many jobs as possible as with giving the highest standard of living to the settled people as is consistent with its resources of funds, personnel, land and, more significantly, with the existing state of technology. This is borne out with a detailed examination of the action program in this thesis. Thus, the multiple objective approach of the F.L.D.A. may be summarized following the system of prime maximizing objectives and constraints as: to maximize the income and levels of living, subject to the constraint that an adequate number of jobs are created to justify the project.

What are the implications of these goals for self-sustained development? There does not seem to be any inconsistency as far as these very generally stated goals are concerned. Nevertheless, one point needs to be emphasized. The overall concern appears to be with

⁸Ibid.

raising living standards, provision of social amenities and creating "good farmers." This might be necessary and desirable in the short-run. However, there is no statement within the multiple goal framework that suggests any special attention to meeting future problems of expanded settler population, changing market conditions, and technology and withdrawal of special F.L.D.A. assistance.

IV. RESOURCE CONSTRAINTS IN THE MALAYSIAN FEDERAL LAND DEVELOPMENT AUTHORITY PROGRAM

An examination of reports and papers published by The Authority reveals that achievement, in terms of settlers and acreages, fell short of target between 1957 and 1965. There were no substantial achievements in the early years between 1957 to 1960. The Authority was cautious and allowed itself a period of adjustment in which it developed only 14,000 acres of rubber land. Under the second Malayan five-year plan, 1961-1965, 60 schemes involving 250,000 acres of land and 24,000 farm families were scheduled for development. However, by the end of 1965, only 150,000 acres were developed and settled by 14,000 families. A report published by the F.L.D.A. estimates that, during the period, achievement fell short of the target by 23 percent.⁹ It appears that during the period of the first Malaysian five-year plan, 1966-1970, The Authority was able to overcome the obstacles and speed up the

⁹"Land Development in Malaysia under the Federal Land Development Authority" (Kuala Lumpur: Federal Land Development Authority, March 1966), p. 13. (Mimeographed.)

settlement process. Table 3 illustrates the rate of progress in area development.¹⁰

The Land Development Ordinance provided a number of sources of funds from which The Authority could draw. Apart from grants and loan funds from the Federal Government, it could and has borrowed from other organizations such as the Commonwealth Development Corporation (M\$5,145,250), the International Bank of Reconstruction and Development (M\$3,787,924) and the Asian Development Bank (M\$8,200,000); negotiations are under way for loans from the World Bank to develop the Jengka Triangle.¹¹ Conclusive evidence pointing to the fact that funds were not a limiting factor is shown in the 1968 and 1969 expenditures. Seventy-nine percent of the scheduled drawings from the approved estimates was drawn in 1968 and only 68 percent in 1969.¹² The funds were available, but the program of work was slow.

The factors that impeded the rate of settlement were identified in a publication of the F.L.D.A. and are as follows:

1. Agricultural diversification: In keeping with its diversification program, the Government decided in 1964 that as many as possible of the new areas to be developed should be devoted to oil palm cultivation. This meant that many of the areas which had been investigated and which had been found to be suitable for rubber development could not be developed while new areas suitable for oil palm were not amenable to immediate development because they were located too far from existing roads or required further investigation before development could proceed.

2. Scarcity of contractual resources: A significant factor that impeded a faster rate of development than that achieved was due to the scarcity of dependable and efficient contractors with adequate resources and a sufficient number of workers skilled in

¹⁰"Federal Land Development Authority, Draft Annual Report, 1969," p. 5.

¹¹Ibid., p. 22.

¹²Ibid., p. 20.

TABLE 3
 F.L.D.A. LAND DEVELOPMENT PROGRAM UNDER THE FIRST MALAYSIAN PLAN,
 1966-1970

	1966	1967	1968	1969	1970
Target Acreage	32,000	21,000	29,000	29,000	30,000
Achieved Acreage	28,747	27,379	33,388	38,249	--
Excess/Deficit	-3,526	+6,379	+4,388	+9,249	--
Target Acreage Cumulative	32,000	53,000	82,000	111,000	--
Achieved Acreage Cumulative	28,474	55,835	89,241	127,490	--
Excess/Deficit Cumulative	-3,526	+2,853	+7,241	+16,490	--

the fairly specialized task of jungle clearing. The demand for such people was on the increase due to programs undertaken by various state governments in fringe alienation schemes and also by private sector estates. As The Authority was not willing to pay higher prices than reasonable, it had to slow down a little on the pace of development.

3. The shortage of qualified and experienced staff in relation to size of program: The magnitude and type of work undertaken required the services of qualified, experienced and dedicated men. While it was relatively easy to obtain suitable people for the lower category of field staff, it was indeed difficult to get a sufficient number of suitable, high caliber men for the higher field management posts such as assistant managers, junior managers and visiting managers in view of the short supply and the heavy demand for such people by other organizations involved in agricultural development.

4. Delay in the village development and the provision of infrastructure services: Village development and the provision of infrastructure services in some schemes lagged behind agricultural development with the consequent delay in the introduction of settlers to schemes.

5. Nondevelopment of subsidiary crop areas due to lack of adequate relevant information: In The Authority's existing 62 schemes, a total area of over 40,000 acres earmarked for subsidiary crops are being kept undeveloped due to difficulties in deciding what crops to produce and how much to produce taking into consideration soil patterns, topography, climate and environmental conditions and, most important of all, the marketability of suggested crops both within the country and outside. This will account for a substantial portion of the lag.

6. Delay in the extraction of valuable commercial timber: It is required that valuable commercial timber should be extracted before commencement of a scheme by The Authority. While this is not a major problem, delay in the state government controlled extraction by license has slowed the pace of development of some schemes to a certain extent during this period.¹³

The above diagnosis by the F.L.D.A. itself shows that the constraints can be reduced to the lack of skills within the agency, and the public sector and the settlers. Two other factors involving the problem of diversification and the delay in extraction of timber may also be identified with the inadequacy of diversified agricultural skills in the country and the poor timber extraction process.

¹³"Land Development in Malaysia under the Federal Land Development Authority," pp. 13-16.

V. IMPLICATIONS FOR THE PRESENT SETTLEMENT PROGRAM FOR
SELF-SUSTAINED DEVELOPMENT

To what extent is the present Malaysian land settlement program stimulating the growth of communities capable of self-sustained government? There is little conclusive evidence to verify whether self-sustained development of the settlement has been achieved or is under way. For one thing, none of the settlements is as yet independent of The Authority's direction since loans have not been fully paid up and titles issued; also, the earliest projects initiated in 1957 have not been in existence long enough for the development process to run its course. Any conclusions then must be speculative in nature and depend on available information augmented by logical analysis along the lines set up in the previous chapter.

Settler Selection

As a prerequisite, applicants must possess these qualification:

1. State or federal nationality,
2. Age between 21 and 45,
3. Married status (preferably with children),
4. No criminal record,
5. Good health.

These criteria assure that the potential settlers are at least motivated by the responsibilities of family and citizenship. The health and age stipulations limit the settler appointments to those who are within the economically productive age group. Thus, considerably progress has been made even in the initial stages to acquire the human material that

is potentially capable of building an economically viable community. In this initial weeding-out process, the emphasis is not on need but on ability. If the settlers possess these prerequisites, they are then interviewed individually by a selection committee consisting of F.L.D.A. representatives and state government representatives. The selection process is based on age, agricultural and other skills, number of children and ownership of land in order of importance. A detailed account of the weighting system and method of assessment is given in Appendix A.

Examination of this system reveals that while age and skills count equally in terms of the total index of 10 points assigned to each, it is actually easier to score a higher number of points on the basis of a person's age than on his skills. For example, an applicant has to have skills in oil palm or rubber, rice planting or market gardening, general rural activities and carpentry, barbering, etc., to acquire a total of 10 points while he is credited with 10 points simply because he is 28, 29 or 30 years old. Skills are much more valuable to a community than the age factor of the settlers for early attainment of self-sustained development. While there is considerable leeway in selecting the age factor, skills are much more restricted. Thus, if self-sustained development is desirable, a greater weight than presently assigned should be attached to skills.¹⁴

¹⁴As the system now stands, an applicant 30 years of age with five children and no skills ranks above an applicant 21 years of age with one child and all the skills listed in the criteria. Faster emancipation and better chances of self-sustained development will be realized if this slight discrepancy is eradicated.

Apart from this discrepancy in relative weights attached to the criteria of age and skills, the system of selection is sound and comprehensive. If methodically applied, the two-stage selection process will enable the needy but capable rural people to be chosen. The criteria for selection can give added impetus to self-sustained development of the settlement without hurting the needy if skills are emphasized and education and resource ownership criteria added.

The Role of the Settler

Upon being selected, the settlers move into ready-built houses in villages within the project. The rubber or oil palm crop has already been planted and the settlers are given tools and implements to work the land. The tasks involved include weeding, pest control, disease control, fertilizer application, and general care of the trees. Instead of working on individual plots of land, a group of 10 to 12 settlers is allocated 80 to 100 acres to work cooperatively. The system makes supervision and dissemination of technical knowledge easier. Even if the settlers have considerable knowledge of the crops, rubber and oil palm, there is a need in the early stages to instill in the minds of the settlers the importance of advanced techniques. Under a system of subsistence credits, settlers are advanced funds commensurate with their efforts. For each working day, settlers are given a subsistence loan of M\$4.90 and assured 24 working days a month. The land is divided into individual holdings only after four years from the time of planting, in the case of rubber, and there is no allocation of individual holdings in oil palm schemes. When the trees have attained maturity, processing

and marketing of rubber or palm oil are managed by The Authority. Land titles are issued to the settlers, and emancipation from The Authority achieved only after all loans have been paid up--a period of approximately 18 years after planting.

The above "package deal" has many advantages in the particular context that it is implemented. The settlers who generally come from subsistence areas all tend to be relatively unskilled in the cultivation of rubber or oil palm. They also tend to be alike in that they do not possess the capital resources needed to establish a permanent crop and to live on until the first harvest some four to six years later. Under these circumstances, failure of the project in the sense that the settlers are forced to abandon the project is prevented only by ensuring that the crops are successfully planted and that there is a means of subsistence in the interim period. These three characteristic features dictate the role of the settler:

1. In the farm operation, he almost assumes the role of an estate laborer. Decisions on the crop, the technical practices, and the management functions are made by The Authority.

2. He is dependent on The Authority for his daily subsistence allowance and must accomplish a specified task daily in order to be eligible for the allowance.

3. He is not allocated a plot of land until the fourth year. There is little opportunity for the settler to exercise and to acquire those characteristics that are crucial to the attainment of emancipation from The Authority, namely, management ability, business know-how, and the incentive to make the best of his individual plot of land. Apart

from the technical knowledge acquired from carrying out instructions from the supervisors and instructors, there is little else learned. The physical development of the rubber or oil palm has taken precedence over settler development. This may be expedient under the pressure of the F.L.D.A. having to realize certain settlement target figures with limited resources of personnel. But in terms of emancipation and self-sustained development, negligence of settler development is unwise. An indication of how detrimental the delineated role of the settler has been is obtained by looking at the subsidiary enterprises on vacant land within the project. At the end of 1969, about 5,800 acres were estimated to have been utilized for minor cash crops.¹⁵ This is roughly 70 acres per project or merely 0.18 acres per farm family if averages are taken over all the projects. Even if these averages are unacceptable because projects are at various stages of maturity, it still represents an extremely poor performance considering that provision is made for every 4,000-acre project to set aside an additional 800 acres for cash crop development.

The role of the settler, with regard to the affairs concerning the project and the community, is more encouraging. In every project, a scheme development committee made up of settler representatives and a project manager is established. As described by the Chairman of the F.L.D.A.,

On this committee sit settler representatives; F.L.D.A. scheme managers act only as advisors. The main function of this committee

¹⁵"Federal Land Development Authority, Draft Annual Report 1969," p. 11.

is to promote the idea of self-help amongst the settlers. To set the pace, scheme managers make it a point to involve the committee in the day-to-day running of the scheme. At the beginning, understandably, the participation of the committee in management affairs is not extensive. However, progressively it is given more and more doses with the intention that this committee should eventually emerge as a strong and functional body that would replace the F.L.D.A. management when the time comes.¹⁶

At the end of 1969, 58 such committees were in existence. These committees can hasten emancipation if proper guidance and adequate encouragement are given by the F.L.D.A.

While every effort has been made to stimulate settler participation in community affairs, The Authority has tended to assume tight control on farm enterprises and practices. This philosophy appears to arise from two viewpoints. In the first place, the F.L.D.A. recognized that the fundamental aspect of the problem of rural poverty stems from the lack of initiative. Community development within the project directed at development of the necessary initiative requires that the community perform those functions that it can and acquire those it cannot from skilled leaders and organizers of The Authority. The second point pertains to the tight controls within farm decision-making. There seems to be the feeling that success or failure of the settlement project rests with the crop so that, at least before the crops reach maturity, the luxury of experimenting with the settlers' initiative cannot be practiced. That this reasoning appears to be sound for the Malaysian situation is evidenced by the fact that fringe alienation and block alienation projects carried out by the various state governments

¹⁶ Andak, "The Application of Strategy to Tactics--F.L.D.A.--A Case Study," p. 20.

have not met with much success and led to the creation of the F.L.D.A. in the first place. However, it cannot be denied that successful development of the crop is achieved at the high cost of poor development in management skills.

In terms of his place in the community and his status, the settler is subject to expulsion from the project should he fail to comply with the rules and regulations of The Authority without any due compensation before the land titles are issued (within 18 years). This is necessary only when community spirit and initiative may be sabotaged by individuals, and it is wise not to practice this too often so that settlers can have a certain amount of security. This seems to be the case in the Malaysian context.

Agency Participation

A number of foundation principles enumerated by the regional controller of the Colonial Development Corporation from the Far East, D. E. M. Fiennes, indicates the degree and extent of agency participation.¹⁷

1. The initiative for land alienation would come from the government or The Authority and not from the potential settlers.
2. The Authority would plan full employment for each family and the maximum income possible.
3. The settler should grow the crops most profitable.
4. Settlers are not guinea pigs. They are there to grow proven crops for their own benefit, and not to be an experimental station

¹⁷Fiennes, op. cit., pp. 157-59.

for well-intentioned scientists.

5. The Authority's principle is to settle the best farmers on the best land available.

6. The livelihood of many people is at stake as is the future prosperity of the country. Therefore, the best management must be employed for development of the projects.

These principles extend the participation of the government and The Authority to every phase of development. Broadly speaking, The Authority's almost limitless participation involves the selection and transfer of the best farmers from the subsistence agricultural sector to new areas which have already been planted with the currently most profitable crops, rubber and oil palms. The F.L.D.A. assures the settlers of the highest income as is compatible with the capability of the farm family labor and makes certain of successful implementation through the best possible arrangement. Until the settlers can assume full responsibility, complete investment financing and partial subsistence financing are undertaken by The Authority.

Participation of The Authority and the government is not limited to the above but extends to the provision of both public consumption services--piped water supply, telephone lines, prayer house, public playground, and shopping centers--and physical and institutional infrastructure--access village roads, schools, health clinics, community centers, and other aspects of village development.¹⁸

¹⁸Wharton's definition of infrastructure is meant here and throughout the thesis. The definition is as follows: "The physical capital and the institutions or organizations both public and private which provide

This approach of The Authority and the government with its attendant high costs is fully justified when dealing with subsistence farmers and permanent crops which require intensive care, several years to come into production and high capital investments. In this case, there is little concrete criticism that can be directed at the program of land development. What is of concern here is the program of settler development. The Authority has made provisions for the orderly transfer of activities and decision-making to the settlers as can be seen from the schedule in Appendix Table A-1. The Authority has also provided the physical and institutional infrastructure to facilitate further economic development. There is, however, little planning in these crucial areas.

1. Opportunities for settlers and dependents to acquire skills beyond those required to be a good rubber or oil palm planter.
2. Strategy for attracting labor-intensive industry into the project in the future.
3. Establishment or stimulation of marketing channels for subsidiary products and services.
4. Special assistance for individuals should they wish to engage in activities beyond that engaged by the group.

In short, the agency's participation is almost excessive in rubber and oil palm development but lacking in the area of settler development

economic services to and which have a significant effect directly or indirectly upon the economic functioning of the individual firm but which are external to the separate individual farm firms." C. R. Wharton, "The Infrastructures for Agricultural Growth," in Agricultural Development and Economic Growth, Herman M. Southworth and Bruce F. Johnston, eds. (Ithaca, N.Y.: Cornell University Press, 1967), p. 107.

and stimulus for further increase in productivity of the land and labor beyond that of the main crop.

Financial Arrangements

The extremely paternalistic orientation of the settlement program and the extremely rigid order of activities stem in part from the complete financing of the settlement project by The Authority and the government. The financial arrangement is categorized into three accounts, namely, the loan account, the administrative account, and the federal account.

1. The loan account includes capital expenditures on jungle clearing, ground preparation, planting material and planting, settler houses including site preparation, settlers' tools and implements, recurrent expenditure expended on weeding, manning pest and disease control, and other maintenance activities. (This is the subsistence loan to settlers.) Expenditure under this account is recovered from the settlers at 6 1/4 percent interest through monthly installments from the time the main crop comes into production.

2. The administrative account includes capital expenditure on office buildings, staff quarters, furniture and fittings, vehicles, plant and equipment, and recurrent expenditure for management expenses. These items are not recovered from the settlers and are met from national revenue.

3. The federal expenditures on social overhead involving education, communication, health, water supply, police station, and recreation, religious and community centers are not recoverable. The financial cost of a rubber and oil palm scheme are given in detail in Tables A-2 and A-3, Appendix.

The policy of The Authority with regard to loan repayment is to realize complete repayment in as short a period as possible subject to the condition that there is a minimum adequate level of consumption and working capital available to the settler. Variations among schemes do occur, but the loan incurred for the development of each farm approximates M\$10,000. Together with the contingency subsistence allowances which vary from individual to individual and the interest element calculated from the time the expenditure was incurred at an interest rate of 6 1/4 percent, the total indebtedness averages around M\$16,000 per settler. After the rubber or oil palm crop matures and becomes productive, settlers are allowed a subsistence income of M\$100.00 per month rising over a period of M\$175.00 of the residual cash income from the crop. Two thirds goes to loan repayment while the settler keeps the other third. This feature purports to stimulate some incentive on the part of the settler. Table A-4, Appendix, gives the yield, total cash income and amount of loan repayment for a settler with an eight-acre farm of rubber. The settler is expected to complete repayment of the loan account about 18 years after entering the settlement. The price of rubber is assumed to be M\$0.70 per pound and that of palm oil to be M\$400.00 per ton. However, the long-term trend of the prices of these commodities is expected to fall. The problem this poses to the settlers and to the nation is illustrated by the fact that, should the price of rubber fall to M\$0.55 per pound, the repayment period will have to be approximately doubled if the level of subsistence is to be maintained.

By the end of 1969, 53,320 acres of rubber in 35 schemes and

35,903 acres of oil palm in 10 schemes were in production. The loan repayment up to that period amounted to M\$4,265,452 and is on schedule.¹⁹ This is facilitated by the fact that group processing and marketing is under the management of The Authority.

Given the particular set of circumstances in which the settlers own no capital resources whatsoever and the agricultural enterprise happens to be a long-term capital-intensive affair, little criticism can be directed at the financial arrangements. Adequate subsistence and investment credit is supplied to the settlers for the full development period of the farm. The loan repayment schedule is drawn up in such a way that the settlers' welfare is considered first; that is, an adequate subsistence allowance is provided before two-thirds of the residual income is subtracted for loan repayment. A commendable feature of the schedule is that the period of repayment is flexible and dependent on the price of the product--a variable which is beyond the control of the settler and, therefore, should not work against him.

The present financial schedule carries two features of special bearing on eventual self-sustained development. First, the title to the land is the collateral for the loans obtained from The Authority. Second, the schedule of repayment is uniform for all settlers under The Authority. There is no indication that settlers could cancel their liabilities within a shorter period if they were so inclined and had the resources to do so. The implications of these two features are important. As long as land titles are not issued, transactions between the settler and any agency other than The Authority involving the land are not possible for a period of 18 years. Sources of credit from the

private sector are thus inaccessible to the settler. If short term credit facilities are not created by the F.L.D.A., the opportunities open for the investment of whatever small savings the settler might have are limited. This might lead to higher consumption and less investment. There might also develop a situation in which the limited amount of savings is invested in enterprises yielding a return less than the interest payments on the loan from The Authority so that the settler is at a disadvantage. Self-sustained development is contingent on the freedom to make the best investment choices, even to the extent of selling the farm and getting a job from another settler, or when investment opportunities are negligible, to pay up the loan faster instead of consuming the surplus.

Research, Extension and Education

In the past, the F.L.D.A. has relied on various research organizations in the country such as the Department of Agriculture, the Rubber Research Institute, and private oil palm research agencies for technical and managerial innovations. With the expansion of activities and the consequent growth of the organization, problems peculiar only to the F.L.D.A. have increased. In addition to the problems that arise directly from the activities of the F.L.D.A., problems inherent in the rural sector continuously impede progress towards the goals. Research into these problems and extension of the results are crucial to self-sustained development of the settlement.

Priorities are difficult to set because of the multitude of urgent problems involved. However, areas that require urgent research are easily identified and include the following:

1. The uncertain market conditions for rubber and oil palm require research into alternative crops leading to diversification of the farm enterprises. Continuous increases in the total value product of the farm will be more easily realized if resource allocation is flexible and new opportunities exploited.

2. The level of satisfaction and motivation of the settlers is crucial to self-sustained development of the community. As more people are settled and as new projects mature, the F.L.D.A. must have information on settler behavior. Further proliferation of these new land settlements is justified only if the social and psychological variables are evaluated and used as a basis for planning.

3. Research into investment opportunities and employment expansion both within the settlement and outside is important if living levels are to be maintained. The possibility of emigration as the labor force expands within the settlement should be studied.

In response to this urgent need for more research relevant to The Authority, a research organization has been set up at Sungei Tekam adjoining the Jengka Triangle, the largest area (250,000 acres) scheduled for development. It has also increased its research staff from 6 in 1968 to 20 in 1969²⁰ and set up an advisory committee on research consisting of members from The University, the Department of Agriculture, the Rubber Research Institute and a private research agency. It appears that The Authority is concentrating on technical agronomic problems in the initial stage, but, unless a comprehensive

²⁰ ibid., p. 4.

research program is followed, continuous increases in productivity and self-sustained development will be difficult.

Although skills in agriculture feature prominently in the selection process, the majority of the settlers come from the subsistence agricultural sector and are proficient only in traditional practices. The organization of activities within the project is geared towards the training of the settlers in modern agricultural techniques.

1. Within-farm, decisions are made by the management on the premise that the techniques used will be completely new to the settlers.
2. The land is not divided into individual plots but in blocks to be worked cooperatively by groups. This allows for the more efficient use of personnel in the training process.
3. Apart from the on-the-job training approach, settlers are given special courses in agricultural practices in the classroom and through the mobile extension units.

This method may be efficient in familiarizing the tradition-oriented settlers with modern techniques of rubber and oil palm cultivation. The approach is, however, highly prescriptive in nature and does not afford the settler much opportunity to acquire diversified skills and to specialize according to his inclinations. Furthermore, the freedom to experiment with newly learned techniques based on individual decisions on the settler's private plot of land is limited because of the system of collective ownership and operation during the development stage. Extension methods should place greater stress on the teaching of diversified skills to individual settlers.

Each settlement project is provided with schools where the children

of settlers can obtain a primary education. This represents an improvement over general levels of education elsewhere. There is, however, little emphasis on vocational training for youth either within the projects or nearby. There is a large number of vocational schools throughout the country which could cater to the F.L.D.A. projects. These schools, however, are geared towards large-scale industry and the skills taught are less suitable for rural situations.

Tenure Arrangements

Mr. D. E. M. Fiennes, first Chairman of the F.L.D.A., observes:

The second advantage deriving from the first was the universal acceptance of and wish for individual land ownership with personal benefit accruing from the rewards of good cultivation. The Malay rural communities, though traditionally little welfare states in many respects, have always recognized land as personal property. Thus, no revolution in traditional farming attitudes was necessary.²¹

In terms of the compatibility of individual land ownership with productivity increases and long-term investments, there is every advantage in the system. Eventual ownership of the land by the settlers will inevitably bring out the best in the settler with respect to his labor and his capital investments. Judging from the same individual land ownership patterns in the developed countries of the world, there is little doubt about its compatibility.

Having accepted this system of tenure, a specific set of conditions had to be designed to suit the needs of the settlement program. The Land (Group Settlement Areas) Act of 1960 which was

²¹Fiennes, op. cit., p. 157.

subsequently amended in 1951 applied to the F.L.D.A. tenure system.²²

The more salient features of this act and especially the amendment are:

1. It allows the cooperative development of areas where the main crop (oil palm) deems such a system as expedient.
2. Settlers are permitted to occupy their future holding in expectation of the titles.
3. Settlers will be issued titles by the state governments only on completion of repayment of their loans from the F.L.D.A.
4. No joint ownership of such holdings is permitted and there is to be no subdivision.
5. Provision is made for holdings to revert back to the F.L.D.A. in case of breach or default by a settler in the condition or obligations in the agreement between him and the F.L.D.A.

These features of the Land Act require critical examination. Provision for cooperative development of the farms where necessary gives The Authority maximum flexibility in the way it organizes the settlers and freedom to adjust the organization as it sees fit. If this implication is developed further, there seems to be a tendency for The Authority to select the organizational pattern (cooperative vs. individual development in oil palm and rubber, respectively) according to the needs of the crop rather than to the settlers themselves. The issue is not whichever system is better, but rather, under different circumstances, the formulation of the system of development must be

²²Federal Land Development Authority, Annual Report 1966
(Kuala Lumpur: Federal Land Development Authority, 1967), p. 36.

tailored to the psychological peculiarities of the people. This is basic to the development of an economically viable settlement.

Apart from the previously discussed problem of inaccessibility to private sector credit sources resulting from the conditions, the mobility of the labor force is restricted. The free market forces which direct the survival of the best farmer are hampered. However, this problem is partially ameliorated by the condition that the holding is to revert back to the F.L.D.A. in case of breach or default in the condition of the agreement. Seeing that the agreement compels the settler to develop the land to a minimum satisfactory condition, The Authority has considerable power and time to weed out those who might not be able to succeed and replace them with those who can.

Flexibility in Resource Allocation within the Farm

Flexibility in resource allocation within the farm in F.L.D.A. projects is very much limited by the main enterprises initially selected. The permanent crops, rubber and oil palm, take several years to come into production (six and four years, respectively) and continue to produce good crops for approximately 20 years. A settler is thus committed for much of a working lifetime to the permanent enterprise selected. The huge capital investment involved makes replacing rubber or oil palm with other crops uneconomical before there have been many harvests. The flexibility to make later improvements in the farming system is limited not only by capital resources already committed to the permanent crop but also by the lack of knowledge of alternative enterprises with respect to techniques and markets. The whole system of settler development is primarily directed at acquiring skills in rubber

and oil palm cultivation. Even the management in these projects who double as extension agents were trained primarily in rubber and oil palm.

This problem of limited flexibility of resource allocation within the farm causes incomes to fluctuate because prices of rubber and palm oil fluctuate widely and frequently. The farm income calculations of the F.L.D.A. are based on a price of M\$0.70 per pound for rubber but price fluctuations between M\$0.55 and M\$0.70 have been common in recent years. Similarly, palm oil prices fluctuated between M\$400 per ton to M\$600 per ton in 1969 alone. More important, there seems to be a trend towards lower prices in the future for both commodities. Increases in the total value product of the farm will be difficult even if there are increases in physical productivity of the rubber and oil palm enterprises. Consequently, savings and further investments by the individual settler so essential for self-sustained development may be impossible.

The problem of limited flexibility of enterprises within the farm may be alleviated if every effort is made to develop skills in alternative enterprises which require little land such as poultry, vegetable gardening, and fish ponds. This is already being done to a certain extent, but this approach should be more intensively pursued. Furthermore, the land laid aside for subsidiary crops may be developed and planted with diversified crops.

Expansion of Employment Opportunity

The F.L.D.A. had settled 18,400 farm families by the end of 1969. If the target of 5,000 families per year within the second five-year

development plan is followed to a successful conclusion, the new settlement sector will comprise approximately 43,000 farm families. Calculated on the basis of five persons per family, this would be in the region of 218,000 persons directly dependent on those newly created farms.

The concern of this thesis, however, is not so much the impact on employment on a national basis but employment within the settlement. Apart from the training of youths for agricultural odd-jobs within the scheme and the encouragement given to subsidiary cropping, other measures taken and reported in the Annual Report of 1969 are as follows:

1. Stalls called "scheme lock-up stalls" have been organized where the unemployed (mainly youths) can run barber shops, bicycle repair shops, tailor shops, coffee houses, etc. In Kampong L.B.J. (a project named after Lydon B. Johnson to honor his visit), the Settler Development Division started a project for the production of school uniforms by the women in the project. This project is scheduled to begin in 1970.
2. Nineteen schemes have established kindergarten classes for children of pre-school age. The settlers pay for admission of their children, and teachers are recruited from the settlers' daughters.
3. A retail service called the "shops division" was started in 1968. Retail shops financed and operated by the F.L.D.A. are operated for the benefit of the settlers. A total of 14 retail stores have been established, and the total sales in 1969 approximated M\$1.9 million. As the division expands, more jobs will be created.
4. Jobs are created or stimulated by the activities of the F.L.D.A. in these areas:
 - a) Jungle clearing and other agricultural activities under the various contractors working for the F.L.D.A.
 - b) Housing schemes for the participants contracted by private agencies.
 - c) Development of fruit and other cash crops on land left aside for this purpose (two acres per family).
 - d) Cottage industries such as basket weaving and mat weaving using local raw materials.
 - e) Assistance in animal husbandry and vegetable gardening.
 - f) Provision of contract labor for short periods to neighboring estates.²³

²³"Federal Land Development Authority, Draft Annual Report 1969," pp. 9-11.

These measures represent the full range of the F.L.D.A. plan for increasing employment. Because most of the projects are relatively new, progress is difficult to gauge. Again, most of these measures are sporadic, occurring in projects where there is a motivated manager. There is no clearly specific and calculated plan to create a certain number of alternative jobs each year in such enterprises to cater for so many people. The situation is not urgent at this stage. With time, however, the problem of alternative employment is unavoidable and could be the main cause of the settlers' slipping back into subsistence levels of living once more.

Project Size and Layout

A typical F.L.D.A. project is about 5,000 acres in area and settled by 400 families with a settlement population of approximately 2,500. The physical layout comprises five areas:

1. The central village made up of quarter-acre house lots, school, clinic, community center, religious center, shopping center, offices and staff quarters. The area is about 500 acres.
2. The main crop area of rubber or oil palm at eight acres per settler is approximately 3,200 acres.
3. Subsidiary crop area at two acres per settler comprises a total of approximately 800 acres.
4. Swamps, riverbanks, reservoirs, and other areas unsuitable for agriculture are usually estimated to be in the region of 300 acres.
5. Wherever possible, a reserve area for future expansion is always provided. The size of this area varies between 500 to 1,500 acres.

This particular "typical" size of the project is not arbitrary. It is based on two major considerations. First and more dominant factor is that, under the present paternalistic program, the ratio of settlers to project personnel had to be small enough to enable the management to effectively control all decisions and operations within the farm. On the other hand, in an effort to reach target numbers of new settlers each year, The Authority has to stretch its limited personnel among many projects at the expense of efficiency of within-project operations. Experience gained within the past decade has shown that one manager, an assistant manager, three senior supervisors, seven field assistants, two clerks and one driver can handle a maximum of 400 families satisfactorily. The second major reason is that the settlers live in centrally located villages so that they may take advantage of the public services provided. Thus, the project has to be of such a size and planned so that the settlers are no more than one and one-half or two miles from their farms.

The size of project and layout followed the dictates of organizational efficiency. Insufficient consideration was given to the size of a project in relation to its compatibility with self-sustained development. Four hundred families and a population of 2,500 people do not provide a market of sufficient size for efficient operation of many supporting services such as the retail trade, construction work, bakeries or rice mills and, most important of all, the input supply business. Nor is the labor market in a single project sufficiently large for any specialized training program to be organized for the underemployed and unemployed so that the chances of attracting any

labor-intensive industry are poor. In addition, a very fundamental avenue for economic development in any settlement--that is, the export-oriented enterprises (export out of the settlement) apart from rubber and oil palm--may be hampered because of an inadequate supply of the products. Market garden products and cottage industry products such as basket weaving, silverware and batik may not find a market simply because the supply is too small and irregular for businessmen outside the projects to be interested.

Location

Location of the projects is determined largely by these guidelines:

1. The area proposed for development should be free of alienated lots or illegal occupants. The state government is responsible for any necessary action to fulfill this condition.
2. The soil must be suitable for rubber or oil palm as determined by the Soils Division of the Department of Agriculture.
3. The Director of Geological Survey and the Chief Inspector of Mines must certify that the area does not contain economic mineral deposits. The Forest Department must certify that all valuable timber has been extracted.
4. Easy access by an all-weather road, secondary road or temporary access tract.²⁴

Agronomic, topographical and access considerations prevail in the choice of location. There is little direct planning for any location

²⁴"Land Settlement in Malaysia under the Federal Development Authority," p. 25.

advantages that may accrue to the residents of the project by virtue of a selected geographical position. For example, being located in the vicinity of other oil palm or rubber estates would enable the potential market to be exploited for subsidiary enterprises. Again, if the project is located in an area where there are some specialized skills such as vegetable gardening, fishing, or charcoal-making, skills may be learned, labor may be utilized and markets exploited. No conscious effort has been made to exploit these possibilities because availability of land satisfying the above guideline is limited. However, the rule of thumb that the project should be accessible by an all-weather road more or less limits the projects to the more populated areas and those areas closer to the towns. In other words, they are not scattered throughout the country at random. A look at the map, Figure 1, Appendix A, showing locations confirms this. The majority of the projects are concentrated in the more accessible and populated areas of:

1. South Johore.
2. Northwest Johore, Malacca, South Negri Sembilan region.
3. Central and West Pahang.
4. North Selangor and East Pahang.

Other projects are scattered throughout the country but never far away from the main roads.

VI. CONCLUDING OBSERVATIONS

A major objective of this thesis is to point out the key decisions in the overall land settlement program and to develop the implications

for self-sustained development of the selected lines of action. Adequacy of the program in this respect meant the compatibility of specific program components with self-sustained development of the settlement.

The F.L.D.A. program of settlement has evolved into an extremely detailed program directed at a very select group of people and the production of predetermined commodities. The group of people involved may be described as young, married with children and have demonstrated a desire to raise themselves above subsistence farming in which they are engaged. They possess no capital resources for investment and little subsistence capital if they do not work the plot of land on which they now live. The rubber and oil palm crops selected for their high cash returns in the short-run require substantial capital investments, high-level skills and a long period to mature. Under these circumstances, the program of implementation is, from necessity, extremely paternalistic and rigid in every phase of the development process. The program has been very successful in bringing large acreages of hitherto uncultivated land into production and is very much output-oriented rather than social-development-oriented. What are the implications of this design for self-sustained economic development?

To begin with, the settler selection process places the criterion of age over that of skills, and the delineated role of the settler is based on complete dependence on The Authority during the development process, both financially and in the decision-making process within the farm. The participation of The Authority, excessive in some areas, leaves room for improvement in others. Efforts are concentrated

on the development of the rubber and oil palm crops at a cost of less attention in the fields of vocational skills, market channels, alternative enterprises and capital sources beyond that which it supplies itself. These features of the program will certainly constrain the attainment of complete emancipation of the community or impede the rate of emancipation.

The financial arrangements are adequate and appropriate under the prevailing circumstances but have one single characteristic that might deter optimum resource allocation. The transfer of land titles from The Authority to the settler is contingent on complete loan repayment which follows a predetermined time schedule of approximately 12 years (from the time the rubber or oil palm trees become productive). Credit transactions between the settler and a third party involving the land as collateral are obstructed for 16 years (from the time the settler first comes into the settlement) and, coupled with the lack of substantial credit facilities for the individual beyond that required for the "package deal" described above, might just impede increases in investment and consequent productivity of the farm.

Planting permanent crops is justifiable for reasons of immediate security, high cash returns and lack of knowledge about alternative crops. But this commits the settler to a lifetime career as a rubber tapper or oil palm producer. Should market exigencies occur as they have time and again, fluctuations in income levels occur. The long-term trend towards lower prices for oil palm and rubber complicate the situation and create a cause for concern. The rubber and oil palm trees follow a regular pattern in their yields. Input manipulation

will not result in responses to the same degree as that of the revolutionary rice varieties. This being the case, the settler who specializes in rubber or oil palm bears the full impact of price fluctuations in the world market which is beyond his control. In short, there is inadequate flexibility within the farm to cut costs by reducing inputs and to change the crops if advantageous. Thus, self-sustained development through high incomes, savings and investments may be impossible if the income falls to subsistence levels when the price of rubber or oil palm falls.

In the area of employment opportunity, inevitable increases in the labor force within the project and the likely influx of relatives into the settlement from the subsistence areas make it imperative to create jobs or channel the labor force elsewhere. A comprehensive and detailed plan in both alternatives has yet to be formulated. Project size and layout followed organizational and managerial efficiency rather than their implications for further economic growth. A larger settlement with many more productive farm households is required to create the size of markets, source of skilled labor, quantity of produce and source of capital for accelerated investments. The long-term lack of productive employment opportunity might become the major obstruction in the strive for economic improvement of the community.

These implications of certain program actions that tend to constrain self-sustained development arise only from the rigidity and the extreme degree of paternalism of the part of the Authority. They do not, therefore, reflect a wrong approach. The program in general is highly refined and efficient. In the process of physical land

development, nothing is left to chance. This is why so many people have been settled. The fact that there are more applicants for admission to the projects than there are vacancies attests to its success. The contention here is that a certain degree of relaxation of the rules and regulations and supplementary action in some areas can go a long way towards making self-sustained economic development possible.

CHAPTER IV

EXPERIENCES IN ISRAEL AND OTHER COUNTRIES

RELEVANT TO MALAYSIA

In attempting to gain insights from settlement program models in other parts of the world that might shed some light on the attainment of self-sustained development, the study is necessarily limited to those models that possess these features:

1. They must evidence some degree of economic growth through self-sustained development, and, as such,
2. They must be sufficiently mature for economic success to be gauged.

Preliminary literature review indicates that the settlement program in Israel is about the only well documented economically successful endeavor among the developing countries. They will be studied in special detail. Settlement projects in other countries, especially in the African continent, provide useful experiences and these experiences will be used to support the arguments in the Israeli American countries. However, accomplishments in these countries have not been spectacular. Several workers in different fields of study have observed that politics is an exceptionally important motivative force.¹

¹Wilkening and Iutaka observed that "Since many colonies are established for political rather than for economic reasons, it is not surprising that they are not successful from an economic point of view." Eugene A. Wilkening and Sugiyama Iutake, "Sociological Aspects of Colonization as Viewed from Brazil" (Madison, Wisconsin: Land Tenure Center, University of Wisconsin, June 1967), p. 3. (Mimeographed);

I. LAND SETTLEMENT IN ISRAEL

A Brief History

Settlement of people on uncultivated land is both philosophically and practically tied to the emergence of Zionism and the dream of an independent Jewish state. A Jewish author remarks that "only when the people would be organically tied to the land, when agriculture would be the mainstay of the nation could the rebirth of the Jewish people in its old-new homeland be deep rooted and permanent."² The first Jewish settlements were established by an organization called "BILU" founded in Russia in the beginning of the 1880's. This type of colony came to be known as the Moshava, which is an agricultural village where each farmer owns and works his own land with a limited measure of cooperation. The Moshava failed and had to resort to financial assistance from outside because of the inexperience of the idealist students,

Tinnemeir stated that "colonization can be pointed to as a visible reform program, but it does not jeopardize the large owners of land. Such a program is not resisted and is easily passed by the legislature. The landowners oppose only measures attempting to bring about changes which affect their status quo." Ronald L. Tinnemeir, "New Land Settlement in the Eastern Lowlands of Colombia" (Madison, Wisconsin: Land Tenure Center, University of Wisconsin, December 1964), p. 2. (Mimeographed); Hirshman concluded that the projects are "... particularly accident prone. Perhaps this is so because the idea of planned colonization of carving a harmoniously functioning community out of the wilderness has a good chance of attracting the crackpot, the utopian planner and, of course, the prestige-hungry politician interested in "inaugurating" a model colony. At the same time, because colonization schemes appear to offer an escape from the nasty class struggle, there is a good chance that they will on various occasions be proposed as the best solution to the land problem and a singularly high probability that such schemes will fail." Albert O. Hirshman, Journeys Toward Progress (New York: The Twentieth Century Fund, 1963), p. 141.

²Efraim Orni, Forms of Settlement (Jerusalem: Jewish National Fund and the Youth and Hechalutz Department of the World Zionist Organization, 1960), p. 5.

merchants and commercial men and the unfamiliar conditions they encountered. The second wave of immigrants during the first decade of the twentieth century sparked off by the anti-Jewish programs in Russia gave the development of the Moshava a great impetus. These workers, armed with the idea of self-labor, were able to overcome the many difficulties and successfully developed citriculture in the coastal plains. It was the Moshava along the coastal plains that provided the decisive contribution in absorption of the masses of immigrants following the Israeli independence. Today Moshavots along the coastal plains have populations between 10,000 and 40,000.

Corresponding with the development of the Moshava during this period was the evolution of collective settlements. The small family-oriented Kvutza and later the larger communal Kibbutz were formed. The concept of collective groups which would work the land, engage in special pioneering tasks, and provide defense originated from the second wave of immigrants from Russia (1902-1914), where the abortive attempts against the Czarist regime had impregnated the Jewish youth with ideas of social reform. The first Kvutza in the country named Deganiya (corn flower) was formed in 1911. The Kvutza took shape under the inspiration and influence of Professor Franz Oppenheimer and the philosopher Aaron David Gordon. The philosophy behind this form of settlement was basically that physical work could redeem and exalt the human spirit if sharing is on the basis of "From each according to his ability, to each according to his needs." The original intention was to create a large family that carries on its affairs by mutual agreement. Thus, the Kvutza could not, for practical purposes, contain

more than 25 adult members. As more members were admitted, the people of Deganiya reduced the size of the settlement so that new Kvutsots could be formed. However, as family ties weakened through natural increase of the members, there was no alternative but to modify the Kvutsots into a form of collective settlement which exists to this day.

The problems encountered in the Kvutsa gave rise to the idea of the large collective. Shlomo Levkovitz, an early proponent of the Kibbutz, is quoted to have argued that:

The small collective, the Kvutsa, cannot bring out man's capacities to the full; it limits his horizon and does not allow his spirit to attain its loftiest heights. Public services such as education of the children and cultural activities can achieve a high level only in a large settlement. We must create a source of livelihood in every Kvutsa for the largest possible number of immigrants; this can only be achieved by combining industry and craft with agriculture. In this way the Kvutsa can become a self-supporting, self-sufficient economic unit supplying almost all the needs of its inhabitants. This will make it possible too for the Kvutsa to free itself from the capitalist economy of the towns and the exploitation that goes with it.³

These words summarize the forerunner of today's Kibbutz. After a period of ideological evolution, two major associations of Kibbutz collectives have emerged--the Ihud Harvutsot Wehakibbutsim with approximately 80 settlements and the Hakibbutz Hameuhad with about 58 collectives--differing only in minor degree. A minor variation of the standard Kibbutz was found in the Hashomer Hats'air settlements which emphasized ideological collectivism and arose out of the ideas of Martin Buber, the Jewish religious philosopher, and A. D. Gordon, the philosopher of the religion of labor.

³ibid., p. 39.

Yet another form of settlement which has had a major impact on the design of today's settlement came about through the efforts of Eliezer Yaffe who immigrated in 1911 from America. Realizing that the Kvutza was not ideal for him and his comrades, he advocated the formation of the Moshav Ovdim (the smallholders' settlement) along the four principles of national land ownership, self-labor, mutual aid and responsibility between shareholders and joint marketing of produce. The Moshav Ovdim represented the individual family farm enterprise combined with cooperative institutions to assist this undertaking. Most of the new immigrant villages today adopt in large measure the principle of the Moshav.

In an effort to bridge the gap between the commune-style Kibbutz and the individual family farm of the Moshav Ovdim, the Moshav Ovdim Shitufi (the cooperative smallholders settlement) was formed in the mid-1930's by Bulgarian, German and Central European immigrants. Work in these settlements was organized along the lines of the Kibbutz and the principle, "from each according to his ability, to each according to his needs," was followed. However, freedom in the satisfaction of individual needs with individual family housing and expenditure of earnings was maintained. The original three groups of immigrants fixed the pattern of development followed by many more settlements of the type established by immigrants and soldiers demobilized from the British Army.

Other variants of the major models exist to this day: religious settlements and religious Kibbutzim which the originators intended to be cells of Tora State founded on Jewish law; stronghold settlements

which came into being in the last stages of the war of independence in 1948 and were simultaneously defense outposts and agricultural settlements; and immigrant settlements, labor villages and Jewish Agency administered farmland.

The historical review of these settlement projects in Israel brings out the extremely significant truth that the programs evolved were indigenous and stemmed from ideological differences among the people. What is more important to this thesis is that economic considerations reigned supreme in the final analysis and each particular Kibbutz, Moshav or Kvutso changed its operational rules and even ideological doctrines to accommodate the changing political situation and to solve any economic exigencies of the time. Before creation of the State of Israel there was little planning and the Kibbutz formed the main instrument in absorbing the politically motivated immigrants. After statehood the settlement of people over all the country became a principle national goal and the Moshav Olim developed to become the most suitable in implementing this goal. From 1955 onward all new settlements were established within the broad framework of regional planning.

The ideology, operational rules and implementation of these regionally planned settlements today provide by far the largest source of experience that could be useful in the Malaysian context.

Importance of the Moshav in Israel

The Moshav accounts for 45 percent of the total national agricultural output. In 1967, there were 345 Moshavim out of a total of

706 agricultural settlements in the country, and 45 percent of the rural population of Israel lived in either the Moshav Ovdim, the Moshav Olim or the private Moshav. The Moshav is thus an extremely important form of settlement in Israel.⁴

The Moshavim and the Kibbutzim developed through differences in ideology and methods of operation. But through the years, the evolution into fully commercialized as opposed to subsistence settlements has reduced the differences between these two variants of cooperative agriculture. With technological advancement there has been a tendency towards specialization. The Moshav has specialized in labor-intensive products such as tree crops and animal husbandry, and the Kibbutzim, producing 33 percent of the national output, have concentrated in enterprises where the big farms have advantages such as grain crops, field crops, and beef cattle. Essentially, the Moshav is labor intensive, small scale and individually operated while the Kibbutz is capital intensive, large scale and collectively owned.

Success of the Moshav

The most significant fact about this institution is that it has been able to combine self-sustained development with other political, social and ideological goals. Evidence of self-sustained development must of necessity come from the Moshav Ovdim because of the prerequisites of maturity and representation. The Moshav Olim differs from the

⁴Maxwell I. Klayman, The Moshav in Israel: A Case Study of Institution-Building for Agricultural Development (New York: Praeger Publishers, 1970), p. 59.

Moshav Ovdim only in its association with regional planning and with its role of absorbing post-state immigrants.

A farm management study of 66 farms in six villages of the Moshav Ovdim type for the period of 1954 to 1958 conducted through the Falk Project came up with these facts. Sixty-nine percent of the total output is attributable to capital inputs, mostly in raw materials and feeds for poultry and cattle; 11 percent is attributable to labor; and 20 percent, the residual output to management. These figures indicate the relatively commercialized character of the Moshav with high capital inputs and considerable management capability. The study further discovered that there was a close agreement between value of marginal product and price of livestock. This suggests familiarity of management with economic principles or at least the profit-maximizing goals of the farmer. Another contribution of the study was the finding that a 1 percent increase in the price ratio of product to feeds with the capacity of runs being fixed was associated with a 0.6 percent increase in the quantity produced of poultry within the year. Long-run response of capital production investments to output increases was also implied.⁵ The commercialized character of these Moshav Ovdim-type farms suggests profit maximizing principles and self-sustained economic development. Of about 50 Moshav Ovdim established by early 1949, 35 of these settlements (70 percent) developed into highly successful agricultural communities.⁶

⁵Yair Mundlak, An Economic Analysis of Established Farms in Israel, 1953-1958 (Jerusalem: Falk Project for Economic Research in Israel, 1964), pp. 15-32, cited by Klayman, ibid., pp. 104-108.

⁶Ezra Sadan, "Agricultural Settlements in Israel, A Study in Resource Allocation" (unpublished Doctoral dissertation, Department of

The best method of illustrating the path towards self-sustained economic growth of the Moshav is obtained by tracing the development of a model Moshav--the Nahalal settlement.⁷ Nahalal, settled in 1921 by 80 members, was the first Moshavim Ovdim. It received a hereditary leasehold from the Jewish National Fund of 2,312 acres. The original farm size was 27.5 acres, but by 1965 the original farm units had reduced to 22 acres in size because schools were built and new villages formed. Although the land area actually under cultivation had diminished, the total value product of the farm increased continuously as can be seen from these cooperative sales figures.

<u>Year</u>	<u>Israeli Pounds</u> ⁸
1945	99,947
1950	282,337
1956	1,106,750
1964	3,683,800

Part of this increase is, however, due to inflation and the rising cost of living. By 1965 the average net farm incomes had risen to I£ 15,000 which was considerably higher than the average for the Moshav Ovdim in the entire country, estimated at I£ 10,000.

The increases in the total value product and net farm incomes can be attributed to improvements in technology and skills and continuous

Economics, University of Chicago, 1962), p. 55, cited by Klayman, The Moshav in Israel, p. 85.

⁷ Relevant data in the following account of Nahalal were obtained from the study by Klayman, ibid., pp. 113-20.

⁸ In 1948 the exchange rate was I£ 1 to U.S. \$4.03. Inflation and subsequent devaluation reduced the rate to I£ 1 to \$0.556 by 1953. On February 9, 1962, a uniform exchange rate was established at I£ 1 to U.S. \$0.33 which has since remained steady except for small variations.

investments in agriculture. Improvement in skills and technology leading to increased productivity is spectacularly demonstrated by the dairy and poultry enterprises. The dairy herd has been stable since 1946 with 348 head in that year and 368 head in 1964. However, the milk produced doubled from approximately one to two million litres. It has been estimated that productivity per cow increased sevenfold from approximately 700 litres in 1922 to 5,800 litres in 1965. In the poultry enterprise, the sale of meat increased from 86 tons in 1945 to 337 tons in 1964, and egg production had risen from 1/2 million units in 1948 to 4 1/2 million units in 1964.

Continuous investment in agriculture by the settlers in Nahalal is evident from the expansion of the irrigated land as seen below.

<u>Year</u>	<u>Area in Acres</u>
1945	300
1950	636
1956	823
1964	906

Further investments were made in subsidiary enterprises such as turkey farming which eventually became a major enterprise in the settlement. In 1964, 129,000 turkey poults were sold. Fruit plantations were increased fourfold and returns to vegetable gardening were maximized by specialization in seed production and melon growing.

Flexibility of resource allocation was maintained in the settlement through diversification of skills, availability of credit and development of different enterprise combinations within the farm. From the standard type of poultry and cattle farms, four distinct types of specialized farms were developed:

1. Specialized dairy with 20 or more milk cows.
2. Mixed dairy and poultry farms that on the average had about 12 milking cows, 500 chickens for eggs and 1,000 chickens for meat.
3. Turkey and beef farms that had 3,000 turkeys and 10 to 15 bulls for meat.
4. Poultry and beef farms that included about 10 bulls for fattening and produced both regular and hatching eggs that were sold to the cooperative in return for chicks.

The average net incomes on these farms were considerably higher than most of the other farms. Dairy farms average I£ 18,000; mixed dairy-poultry I£ 15,000; turkey and meat animals I£ 35,000 and poultry and meat animals I£ 10,000.

The final ingredient in the economic success of the Moshav Nahalal was the creation of nonfarm employment within agriculture and outside agriculture. The population in the settlement increased from 365 in 1962 to 684 in 1959, and most of the second generation remained on the farm and were gainfully employed. In the 1962-68 period, about 12 percent of the population of the Moshavim were employed full time by the government and the cooperative institution. In addition, members from 20 farms out of the 76 in the Moshav obtained a substantial part of their income from off-farm work.

Evolution of the Moshav Nahalal has closely followed the path of self-sustained development. Emancipation from settlement agency in farm and community decision-making was realized early; continuous increases in total value product of the farm with consequent high net farm incomes occurred and finally employment opportunity expanded through increased investments in the settlement.

II. SETTLEMENT PROGRAM IN THE MOSHAV

Whereas the Moshav Ovdim has undergone a long period of evolution and a series of changes to arrive at its present form, the post-state Moshav or Moshav Olim is a closely directed and carefully planned version of the Moshav Ovdim. The basic structure of the Moshav is adopted with minor changes to suit the new types of immigrants from Asia, North Africa, and the Middle East. The objectives of the settlement agency regarding this form of settlement are as follows:

1. To increase agricultural production.
2. To provide immediate employment.
3. To decentralize the population and occupy new areas in the country.

It appears that provision of immediate employment is the prime objective with the other two objectives acting as constraints. This is evident from the willingness of the settlement agency in the Lachish region to modify the size of the regional town and other plans to cope with an unexpected excess of immigrants.

Essentially the smallholders' cooperative unit may be described as follows: Each family is a separate economic and social unit and the farm is operated with farm family labor. Market transactions both for inputs and farm products are conducted cooperatively so that seeds, fertilizers, water, machinery and loans are provided to the settlers jointly as members of the cooperative, and crops are marketed together. Other services are similarly provided to the settlers as members of a cooperative. General policy is determined at the village level and

day-to-day management is the responsibility of elected officers and committees. The settlers are expected to assist each other in case of need and to develop the local cultural activities. There is thus little difference between the basic structure of the settlement unit in the case of the Moshav and that of the unit in West Malaysia. This resemblance in ideology and method of operation has prompted the selection of the post-state Moshav for detailed study in the attempt to gain insights which might be useful in planning land settlement in Malaysia.

The Kibbutz, based on the philosophy of communal living and complete emphasis on social goals, is almost totally alien to the Malaysian scene. Although self-sustained development was achieved in varying degrees by the different Kibbutzim, the means of achievement cannot be visualized in Malaysia. For example, in recent years the Kibbutzim have concentrated in enterprises where the large farm has advantages such as grain, beef cattle and field crops that can be mechanized. In short, farming has tended to be capital intensive and maximizes the productivity of land rather than labor. This is confirmed by Dr. Sadan of the Hebrew University who found that the value of marginal product of land in the Kibbutz is less than that in the Moshav and the value of marginal product of labor in the Kibbutz is higher than the labor market price which is still higher than that in the Moshav.⁹

The unique features of the Moshav as it pertains to self-sustained development may be categorized under the headings of regional planning,

⁹Sadan, "Agricultural Settlements in Israel," cited in Klayman, *op. cit.*, p. 85.

comprehensive agricultural planning, settler development, finance, land tenure, role of the settler, and employment.

Regional Planning Concept

An exciting feature of the new post-state Moshav is the concept of planning the new settlements in a regional context. In this system five or six villages are grouped around a rural center and another five or six regional centers surround the regional town. The rural center is planned to be at a distance of 2 or 3 kilometers from each village. The development plan for the Lachish region which might be regarded as representative, called for the development of 4,500 farm units grouped around 45 villages inhabited by 36,000 people. Half of this number of settlers were to be farmers and the other half employed in the regional centers and town which was to populate 14,000.¹⁰

The philosophy behind this form of settlement location and regional development as stated by Raanan Weitz, the Director of the Jewish Settlement Agency, is that the chief requirements for achieving rural development is a suitable economic momentum to raise the per capita income, additional opportunities for employment of surplus manpower outside agriculture but within the rural area, and the creation of social and cultural services and activities on an adequate level. He contends that scattered settlements and single communities are too small for the required economic activity to develop and costs of services and amenities

¹⁰ Darin-Drabkin Haim, Patterns of Co-operate Agriculture in Israel (Tel Aviv: Department for International Co-operation, Ministry of Foreign Affairs for the International Association for Rural Planning, 1962), p. 217.

to high to be duplicated for every settlement.¹¹ What are the economic implications of this plan as they have evolved in Israel? This pattern of development has taken place:

1. Better and cheaper productive services such as credit, extension, distribution of farm inputs, research and marketing have been possible.

2. Increases in productivity, and total production of sufficient quantity have enabled processing plants in the region to be established profitably. This ready market for industrial crops such as cotton, groundnuts, potatoes, maize, sorghum, sugar beet, and vegetables have stimulated further increases in production.

3. A ready market in the regional centers and city for subsidiary enterprises, so crucial in exploiting the productivity of family labor was created. Diversification in agriculture was stimulated resulting in security against price fluctuations of any one crop.

4. Resource development such as water and power was more efficient when undertaken on a regional basis.

5. Industry in the regional towns and rural centers provided alternative employment and income sources, and stimulated the linking of agriculture and industry.

Social and economic integration within the village and among villages is crucial to economic growth. This aspect of the settlement process is particularly important in the Israeli case because immigrants

¹¹Raanan Weitz, "On the Concept of Comprehensive Rural Development" (Rehovot: The National and University Institute of Agriculture, 1963), p. 3. (Mimeographed.)

from different countries were involved. Weitz observed that:

Up to 1955 the general policy of the settlement authority was to place immigrants from various countries in the same village, in the hope that this would encourage the merging of the communities. Experience has shown, however, that groups with different linguistic, economic and social backgrounds find it difficult immediately to mix with one another and that friction often results. The idea was therefore propounded of settling new immigrants from the same country or community in the same village, while at the same time providing opportunities for their mixing at a somewhat more removed level.¹²

Social integration as an impetus to economic success is substantiated by the experience in the Shendam scheme in Northern Nigeria which has settled 6,000 people since 1945 in 42 villages. The increasing number of applications to join the scheme and the expanding cattle population and luxury items of consumption attest to some economic success of the settlers, even though the assistance given to these settlers is only a small fraction of that given to the Israeli Moshav participant (only £ sterling including official salaries is spent on each settler).¹³ A United Nations report attributes a major ingredient of success to the fact that integrated groups able to preserve their social organization and provide mutual support were settled together in the same village.¹⁴

The most significant feature of this regional development concept with respect to a whole series of new settlements is that

¹² Ibid.

¹³ At that time the official exchange rate was £ 1 sterling to U.S. \$2.80. It is not £ 1 sterling to U.S. \$2.40.

¹⁴ United Nations, Department of Economic and Social Affairs, Progress in Land Reform, Fourth Report (New York: United Nations, 1966), p. 60.

economies of scale, economies of localization and economies of urbanization are exploited to the maximum while at the same time maintaining the village at small enough a size that would allow joint action through mutual agreement. In no other country in the world has such a carefully planned series of new settlements and towns been implemented with such apparent success.

Comprehensive Farm Planning

The farm plan of the post-state Moshav is characterized by flexibility in enterprise combination and the high degree of detail in the plans. There are three model type of farms in the Lachish region-- the dairy type farm, the industrial crop model and the citrus farm. These models are shown in Table B-1, Appendix. In other regions a hill type farm combining field crops, tobacco, poultry and sheep and a mountain model combining poultry with fruit is implemented. The composition of a particular model is based on the physical conditions of the region and an initial basic level of income that can be derived from it. This flexibility enables exploitation to the maximum of the land, labor and capital resources and allows some form of specialization within the constraints of the number of proven models at an early stage in the development process. Specialization within the village is also possible as there are no constraints when alternative enterprise combinations are equally profitable.

The degree of detail in the planning of farm operations by the settlement agency is remarkable because the plan is implemented in the context of individual farm operations. Detailed specification on the

work schedule and other operations have been efficiently carried out in other countries with a collective form of farm operation. In the new Algerian settlements, the Gezira scheme, the farmers' collective in Ghana and in Cuba plantation style management and the detailed work orders to the farmers have been the practice. However, in the Israeli Moshav an equivalent level of coordination, cooperation and achievement have been realized through mutual agreement among the settlers with technical assistance from the settlement agency.

Detailed planning and cooperation is necessary because agriculture in Israel is largely limited by the scarcity of water. In the Lachish region irrigation water has to be piped to the farms from another area and is costly so that the system of farm operations has to be geared to efficient water use. A land utilization map of the village divides the land into irrigated plots, collective grain farming, orchards, vineyards, grazing land or marginal lands to be afforested. A water planning map indicating the distribution of the irrigation pipe lines to every farm, the specific types of pipes and sprinklers to be used is drawn up. Every farm is equipped with a water meter to measure the quantity of water used and amounts payable. These two planning maps determine the farm layout and the crop rotation to be followed. Tables B-2 and B-3, Appendix, illustrate the crop rotation schedule for 20 dunams of land (approximately nine acres) and the corresponding work schedule. Table B-4, Appendix, gives the estimated income from the farm types at the time the settlement was planned to illustrate that a basic income level was a subsidiary objective.

To demonstrate the importance of comprehensive and detailed

planning of farm operations, the case of the Gal Oya Valley settlement scheme in Ceylon may be cited. In a study to identify the factors responsible for the failure of colonies of the left bank region of the Gal Oya Valley to develop into an economically and socially viable society, the absence of detailed farm model and regional planning was conspicuous. Extracts of the report goes as follows:

As between wet and dry land, neither were actual areas for different parts of the region carefully calculated nor was the production use of so-called upland systematically determined. . . . Lands not suited for paddy cultivation were sometimes marked as paddy lands. We are inclined to believe that the question of irrigation difficulties due to faulty channels, a probable shortage of water supplies for servicing the area, the misuse of irrigation water and lack of effective coordination of water issues at the various branches and outlet points with the sequence of cultivation operations are fundamental obstructions to a more economic and productive use of the land resources in the area.

In conclusion the report states:

All these indicate the importance of regional planning embracing all fronts, of planning to raise the level of productivity in paddy cultivation, for the better utilization of the highland and coordinating its outputs with the establishment of small units of agro-based industries, the construction of all-weather roads, the careful assessment and the determination of a systematic plan for the coordination of irrigation water supplies with cultivation requirements, the improvement of the institutional framework for the provision of sufficient supplies of important inputs and farm machinery at the appropriate times of need if the level of income of the settler is to be raised from its stagnant equilibrium.¹⁵

This advice is not new or original but it does demonstrate a case where lack of detailed farm planning and provision of alternatives to cope with exigencies in the process of development give disappointing results.

¹⁵Upali Nanayakkara, "Draft Report on the Agro-Economic Survey During 1966/67 of the Peasant Colonization Settlement in the Left Bank Area of the Gal Oya Valley" (Ceylon: River Valley Development Board, June 1969), pp. 49, 51, 125. (Mimeographed.)

Settler Development

Essentially the process of settler development in the Moshav does not differ much from most planned settlement projects in other countries. There is the initial guided farming system for a specific period followed by emancipation when the settlers have proved potentially capable of operating the farms on their own. Meanwhile, extension agents and managerial personnel gradually transfer the decision making process over to the individual farmers and the community. The characteristic feature in this system is that settlers are assigned land progressively in stages in accordance with their rate of progress in farming ability.

On arrival at the settlement, the settler is allocated four dunams (0.88 acres) of land on which to produce vegetables.¹⁶ He is then given a job as a laborer by a public or private operator who works all the arable land of the village. The contractor is obliged to hire only settlers and at a wage rate set by the General Federation of Jewish Labor. After about a year the settler is given another 13-14 dunams (3 acres) of irrigated land and the contractor's land is reduced gradually. The settler derives about half his income from working as a laborer for the contractor and the other half from working his own land. In the third year more land is allocated and in the fourth year all the irrigated land due to the settler of 20 dunams (4.4 acres) comes under his operation, subject to the control of the settlement authority. His entire income is derived from working his land.

¹⁶One dunam is equal to 0.22 acres.

The intermediate stage begins in the third or fourth year after 20 dunams (4.4 acres) of land have been allocated to the settler and half the production credit has been invested. This stage lasts until all the production resources of about I£ 26,000 have been invested and another 20 dunams (4.4 acres) of unirrigated land given to the settler. By this time the settlers would have undergone an extremely demanding selection process and a group of independent profit maximizing farmers are developed. It must be emphasized here that the system of settler development is geared to the abilities of the individual settler. In the same village different periods of time may be taken for different settlers to arrive at independence. This assures that the full value of the training process is realized and is possible through the process of stage-by-stage land and capital allocation.¹⁷

A slight variation of this form of progressive land allocation is found in the Urambo region of Tanzania. In this system the settler worked on training farms for a year or two. When he had earned enough working capital of about £ 50 and had acquired a certain level of proficiency in tobacco planting, the settler was offered tenancy of a five-acre farm on which he built his own house and tobacco barns. The next stage follows when he had accumulated a working capital of £ 150 by working the five-acre farm. He then has the prospect of acquiring more land, up to a maximum of 300 acres. Six out of about

¹⁷ Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 6.

200 farmers had graduated to this stage by 1961.¹⁸ In spite of this small number the Urambo settlement project is apparently one of the more successful ones in Tanzania and Africa. Most settlement projects throughout the world exercise some form of discipline and precondition of tenure to ensure that only the best human material occupies the land. This, however, is more negative than positive action. The Urambo form of graduated land allocation and cumulative investments is unique in that it is based on positive thinking. The incentives provided for economic self-advancement goes a long way to stimulate all farmers to hard work, frugality and independent investment.

Finance

Like the Malaysian situation the settlement authority in Israel undertakes complete financing of the individual farm unit and the village center. This is the case with most of the successful projects in Africa and the Middle East, and the general impression gained is that adequate financing is one of the most vital keys to self-sustained development.

Loans and grants accorded to the Moshav settler are extremely high in terms of money value. The settlement authority invests I£ 30,000 in each farm unit.¹⁹ The investment program is not standard but determined by the farm type and executed over a period of six to seven years according to individual progress. Productive capital is issued to the

¹⁸United Nations, Progress in Land Reform, Fourth Report, p. 68.

¹⁹At the current rate of exchange I£ equals approximately U.S. \$8,700 and M\$26,600.

settler in the form of equipment and stock and organized on a hire-purchase basis. An important point to note here is that repayment of the investment begins only when the total allocation of I£ 30,000 has been advanced. Thus no interest is paid for seven years, and repayment is effected over a period of 30 years at a minimal 3 1/2 percent interest. In addition to this investment loan to the farm unit, another I£ 15,000 per farm unit is invested by the government and the settlement authority in public works such as regional water schemes, roads, forestry, etc. This sum is a grant.

The arrangement is thus not unlike that in the F.L.D.A. in Malaysia. There is, however, a major difference in that the settlers are expected to provide an additional investment capital of 30 percent of the amount already advanced by the settlement authority, either through reinvested profits or through special loan funds offered by the Ministry of Agriculture after the settlement authority has completed its capital investment. The interest rate is also higher at 7 percent repayable over a period of ten years. A third source of credit is provided by special short-term seasonal loans or by adjusting the total investment program so that about I£ 2,000 is available over a period of seven years for short-term seasonal credit. This is to enable the farm unit to gain access to circulating capital since the major portion of the I£ 30,000 investment loan goes to long-term capital investment such as irrigation, buildings, machinery, etc. An interesting feature of the financial arrangements may be mentioned here. All settlers are required to subscribe to the national insurance that provides

for benefits in old age, births, and injuries incurred at work as well as to the health insurance.²⁰

This review of the financial arrangements reveals two things of great significance. First, all financial requirements are taken care of: subsistence, long-term investment capital, seasonal investment capital, and even the welfare in old age is provided for through insurance schemes. Second, capital loans to the settlers are based on performance. The investment program is flexible and concentrated on those progressive settlers who have demonstrated their ability, at the same time allowing the slower ones to move at their own pace, learning from their neighbors. These two features--adequacy of capital and flexibility in the investments process--have been important in self-sustained development of the Moshav. A schedule of the investment program is shown in Table B-5, Appendix.

The wisdom of basing the investment program on settler performance cannot be overemphasized from the viewpoint of maximum gains in project productivity. The Eastern and Western Nigerian land settlement projects of 1960 and 1962, respectively, attempted to combine a high level of capital investment with literate young and ambitious primary school graduates to create a modern farming sector, but they failed and had to undergo a series of changes in order to survive. In these cases approximately 3,000 pounds was spent per settler (including cost of the training institute), yet this combination of capital and good human material did not produce the expected results because the young

²⁰Weitz, The Composite Rural Structure, p. 31.

men, fresh from school, had not demonstrated their willingness to lead a rural life or gained experience in farming. The modified plans now emphasize the selection of more mature men with farming experience and demonstrated ability to work under difficult conditions. The training period at the farm institute has been abolished and settlers undertake foundation work at the schemes immediately after they join so that a taste of settlement life and the chance to resign early is open to the settler. Finally, instead of rigid work schedules being set by the management, settlers are encouraged to take over the management through inculcation of a sense of community and personal responsibility. The performance of the settlers determines the rate of retirement of supervisors.

Land Tenure and Settler Role

In Israel the land is nationally owned and never becomes the absolute property of the settler who leases it for a period of 49 years and has rights of renewal. Land and property transactions are thus debarred, and under the usual circumstances (in other countries) would be a constraint to optimum resource allocation. This, however, is not serious because of the high mobility of the Israeli labor force and the long-term graduated investment program. These two characteristics assure that only those farmers with proven ability get to be established farmers in the Moshav and only those who wished to be farmers are given the chance. Nothing ties the settler to the farm if he wishes to leave because he arrived with nothing and can leave with the prospect of a better job. Every effort is made to reestablish him

in another vocation by the Jewish Agency, settlement authority and the labor organizations. Under this system fragmentation of the land is avoided because only one person can inherit the farm.

From the moment he enters the Moshav the settler is a full member of the cooperative. He is required to carry out farming activities on his own plot of land according to the rules of the cooperative. Although initially the settler works as a hired hand and progressively acquires the land and capital items from the settlement agency, he takes part in all village decisions as a fully fledged member of the cooperative subject to the guidance of the settlement agency officers and veteran Moshav members. The village council, consisting of five to seven persons elected from the members of the village, assumes the responsibility of operating the general services in the village and collecting the local taxes. It decides the precise level of taxation and, most important of all, is ultimately responsible for meeting all the financial obligations of the settlers, collectively. Thus all incoming monies pass through the council first so that deductions may be made. It is the representative body of the settlers and deals with the district and regional cooperative organizations. All decisions on principle taken by the village committee must be ratified by the District Council and are then binding on all the settlers.

The most important feature of this cooperative structure is the fact that the village as a whole, made up of some 60 to 80 households, is responsible financially for the activities of the individual. Within this small group no settler would survive unless he made equal effort with the others at economic improvement. In short, individual

responsibility is replaced with group responsibility. This injects a certain insurance into the system but at the same time the group is small enough and socially integrated (settling whole communities in the same village) to such a level that community pressure on the individual is sufficient to produce the required economic drive.

The regional framework of cooperative action whereby the village councils are represented in the district councils which are in turn represented in the regional councils brings home to every individual settler the workings and benefits of a cooperative system. Finally, the village as a group through the council has considerable power in its business dealings. It is free to acquire loans and make business transactions without interference.

These features also mean that independence of the individual settler is curtailed to a certain extent. He cannot hire laborers to work on his farm, since the philosophy of self-labor is rigidly followed. He cannot buy or sell land. He cannot obtain employment or earnings outside agriculture unless authorized by the village committee. However, this is offset by the relative level of power and freedom of action of the elected village council. Given the lack of experience of the new settlers and complete financial dependence on the settlement authority, there is such a sound system which has enabled the Moshavim to arrive at a level of economic performance unparalleled by new settlements in other developing countries.

Most established settlements throughout the world do not differ much in the roles assumed by the settler during the initial stage of development. However, beyond this stage either (1) collective

management of the farm along the lines of plantation agriculture takes over as in the farmers collectives in Algeria, Ghana, the Kibbutz of Israel, and in Cuba, or (2) individual management and operation of the farm within the context of cooperative action. There is, however, an in-between case which is significant not because of proven economic viability but because of the possibilities this type of organization opens to specific groups of people.

In the Gezira model of the Sudan model of the Sudan management is centrally directed by the settlement Authority. The tenants work under meticulous supervision of field supervisors who set the work schedule, plan investments and provide the input. A rigid crop rotation schedule is fixed for all farms, and labor is hired by the management to carry out the work if the tenant is slow and the cost charged to him. In short, it is more a centrally operating corporation employing tenants on a profit sharing basis.²¹ Much criticism has been leveled at this form of organization concerning the lack of independence, security of tenure and investment incentive (since investment is the responsibility of the Authority). However, the form of organization certainly has merit when applied to the settlement of extremely poor subsistence farmers with no education and rudimentary technical agricultural knowledge, and if self-sustained development is not expected immediately. If it is assumed that the residents of subsistence villages with great potential are settled on the current F.I.D.A. projects in Malaysia, then it is conceivable that

²¹United Nations, Progress in Land Reform, Fourth Report, p. 66.

when dealing with the less well endowed of the rural population this form of organization might be an intermediate stage towards economically viable statements.

Employment Expansion

No aspect of the body of activities leading to self-sustained development is more pronounced in the Moshav settlement program than the meticulous care taken by the settlement agency in creating employment opportunity to augment farm income and to absorb redundant farm labor. More striking is the fact that the creation of employment opportunity is linked to the agricultural industry so that the two sectors complement and accelerate each other. In Israel, expansion of employment opportunity and the concurrent increase in income are effected through a three-pronged attack on the problem: the service sector primarily catering for the needs of the farmers; the linked agricultural industries; and the nonagricultural industries in some regions such as the Lachish region.

Apart from the essential services such as education (both adult and children), health, social welfare, public works and cultural activities which provide part-time or full-time employment for the settlers, the rural center engages in the provision of a number of economic services which create employment for the unemployed or underemployed. Three types of regional organizations provide the agricultural services that stimulate production, facilitate transactions, and create employment.

The regional purchasing associations are active in group purchasing,

credit, marketing and undertake many other services and agricultural processing operations. In recent years, many purchasing associations have constructed large feed mills, installations for produce sorting, refrigeration, warehouses, and slaughterhouses. Each Moshav contributes share capital for establishing these regional purchasing associations. Each is represented in the board of directors so that whenever possible the jobs created would automatically go to the settlers. There were 30 regional purchasing associations in 1966 of which 11 catered to the Moshav. Each association averages 20 to 30 villages.

The second category of regional organizations consists of the regional councils. Located at rural and regional centers, regional councils are concerned with general public services such as administration sanitation, public works, education, and public utilities such as water, and these activities provide employment on a part- or full-time basis for the settlers. Recently the councils have expanded their economic services and functions. The council runs the fruit and marketing center operated under the jurisdiction of Thuva, the national cooperative marketing association. Other marketing facilities operated by the council include cold storage plants, poultry slaughterhouses, bakeries, laundries and supply shops. The regional councils have also become partners in industrial activities. These regional councils are responsible to the Ministry of the Interior and derive half the budget from the settlements and their own economic activities. Each council comprises about 10 to 20 settlements and is run by a body of elected representatives from the villages and an elected director.

Finally, the regional development corporation is an example of a secondary cooperative formed along the same democratic lines as described for the other service institutions. They assume duties that were previously under the jurisdiction of the settlement authority, and create further investment and employment through such activities as communal cultivation of dry land farming, communal cultivation of orchards and cooperative transportation. A common service in rural centers is the tractor service operated by the settlement agency. The tractor service is eventually taken over by the settlers on a cooperative basis. Combining economies of scale with consequent cheaper mechanization for the settlers and provision of jobs for the skilled members of the community, it is a valuable source of employment and income.

In recent years three types of industries have been created in new settlements. First, there are industries linked to the settler activities and serving specifically to augment the settlers' incomes. The growing season in some areas is too short to exploit fully the productivity of labor in the region. With the help of cooperative organizations in the northern highlands a plant was established for sorting, grading and fermenting the tobacco leaves during the period from October to February, which is the slack season. Agriculture in the area benefited from a ready market and the settlers' income and employment level increased. Another form of industry termed auxiliary industries, unrelated to agriculture, includes the production of copper, brass and silver objects of art; sacks and other packing material. The distinctive feature of this industry is that production is geared to the

settlers' work schedule in order to maximize the productivity of the farm family labor. The third type of industries resulted from pressure of mass immigration. The development of Kirat Gat in the Lachish region had to include in its plans the development of nonagricultural industries to provide additional jobs. Apart from two cotton gins, a large cotton spinning mill, a large sugar factory (I£ 15 million investment), a groundnut sorting plant, and a citrus packing plant, Kirat Gat also has a sheet metal products factory and a diamond cutting factory. Other enterprises such as a dyeing works, a paper mill, and a tannery were planned as early as 1962. The expansion of these industries and the continuous stimulus given to the agricultural sector through the demand for food of a bigger and more well-to-do working class has obviously contributed to the income increases and self-sustained economic development.

In 1955-56 the annual net farm income of the settler's family had been only I£ 1,260 while in 1959-60 it had grown to I£ 2,400; corresponding figures for total income including nonagricultural earnings rose from I£ 1,600 to I£ 2,900. Farm productivity also increased. Sugar beet production rose from three tons per dunam; groundnuts from 0.2 tons to 0.29 tons; potatoes from 1.5 tons to 2.5 tons; and tomatoes from 3 tons to 5.5 tons.²²

III. CONCLUDING OBSERVATIONS

The discussion has traced the origins of the various settlement

²²Darin-Drabkin, op. cit., p. 217.

forms and followed the development of the Moshav Ovidim to emphasize the realization of self-sustained development of this form of settlement. It has been observed that the path of development has involved emancipation, productivity increases in land labor and capital, and continuous expansion of employment opportunity with resulting higher incomes and levels of living. In the field of rural development in general, and the Moshav in particular, a multitude of factors contribute to the success or failure, and to isolate any one set of factors and conclusively infer that they are the critical elements is impossible. However, quite clearly the emergence of Zionism, the high level of leadership, the financial resources of the Jewish Agency, the institutional structure and the prevailing philosophy of agricultural fundamentalism combined with highly motivated, able and nationalistic human material generated a settlement model that led ultimately to self-sustained development. In short, the particular social and economic setting gave rise to an indigenous model capable of solving the problems hindering economic growth--problems which are common to most developing countries.

The post-state Moshav combining the basic philosophy of the Moshav Ovidim and many new innovations to cope with the changing national scene provides many guidelines as to how other indigenous models in developing countries might be evolved. The conclusion reached in the study of this model and other models in developing countries is that three key characteristics are crucial.

1. Comprehensiveness of planning.
2. Flexibility in implementation.
3. Adequacy of financial resources.

Comprehensive planning does not mean merely comprehensive farm planning or even rural planning. The Israeli example clearly illustrates the universally applicable principle that the new agricultural settlement must be totally integrated with the whole economy. The model meets this requirement through a system of cooperative societies that link the farmer in the village with regional and national decision making. Comprehensive planning does not regard the settler as belonging only to the agricultural sector but views him as a productive unit within the total economy capable of stimulating and participating in industrial development. Thus agricultural and nonagricultural industries were brought to the settlements with consequent employment expansion and income increases. Finally, in comprehensive farm planning, physical production possibilities were integrated with market and institutional capabilities. In short, the physical and institutional infrastructure developed in phase with agricultural production.

The second major ingredient contributing to the success of the Moshav was the flexibility of implementation. The settlement agency changed its plans according to the exigencies of national development. It modified plans according to the characteristics of the participants in the village. It provided alternative farm models to be followed thereby allowing a certain degree of choice and specialization. The settlement community was allowed to make its own decisions subject to the guidelines set by the agency and the advice of the officers. Only the best settlers survived the system of cooperative development, mutual responsibility and freedom of mobility. The cooperative carried out the process of selection of the fittest. Finally, the individual

settler was encouraged to develop at his own pace, and to specialize in that farm model at which he was most proficient. Moreover, the settler received credit subject to his performance.

The third universally applicable role is that finances must be adequate. Among all the models studied, especially in Africa, the Middle East and Southeast Asia, the Israeli model provided the highest level of investment credit. Because land is nationally owned and due to the high mobility of the labor force, investment credit tended to be concentrated on the best settlers. Almost no settler selection is carried out at the start, but the system of mutual responsibility in a small group coupled with the high mobility of the labor force is by far the strongest selection process.

CHAPTER V

CONCLUSIONS, MODIFICATIONS AND ALTERNATIVES

I. CONCLUSIONS

Achievements

The existing settlement program in Malaysia has achieved much in alleviating the many social and economic problems in the country. Employment has been created, income inequality between the rural and urban populations partially redressed, and human resource development promoted. More specifically, 18,400 farm families have been given jobs and the expected net income level of M\$290 per month would bring the settlers' living levels way above the average in the rural sector. Raja Mohammed Alias has estimated in detail the contributions of the F.L.D.A. to the nation.¹ These contributions may be summarized as follows:

1. The F.L.D.A. projects will create at least 3,500 jobs each year and have kept in continuous full employment 7,000 skilled workers in jungle clearing and construction work.
2. The projects provide a useful channel for public sector investment realizing an estimated 13 percent internal rate of return.
3. By 1975, 22,000 contributing families would add approximately M\$10 billion to the nation's revenues, and, from this point on, these

¹Raja Mohd. Alias bin Raja Mohd. Ali, "The Role of Land Settlement in the Economic Development of West Malaysia," The Mission of Agriculture Vol. 2: Selected Papers Presented at the Second and Third Seminars on Agriculture Organized by the Malaysian Centre for Development Studies (Kuala Lumpur: Prime Minister's Department, December 1969), pp. 55-56.

revenues will increase by M\$2.5 million per year.

4. The foreign exchange earning capacity of the nation will increase by M\$100 million per year by 1975 through the sale of palm oil and rubber.

5. Additional economic activities in the areas of transport, processing and foreign trade are stimulated.

Development Strategy

In the formulation of the program that has made these achievements possible, emphasis was placed on the intensive use of funds and the skills of private agricultural contractors. This policy was unavoidable because the settlers were relatively unskilled, illiterate, bound by tradition in all activities, and, more often than not, possessed little or no capital resources whatsoever. On the other hand, the F.L.D.A. possessed substantial funds, a technically competent staff and had access to a pool of skills in the private sector in the form of agricultural contractors. Through the policy of concentrating the financial resources on as small a number of settlers as possible, relegating the difficult tasks of land development to the agricultural contractors, and selecting familiar crops, the F.L.D.A. was able to reduce risks and uncertainties to a minimum. However, in following this line of action, the program has strongly emphasized short-run output goals and tended to neglect the long-term plans necessary to effect self-sustained development in the settlement.

Inadequacies of the Program

The discussions in Chapter III reveal a number of inadequacies in the program from the viewpoint of promoting self-sustained development.

These inadequacies stem from the lack of emphasis on certain activities, inconsistencies of some program components, and over-emphasis on others.

The relevant inadequacies in the program which can be corrected without excessive cost can be summarized as follows:

1. There is a lack of emphasis on diversified skills (both agricultural and nonagricultural) in the selection of settlers and in the initial training process. Meanwhile, the settlers are subjected to an intensive training program in the cultivation of only one crop, oil palm or rubber.

2. The extremely paternalistic attitude of the F.L.D.A. personnel in the farm operations will not facilitate the acquisition of farm management ability among the settlers. The settlers do not participate adequately in the decision-making process concerning the farm operations during the period of land development.

3. There is inadequate flexibility in resource allocation within the farm resulting from the planting of permanent crops.

4. The financial arrangement is over-rigid, uniform and inflexible.

5. A comprehensive plan and early action to lay the groundwork for capital accumulation, investment and employment expansion within the settlement is lacking.

The Need to Adapt

The social, economic and technological conditions change over time, and the prospective participants of these land settlement projects

differ in their capabilities, ideological inclinations and ownership of financial resources. An optimum model to suit every settler and under all circumstances is, therefore, impossible, and any attempt at perpetuating the current "best" model indiscriminately is unwise. Only by developing a profusion of models, selecting them over time, and continuously incorporating modifications to suit new conditions, can the capabilities of the people and the resources be fully exploited to realize the goals of society.

In most situations, however, the ability and the desire to institute changes and to stray from what is thought best for the time is constrained by the costs of experimentation and the mistakes in the past. The success of the Israeli settlement is due in part to its willingness to accommodate and to change, its boldness in experimentation, and its ability to sustain the variety of models that emerged while directing its attention all the time at emancipation, productivity increases and employment expansion. The Israeli experience amply demonstrates the wisdom and the feasibility of alternative solutions and the modification of existing programs over a period of time.

Fortunately, the inadequacies of the present F.L.D.A. settlement program in fostering self-sustained development can be remedied without drastic changes in the existing program. Furthermore, since land settlement in Malaysia is an important strategy in national development at present and in the foreseeable future, the necessity of developing alternative methods of operation and solutions to problems to suit the changing conditions cannot be over-emphasized. The remainder of this chapter will deal with possible modifications of the existing

model and alternative models based on experiences of self-sustained development in successful settlement projects throughout the world.

II. PROPOSED MODIFICATIONS TO THE EXISTING PROGRAM

The evidence in Israel and elsewhere supports the basic hypothesis of this thesis that self-sustained development can be realized without sacrificing other desired achievements or involving extensive costs. Seemingly appropriate changes could be made in the Malaysian program by emphasizing some areas of activity, relegating other activities to lesser importance, and improving the consistency of interrelated program actions. The proposed modifications fall within the areas of settler-Authority relationship, development of skills, financial arrangements, resource allocation within the farm, and employment expansion.

The advantages of the existing F.L.D.A. program cannot be ignored. The program is technically efficient in rubber and oil palm planting, and much of its other achievements are based on this technical competence. Moreover, the F.L.D.A. has established a favorable reputation in the country for its comprehensive assistance to the settlers. Based on these assets, a pattern of development in terms of ideology and methodology has already been well established. Drastic changes, however relevant and desirable, cannot be implemented in the near future without harmful consequences. The recommended changes are made in the light of the existing state of technology, commitments to established settlements, and previously resolved plans for the future. As technical knowledge and market structures for a broader range of crops and livestock develop in the future, individual planning for each particular project may be

introduced. Individual project planning of enterprises may be coupled with individual settler planning where the settler has a choice of the type of settlement that would suit his ideological inclination and capability most.

Changes in the Settler-Authority Relationship

The present relationship is one of extreme paternalism in the decision-making process within the farm during the period of development. This relationship is established most effectively through the award of subsistence credit that is linked to the work schedule and the group-block method of work. The lack of discipline among the traditionally subsistence settlers and general absence of initiative have brought about this relationship. A suggested change is that the land be divided into individual family plots and allocated to the settlers on arrival at the settlement but keeping the block-group method of work at the same time. This measure in no way tampers with the efficiency of land development, but, by identifying the settler with his own plot of land (even though he develops it collectively), a feeling of proprietorship is introduced and with it the feeling of a right to take part in the decision-making process and the incentive to perform well. This would set the stage for early emancipation from The Authority.

To support this measure, each work group could be given the responsibility of making decisions with regard to the maintenance work on the block, subject of course to their performance and the guidance of the supervisory staff. This could be implemented after a year of residence and appropriate training. Since each settler has a separate

loan account, the idea of reducing costs is easily conveyed and acceptable to him. Relegating responsibility to the settler at such an early stage may appear to conflict with the Malaysian experiences in the fringe and block alienation schemes where independent settler decision-making was followed by substandard development of the crop. However, better settlers are now being selected and the quality of the supervisory and extension staff has been improving continuously. There is a possibility that allowing the work groups to make the decisions before the acquisition of adequate skills may result in the deterioration of performance. A measure of security against this might be obtained by awarding the responsibility to selected groups or by distributing the settlers with more initiative and ability among different groups. The use of veteran members of the successful Moshav Ovdim to participate in the decision-making process of the new settlements in Israel greatly improved managerial ability and hastened emancipation.

Greater Emphasis on Skills

In Israel, nonagricultural skills of immigrant settlers played a substantial role in income increases in the settlements. The overall income from Kibbutz industries amounted to 15.2 percent of the total income, and 10 Kibbutzim were known to derive 30 to 50 percent of their income from industry and handicrafts.² Thus, both agricultural and nonagricultural skills of settlers have an extremely important influence on the eventual outcome of the settlement process. It is suggested that an alteration in the settler selection process be made

²Darin-Drabkin, op. cit., p. 80.

to emphasize skills and that the settler development and training period be oriented towards the acquisition of nonagricultural skills as well as agricultural skills.

In settler selection, the prerequisites of citizenship, productive age, marital status, good health and a law abiding record should be maintained as under the present system. However, in the next stages of the selection process credit should be given to certain age groups, the desired size of the family and the nonownership of land should be given a smaller weight and skills emphasized. If the 30 point total is to be maintained, the distribution of points shown in Table 4 could be followed. The first two items are accorded the low weight of 2 points each because they arise primarily from considerations of welfare or need which have already been considered in the eligibility prerequisites. Agricultural skills, nonagricultural skills, entrepreneurial capacity, and literacy are awarded a total of 16 points with equal weight attached to each category and are suggested because of the stimulus these qualities could give to nonagricultural activity as well as agricultural enterprises and the very plausible hypothesis that these qualities strengthen each other and stimulate independent economic activity. Finally, ownership of capital is included in the criteria of selection to test the commitment of the settler to the new venture and to emphasize the importance of capital accumulation. This system allows the selection of economically motivated subsistence farmers as opposed to mere subsistence farmers. Because applications far exceed the available places, The Authority can and should be more stringent in its selection process.

TABLE 4
PROPOSED SETTLER SELECTION CRITERIA FOR THE F.L.D.A.

Criteria	Points
1. Age between 25 and 35	2
2. Two or more children	2
3. Owning less than five acres of land elsewhere	2
4. Skills:	
(a) Experience in oil palm and/or rubber	4
(b) Experience in rice planting, vegetables, fruits, poultry and animal husbandry, fish ponds and other crops (1 point for each skill)	4
(c) Experience in nonagricultural activities such as jungle felling, carpentry, retailing, barbering, auto repair, tailoring, etc. (4 points to any one or more skills)	4
(d) Experience in contract work	4
(e) Literacy (ability to read and write)	4
(f) With savings of M\$500.00 or more	<u>4</u>
TOTAL	<u>30</u>

Experience in Israel supports the recommended system. Those communities from Western and Central Europe consistently performed better economically than those immigrants from North Africa and the Middle East even though they had almost no agricultural skills. But most of these European settlers were tradesmen and artisans and possessed decision-making and organizational experience. The European settlers were usually literate. On the other hand, the immigrants from North Africa and the Middle East had to learn the latest agricultural techniques to replace their previous subsistence methods.

The next stage in the settlement process is to stimulate the acquisition of skills by members of the new community. The assumption, that even with the greater emphasis on skills in the selection process the available pool will be small in the Malaysian situation, is justified. Another assumption is that the F.L.D.A. personnel possess little knowledge and skills beyond that required for oil palm and rubber. Under these circumstances, the private sector must be tapped for the skills it can provide on the basis of mutual benefit. Progress in this direction has been made by the specification in F.L.D.A.-issued contracts that a certain percentage of workers should be recruited from the settler ranks. Jungle felling, road construction, housing, and other public works come under this category. These measures may be augmented in several ways:

1. Agricultural input firms dealing in fertilizers, insecticides, weedicides, feeds and other products should be invited to carry out demonstration techniques, research plots and lectures in the projects on those crops and enterprises other than oil palm or rubber. Prominent

firms such as I.C.I., Behn Meyer, Guthries, and Zuellig have been amenable to such proposals. Emphasis should be on subsidiary crops.

2. Integration of the extension activity with the extension service of the Department of Agriculture could be carried out on a more comprehensive scale than is done at the moment. The integration will maximize the use of the pool of knowledge and equipment in both organizations.

3. In the area of nonagricultural skill training, a pool of knowledge of traditional arts and crafts exists among the rural people such as basket weaving, silverware and woodwork, local textiles (batik), and preparation of certain foods. The skills could be mobilized by recruiting the artisans on a part-time basis to specifically train the settlers or members of their family during the slack period. Immediate results are not to be expected, but the long run effects of this training could be considerable.

4. University and college students could be used in the F.L.D.A. settlements during their field training periods. Part of the students' time should be spent in teaching.

5. In addition to F.L.D.A. contracts, all government contracts should include the condition that a certain percentage of the workers must come from the settlements if the work involved is within a 30-mile radius of the projects and if it did not displace existing workers.

Greater Flexibility in Financial Arrangements

Given the nature of the permanent crops where the major portion of the investment credit is expended in the first four years' without

any returns, there is no alternative but to follow the present financial arrangement. The call for greater flexibility pertains to individual activities apart from those associated with the main crop. The present financial and material assistance to groups in the development of fish ponds, vegetable gardening, orchards, poultry and animal husbandry may be reduced, but the same assistance should be concentrated on individuals who have demonstrated their initiative and ability. The success of these individuals will serve to stimulate greater efforts by the others. The thinking behind individual assistance is that collective undertakings in subsidiary enterprises using labor-intensive methods and little capital are all right for home consumption production. Commercial production, on the other hand, requires entrepreneurial capability and profit incentive--both qualities being more compatible with individual action. Better allocation of the limited resources for subsidiary enterprises is realized by encouraging, supervising and concentrating the capital on the few able individuals. Thus, another loan account for short-term credit could be set up with a higher rate of interest and comparable with the commercial banks and payable over two crop cycles. The good results accruing to the short-term operational credit facilities in the Israeli Moshav testifies to the practicality of this measure.

The individual's commitment to the farm can be measured by his personal investments in the farm. The Israeli settlement agency requires that an additional 30 percent of the total investment committed to the farm by the agency be invested by the settler himself from savings or from loans acquired from alternative credit sources. Compulsory capital

accumulation is important in establishing the habit of saving and investment on the part of the settler himself and also gives self-sustained development some initial momentum. In the F.L.D.A. program, loan repayments should be reduced and the period of repayment increased to 30 years with the condition that the income over and above the subsistence level be invested by the settlers within the settlement. Since enforcement of the investment rule is difficult, the proposal should be applied to selected settlers.

Greater Flexibility in Resource Allocation with the Farm

Continuous increases in the total value product of the farm are probable only if resources can be allocated according to the market conditions within a short period of time. The flexibility of resource allocation within the farm may be improved by increasing the area of short-term crops. Drastic change in cropping pattern is not possible because the level of skills among the settlers with regard to other crops that might be profitable besides rubber and oil palm is inadequate at the present moment. Thus, the increase in short-term crops should be small. If the present farm size is to be maintained, the enterprise combination could be as follows:

Rubber or oil palm	6 acres
Fruit orchards	2 acres
Short-term cash crops	2 acres

Alternatively, the acreage for short-term crops could be increased without reducing the acreage of rubber or oil palm by making use of the area reserved for future expansion of the settlement. The settlers'

children could be diverted to nonagricultural employment or to new projects.

The above cropping pattern is recommended because flexibility in resource allocation is more important than a secure but fluctuating and perhaps falling income from rubber and oil palm if self-sustained development is desired. In the 10-acre farm model, income from the permanent crops is reduced by only 25 percent, but the 2 acres for short-term crops offer tremendous possibilities in the future. The possibilities for short-term cash cropping are illustrated by the vegetable farms in the Cameron Highlands which are modern and profitable but average only 2.5 acres in size.

The obvious argument against this recommendation is lack of markets, skills and competition from other sources producing the same crops; furthermore and most important, the steady cash returns from the permanent crop are reduced at a time when they are needed most. The equally obvious answer is that the continuous improvements in technology, skills and market structure will enable higher returns than rubber or oil palm to be realized.

Expansion of Employment

To effect capital accumulation, investment, and expansion of employment opportunity, the Israeli settlement agency used comprehensive regional planning to allow exploitation of the following features:

1. The size of the market for agricultural products.
2. The size of the factor and product market for industry to be established.

3. The surplus seasonal labor in agriculture.

4. The retention of the best people in the rural areas and movement of the skilled into the area through provision of amenities possible only where a sizeable population of productive farmers exists.

5. The careful introduction of labor-intensive industry.

Regional planning is not new in Malaysia as evidenced by the Jengka Triangle and the Muda irrigation projects of the F.L.D.A. and the area development planning for many subsistence areas. It is not, however, conceivable that all new projects can come under comprehensive regional development in the immediate future, creation of large regional towns and centers included. Without completely changing the present pattern of development and the location of projects which must take into consideration land availability and political considerations, slight modifications may be introduced to create an atmosphere conducive to self-sustained economic growth. There are as follows:

1. Locating a number of projects within one region as in the plans is being proposed for the Jengka Triangle. If this is not possible in other areas, the size of the projects can be doubled to 800 farm families. The size is not arbitrary but is arrived at due to reasons of factory capacity and efficiency of processing activities. The long-run economic momentum deriving from a large productive population far outweighs the short-run ease of administration and management.

2. All the industries introduced into the Israeli settlements cannot be attempted in the immediate future. However, by increasing the size of the population within the settlement or region and allocating two acres per farm for subsidiary crops (discussed previously), fertile

ground for certain processing industries making use of local farm produce is created. These possible processing industries include groundnut processing, rice milling, shelling and packing of maize, processing raw tapioca into chips for animal feed, mixing of animal feeds, and other simple labor-intensive industries requiring little capital. A second category of industries which might be attempted is industries making use of the pool of knowledge of traditional arts and crafts such as textiles (batik), silverware, wood crafts, preserved food preparation and others. These auxiliary industries utilize labor during the slack agricultural season.

3. All economic enterprises that might be envisaged are contingent on the availability of funds, entrepreneurial capacity and skills. While measures to acquire skills have been specified, methods to secure funds and entrepreneurial capacity are far more difficult to define. Industries which can be stimulated by the authority of the government along the lines of farm development are limited and, in the context of self-sustained development, unwise. Measures to stimulate an inflow of skills, business acumen and capital from outside the settlement through tax incentives, easy-term loans and tariff protection are more feasible. These stimulants already exist in the country. The suggestion here is that the level of incentives be raised for regionally based industries at or near the settlement projects.

Schedule of Modifications

The proposed modifications may be scheduled to follow the program of land development activities to enable changes to be made

in existing settlements at various stages of development. The schedule of modifications is also categorized according to the components of self-sustained development to identify its contribution to self-sustained development. If desired, the F.L.D.A. may implement any recommendation to suit various settlement projects at different stages of development. This is shown in Table 5.

III. ALTERNATIVE PROGRAMS

Two alternative programs that might be profitably considered for implementation in the near future are discussed here. These alternatives attempt to improve the chances of self-sustained development of the settlements.

The Graduated Land Allocation Model

A United Nations report states:

Moreover, while the spontaneous settlement leaves full scope for individual initiative, no effort is made to increase the competence of the settlers either as individuals or as a group, nor is attention paid to the proper place and functions of the settlement within the national contexts. On the other hand, the paternalistic model usually pays attention to the technical education of the settlers even to the extent of providing more technically advanced tools and equipment for their use. Here, however, inadequate stress is given to encouraging personal incentives, to stimulating individual initiative and to developing a community based on feeling of solidarity and mutual aid.³

This model attempts to bridge the gap between the two types in order to realize an economically viable settlement.

³United Nations, The Community Development Approach to Land Settlement (New York: United Nations, Department of Economic and Social Affairs, 1966), p. 7.

TABLE 5

POSSIBLE SCHEDULE OF ACTIONS TO STIMULATE SELF-SUSTAINED DEVELOPMENT IN MALAYSIAN LAND SETTLEMENTS

Stages of Land Development	Emancipation	Increases in Total Value Product	Investment and Employment Expansion
Planning	1. Selection of settlers with emphasis on skills, capital ownership and experience in business	1. Flexibility of resource allocation improved by avoiding capital-intensive permanent investments	1. Concentration of projects within a region
	2. Settlement of settlers from the same community in the same project	2. Flexibility of resource allocation improved by increasing the acreage of short-term crops	2. Doubling size of existing projects from 400 to 800 families
Initial Land Settlement and Development (First and Second Years)	1. Division of the land into individual family farms	1. Attracting agricultural supply firms to the project	1. Stimulation of employment of settlers by agricultural
	2. Community participation in land development decisions and required community services	2. Intensive training in general agriculture and agricultural skills	2. Encouraging settlers to invest the capital they might own
Pre-Harvest (Third to Sixth Year)	1. Intensive training in the cultivation of the main crop	1. Provision of short-term operational credit	1. Intensive training in traditional arts and crafts and other nonagricultural skills
	2. Settlers participate in decision-making of farm operations	2. Financial assistance to individuals for subsidiary enterprises	2. Employment of settlers in nearby government projects
		3. Research and extension for subsidiary enterprises	3. Establishment of savings and loans banks
		4. Establishment of market channels for subsidiary enterprises	
Post-Harvest (After the Sixth Year)	1. Continued provision of public services with emphasis on education, health and communications	1. Continued research and extension activities by the settlement agency in conjunction with the Agricultural Department	1. Advertisement of cheap labor and other specialized resources in the settlement
	2. Removal of constraints in land consolidation and migration of workers	2. Transactions involving land are permitted	2. Tax incentives to manufacturers 3. Vocational training carried out for groups of settlements

In this model, the settlers can perhaps be given 10 acres of land--4 acres to be planted with fruit trees and 6 acres to be planted with a combination of short-term cash crops such as vegetables, rice, maize, groundnuts, tapioca or other combinations of feasible enterprises. The mixed enterprises in new settlement projects are not new. The Phrabhhabad and Pimai settlements in Thailand combine corn and cassava (tapioca). The Maryout settlement scheme near Alexandria in the United Arab Republic combines olives, citrus fruit and vegetables. The point is that these countries, with an almost similar state of technology to Malaysia, did not remain with the "tried and tested" crops in their own countries--rice and cotton--but branched out and experimented with alternative crops in the new land settlements.

All the land is to be cleared and the fruit orchards planted and maintained by contract. The settlers are allocated two acres of the cleared and ploughed land and provided with the necessary input for the first crop. These two acres will provide the subsistence necessary during the period of development. In the meantime, the remaining area is to be rented to private firms on a two-year renewal basis for production of short-term crops with the stipulation that hired labor must come from the ranks of the settlers. Thus, the settler and his family can work their subsistence plot and also find work as a hired hand of the contractor. Further allocation of land to the settler (two acres at a time) is based on his ability to accumulate an amount of capital equal to one-third of the cost of developing the land. As land is acquired by the settlers, the firm renting the land reduces its area of operations and withdraws its activities

progressively. The four-acre fruit orchard is handed over to the settler when he is operating all six acres of cash crops. All costs of development are charged to the settler on the basis of a 30-year loan payable at 6 1/4 percent interest. The settler is free to sell out at anytime provided he fulfills his loan obligations, and, if he wishes to leave the settlement without meeting his obligations, the land reverts back to The Authority.

Under this system, the settlers move at their own pace and are stimulated by profit incentives and acquisition of a larger farm. The fruit orchard is handed over to the settler last because of the necessity to concentrate his energies on the short-term crops and because the orchards yield no returns in the first four years. At the same time, those settlers who succeed in acquiring the six acres are almost certain to succeed in other economic enterprises because of the stringent weeding-out process.

Success of this model is contingent on the level of technical competence of The Authority personnel, the contracting agency and, most important, the settlers themselves. The first two years are crucial in that the ability of the settlers to sustain themselves and to find work with the contractor determines whether they stay or leave. However, this in itself is a test of ability and initiative, and settlers should be encouraged to leave if they cannot fulfill their obligations. Social goals are not advanced by placing people in situations they have little suitability for. The Eastern and Western Nigerian projects found this out when they attempted the creation of a sector of educated farmers from those young adults fresh from

completing school. It is thus advocated that only one project be started as a pilot project concentrating on rice as the main short-term crop and groundnuts and certain lowland vegetables as subsidiary cash crops. These crops are selected because skills in cultivation and market channels are better established than other short-term crops. Depending on local conditions, other crops may be chosen. The rule in enterprise selection recommended here is that one crop should assure subsistence while other crops are planted to maximize cash income. There should be five skilled extension workers to every 100 settlers. This is in line with the Israeli ratio of three to every 60 or 80 settlers in the Moshav.

The ability of the settlers to accumulate cash is dependent on the availability of markets. To assure this, The Authority must undertake to purchase all surplus produce which may be disposed of to private entrepreneurs even if a loss is incurred. This is also a way of integrating the settlement with the business sector outside, perhaps paving the way for direct contact in the future.

Mutual assistance leading to cooperative action and cooperative institutions is important to prevent exploitation by business circles outside the settlement and to develop the ability to compete. The following measures may be taken to assist this development:

1. The communities should be kept small. This could be done by locating 1,000 families in five neighboring villages.
2. Farmers' associations should be organized along the lines of those set up in the subsistence areas by the Department of Agriculture.

3. A rule of mutual assistance and mutual responsibility should be established and enforced through the farmers' associations. For example, all credits, subsidies and assistance could be distributed through the farmers' association. At the same time, the association and all members would be responsible for repayment of the loan. This ensures the survival of the best settlers through a selection process carried out by friends and neighbors.

Collective Farming and Individual Consumption Model

In the oil palm enterprise, a capital-intensive factory capable of processing the crop from an extensive acreage is required for economical operation and a high quality product. The harvest of the crop has to be geared to the daily capacity of the factory, and, as such, the farming activities have to be geared to the production of a specific amount each day. In addition, the fruits must arrive at the factory and be processed within a few hours to maintain the quality of the oil. There is little alternative but to develop a model for collective management of the main enterprise while maintaining individual consumption of many possible models. This model is developed from experiences in Algeria and, to a lesser extent, experiences in the Moshav Shifuti of Israel.

In this proposed model, the current F.L.D.A. policy, with regard to a project size of 5,000 acres and 400 farm families, will be followed. However, the size of project may vary without affecting the general principles involved. This program model advocates a clear distinction between physical land development and community development

on the grounds that a greater emphasis on community development than is currently being practiced will bring the settlement closer to the goal of self-sustained development.

In the area of land development, the government allocates 5,000 acres of virgin jungle land to an agricultural firm on condition that oil palm trees are to be grown to specification and the developed land sold to the F.L.D.A. within a definite period and at a previously fixed price. Another condition crucial to this plan is that the contractor must agree to hire his labor force from the ranks of the settlers. When the first thousand-acre block of land has been cleared, it is sold to the F.L.D.A. to be divided into farm family plot of two acres each (the remaining 200 acres go to village development, schools, commercial fish-ponds, etc.) Settlers are relocated in the settlement, and, during the period of oil palm development, they work on the two-acre plots individually growing crops for home consumption and for the market. When the oil palm trees mature, the F.L.D.A. purchases the plantation for the settler while holding the mortgage on the land during the period of loan repayment. The plantation will not be divided into individual farms for reasons of crop management problems already enumerated and will be managed collectively by a professional staff.

The financial arrangements in this model include a collective loan account and an individual account. Loans incurred in the development of the oil palm are charged to the community while operational capital for the subsidiary crops and housing loans are charged to the individual. There is an added advantage in that the

F.L.D.A. is no longer responsible for the subsistence income of the settlers during the oil palm development period except perhaps for the first year. The settler either works for the contractor and is paid on merit or works on his two-acre plot of land or engages in both activities. Should the settler decide to leave the settlement by choice or because of unsuitability before the oil palm is mature, departure is facilitated because the loan made directly to him is small and involves only his house and the two-acre plot of land.

In this plan, the participation of the F.L.D.A. is partially shifted from land development to community development. The technical and managerial personnel can now be shifted from the oil palm crop to the areas of leadership training, vocational training, general agricultural extension, and creating an atmosphere conducive to further agricultural and nonagricultural investment. Furthermore, capital is attracted from the private sector to the settlement through the arrangement with the agricultural development firms. Because of this initial capital flow, further investments by the private sector may be stimulated in the areas of input and product commodity transactions. Finally, the loan arrangement facilitates the mobility of the settlers which will ultimately result in the survival of the best settlers. The method of collective operation of the oil palm plantation will be described next.

The organizational structure of this recommended model involves a hierarchy of three decision-making bodies. The final sovereign body is the general assembly of settlers including all heads of settler households. The powers of this assembly include approving plans for

the organization of work, approving plans for development and investment, and approving accounts and election of members to the workers' council. The assembly meets at least once in three months. The workers' assembly elects members to the settler's council (one representative for every 100 members) whose members hold office for three years, and one-third of the council is to be re-elected each year to ensure continuity of management. Since ownership of the shares may be bought and sold outside the settlement, two-thirds of the council members must be engaged directly in production. Powers of this council include the purchase and sale of equipment, long-term borrowings and membership questions. It examines accounts and approves orders drawn up by the management committee. The council elects the management committee from among its members, and the management committee should not be larger than nine members. The council should meet at least once a month. The management committee performs the day-to-day running of the enterprise together with the director. Its functions are to draw up the work schedule and the authorization of purchases, sales, and short-term loans. The committee elects its president who is also the president of the council and of the assembly and represents the collective in legal matters. Finally, an office to supervise the work of the management committee and the president should be created. A director appointed by The Authority represents The Authority or the government. His duties include making certain that the farm plans conform to the national plans, that rules governing membership are observed, and that the capital assets are maintained. He supervises

the management of the collective farm and acts as the treasurer of the collective.

In the financial arrangements and revenue sharing, a basic wage rate is paid to all members fixed according to function and conditional on fulfillment of certain minimum productivity norms. Levies are raised by The Authority to assure perpetuation of a socially and economically viable collective for the following items:

1. Depreciation of the capital equipment.
2. An investment fund for further expansion of activities.
3. A social fund for the benefit of the members.

Over and above the costs of all other input items and payment to non-members of the collective, necessary for the efficient operation of the settlement, bonuses are paid to members of the collective. These bonuses are scaled to wage payments and are given, from time to time, when productivity increases beyond normal are realized. Any surplus after the above items are accounted for is shared between the members of the collective, the investment fund, and the social fund.

The allocation of land to members to engage in subsidiary enterprises for home consumption and market should be continued and perhaps increased to allow for more market production. Thus, the members of the collective will have a choice in whether to engage in private farming or to engage permanently in work for the collective. An element of specialization has been introduced. With the established organizational structure for the oil palm enterprise, market channels may be easily organized and credit facilities provided, thus greatly assisting in the development of individual economic activity and self-sustained development.

This proposed system attempts to bridge the gap between collective and private farming. By maintaining individual consumption, work incentives, and private subsidiary farm activities within the context of collective farming in the main enterprise, the best of both systems might be obtained.

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APPENDIXES

APPENDIX A

MALAYSIAN SETTLEMENT PROJECTS: TABLES,
MAP, AND RELEVANT INFORMATION

FEDERAL LAND DEVELOPMENT AUTHORITY CRITERIA
FOR SETTLER SELECTION

I. Criteria

1. Age	10 points
2. Agricultural and other skills	10 points
3. Number of children	5 points
4. Land ownership	5 points

II. Age Between 21-45 Years

<u>Age</u>	<u>Points</u>	<u>Age</u>	<u>Points</u>
21	3	33	7
22	4	34	6
23	5	35	5
24	6	36	5
25	7	37	4
26	8	38	4
27	9	39	3
28	10	40	3
29	10	41	2
30	10	42	2
31	9	43	1
32	8	44	1
		45	1

III. Number of Children

<u>Number of Children</u>	<u>Points</u>
5	5
4	4
3	3
2	2
1	1
0	0

IV. Land Ownership

<u>Land</u>	<u>Points</u>
0 acres	5
1/2 acres	4
1 acres	3
1 1/2 acres	2
2 acres	1

V.. Agricultural and Other Skills

<u>Skills</u>	<u>Points</u>
1. Experience in oil palm and/or rubber	4
2. Experience in padi planting or market gardening	3
3. General rural activities	2
4. Carpentry, barbering, etc.	1

Source: Federal Land Development Authority Annual Report 1967
(Kuala, Lumpur: Federal Land Development Authority, 1968), p. 76.

TABLE A-1

SCHEDULE OF DEVELOPMENT STAGES IN F.L.D.A. PROJECTS

Year	State	Agricultural Development	Settler Habilitation
0	I	<p style="text-align: center;"><u>OIL PALM</u></p> <p>Scheme area gazetted by State Government. Designated development area under GSA Act.</p> <p>The land is vested with F.L.D.A. Felling, burning, pruning, lining, holing, platforming, cover crops and planting of oil palm. Maintenance of oil palm by contract.</p>	Preparation of village area. Applications followed by interview, medical examination and selection of settlers.
2	II	Maintenance by settlers in groups of 10-12 persons to a block of 80-100 acres.	Entry of settlers. Settlers are paid M\$2.90 per day for 24-26 working days per month. Settlers given daily tasks. Settler representatives on the scheme Management Committee.
3	III	Oil palm harvesting begins. Scheme Cooperative Society under GSA Act 1961 established. Its committee elected. Settlers entered in Register of Holdings.	Settlers subsistence allowance. Stopped. Settlers paid for harvesting at 3 cents per FFB. Revenue ploughed back to meet harvesting and maintenance costs.
5	IV	Cooperative Society Committee given increased role in scheme management.	Break even point. Revenue begins to exceed harvesting and maintenance costs. Palm oil returns distributed to settlers.

TABLE A-1 (continued)

Year	Stage	Agricultural Development	Settler Habilitation
<u>OIL PALM</u>			
6	V	Settlers appointed to junior field supervisory position. (Group leaders and field assistants)	<p>Loan repayment begins. To be completed in 10 to 11 equal annual installments. Each installment collected through monthly deductions.</p> <p><u>Deductions made for loan payment on--</u></p> <ol style="list-style-type: none"> 1. Agricultural Development 2. Settler housing 3. Miscellaneous cash advances 4. State land premiums 5. Rent 6. Survey Fees
18	VI	Cooperative Society acquires rights to land titles and settlers decide for themselves as to method of operation individual holding or Cooperative Society.	Loan repayment period ends. State Government issues land title to the Cooperative Society.
<u>RUBBER</u>			
0	I	<p>Scheme area gazetted by State Government as designated development area under GSA Act. The land vested with F.L.D.A.</p> <p>Felling, burning, pruning, lining, holing, cover crops and planting of rubber.</p> <p>Maintenance of rubber area by contract.</p>	Preparation of village area. Application followed by interview, medical examination and selection of settlers.
2	II	Maintenance by settlers in groups of 10-12 persons to a block of 80-100 acres. (Survey of rubber lots.)	Entry of settlers. Settlers paid M\$2.90 per working day for rubber maintenance at 24-26 days a month.

TABLE A-1 (continued)

Year	Stage	Agricultural Development	Settler Habilitation
<u>RUBBER</u>			
4	III	Maintenance of rubber on individual lots. Rubber area working days reduced. Economic projects introduced.	Settlers given individual lots, paid M\$2.90 per working day in rubber area. Paid M\$2.90 per working day on economic projects. Total assured income M\$69.00 per month. Settlers' names entered in the Register of holding.
7	IV	Rubber comes into tapping.	Subsistence allowances stopped. Settlers' earnings from production of rubber. Loan repayment begins. <u>Deduction made for loan repayment on--</u> 1. Agricultural Development 2. Settler housing 3. Miscellaneous cash advances 4. State land premiums 5. Rent 6. Survey fees
17- 18	V	Rubber holding fully owned by settlers. Fragmentation of holdings not allowed.	Loan repayment period ends. State Government issues land title to settlers.

Source: Taib bin Andak. "The Application of Strategy to Tactics-- F.L.D.A.--A Case Study." Paper read at the Regional Seminar on Development sponsored by the Malaysian Centre for Development Studies (Kuala Lumpur: Prime Minister's Department, February, 1968), pp. 21-22.

TABLE A-2
SUMMARY OF ESTIMATES FOR AN F.I.D.A. OIL PALM SCHEME^a

Items	Cost to Maturity (4 years) in \$ Malaysian		
	(1) Total for Scheme	(2) Cost Per Planted Acre	(3) Cost Per Settler (Column two x 8 acres)
<u>Loan Account</u> ^b			
A. <u>Establishment</u> - felling, burning, pruning, reburning, lining, holing, planting materials, planting, cover crops, internal roads, bridges and culverts	2,790,000	558	4,464
B. <u>Maintenance</u> - weeding, manuring, cover crops, pest and disease control, supply- ing, budgrafting, pruning, roads, bridges and culverts, survey, census and sundries	1,722,900	344	2,756
C. <u>Village Area Establishment</u> - felling, burning, pruning, reburning, destumping, leveling of house sites, village roads	373,000	75	597
<u>Maintenance</u> - village roads and sundries	22,500	5	36
D. <u>Settlers' Houses</u> - tools, implements and cash crops	<u>1,125,000</u>	<u>225</u>	<u>1,800</u>
TOTAL UNDER LOAN ACCOUNT	6,033,400	1,207	9,653

TABLE A-2 (continued)

Items	Cost to Maturity (4 years) in \$ Malaysian		
	(1) Total for Scheme	(2) Cost Per Planted Acre	(3) Cost Per Settler (Column two x 8 acres)
<u>Administration Account</u>			
E. <u>Management Expenses</u>	1,375,000	275	2,200
Office building, staff quarters, furniture and fittings, motor vehicles, plant and equipment	<u>237,600</u>	<u>47</u>	<u>380</u>
TOTAL COST TO THE AUTHORITY	7,646,000	1,529	12,233
<u>Social Amenities</u>			
F. Access road, water supply, school and teachers' quarters, health center, police station, telecommunications, marketing facilities, recreation and community center and religious institutions	<u>825,000</u>	<u>165</u>	<u>1,320</u>
TOTAL COST TO THE NATION	8,471,000	1,674	13,553

Source: "Land Settlements in Malaysia Under the Federal Land Development Authority" (Kuala Lumpur: Federal Land Development Authority, March, 1966), p. 37.

^aThis scheme refers to a project of 5,300 acres of oil palm trees and 625 families.

^bThe loan account given here does not include the interest element and contingency subsistence loans.

TABLE A-3
SUMMARY OF ESTIMATES FOR AN F.L.D.A. RUBBER SCHEME^a

Items	Cost to Maturity (6 years) in \$ Malaysian		
	(1) Total for Scheme	(2) Cost Per Planted Acre	(3) Cost Per Settler (Column two x 8 acres)
<u>Loan Account</u> ^b			
A. <u>Establishment</u> - felling, burning, pruning, reburning, lining, holing, planting materials, planting, cover crops, internal roads, bridges and culverts	1,161,600	363	2,904
B. <u>Maintenance</u> - weeding, manuring, cover crops, pest and disease control, supplying, budgrafting, pruning, roads, bridges and culverts, survey, census and sundries	1,985,000	620	4,962
C. <u>Village Area Establishment</u> - felling, burning, pruning, reburning, destumping, level- ing of house sites, village roads	360,800	113	902
<u>Maintenance</u> - village roads and sundries	22,500	7	56
D. <u>Settlers' Houses</u> - tools, implements and cash crops	720,000	225	1,800
TOTAL UNDER LOAN ACCOUNT	4,249,900	1,328	10,624

TABLE A-3 (continued)

Items	Cost to Maturity (6 Years) in \$ Malaysian		
	(1) Total for Scheme	(2) Cost Per Planted Acre	(3) Cost Per Settler (Column two x 8 acres)
<u>Administration Account</u>			
E. <u>Management Expenses</u> -	633,600	198	1,584
Office building, staff quarters, furniture and fittings, motor vehicles, plant and equipment	<u>197,800</u>	<u>62</u>	<u>495</u>
TOTAL COST TO THE AUTHORITY	5,081,300	1,588	12,703
<u>Social Amenities</u>			
F. Access road, water supply, school and teachers' quarters, health center, police station, telecommunications, marketing facilities, recreation and com- munity center and religious institutions	<u>825,000</u>	<u>258</u>	<u>2,063</u>
TOTAL COST TO THE NATION	5,906,300	1,845	14,766

Source: "Land Settlements in Malaysia Under the Federal Land Development Authority" (Kuala Lumpur: Federal Land Development Authority, March, 1966), p. 37.

^aThis scheme refers to a project of 3,500 acres of rubber trees and 400 families.

^bThe loan account given here does not include the interest element and contingency subsistence loans.

TABLE A-4

YIELD, TOTAL CASH INCOME, SUBSISTENCE REQUIREMENT, RESIDUAL CASH
INCOME AND LOAN REPAYMENT FOR A RUBBER PROJECT^a

Yield in Pounds	Total Cash Income (Monthly) \$	Subsist- ence (Monthly) \$	Regional Cash Income (Monthly) \$	Loan Repayment		Balance on an Initial Loan of \$16,000/- at 5% Interest ^b	Year of Tapping
				Monthly \$	Annually \$		
4,400	170.21	100.00	70.21	50	600	16,200	1
6,400	260.00	120.00	140.00	90	1,080	15,930	2
8,000	331.83	140.00	191.83	130	1,560	15,166	3
9,600	403.67	150.00	253.67	170	2,040	13,884	4
10,400	439.59	150.00	289.59	190	2,280	12,298	5
10,800	457.54	150.00	307.54	210	2,520	10,393	6
11,200	475.50	150.00	325.50	220	2,640	8,273	7
11,200	475.50	150.00	325.50	220	2,640	6,047	8
11,200	475.50	150.00	325.50	220	2,640	3,709	9
11,200	475.50	150.00	325.50	220	2,640	1,254	10
11,200	475.50	--	--	--	--	--	11
11,200	475.50	--	--	--	--	--	12
11,200	475.50	--	--	--	--	--	13
11,200	475.50	--	--	--	--	--	14
11,000	466.50	--	--	--	--	--	15

TABLE A-4 (continued)

Yield in Pounds	Total Cash Income (Monthly) \$	Subsist- ence (Monthly) \$	Regional Cash Income (Monthly) \$	Loan Repayment		Balance on an Initial Loan of \$16,000/- at 5% Interest ^b	Year of Tapping
				Monthly \$	Annually \$		
10,800	457.54	--	--	--	--	--	16
10,600	448.56	--	--	--	--	--	17
10,400	439.57	--	--	--	--	--	18
10,200	430.60	--	--	--	--	--	19
10,000	421.63	--	--	--	--	--	20
9,600	403.67	--	--	--	--	--	21
9,200	385.71	--	--	--	--	--	22
8,800	367.75	--	--	--	--	--	23
8,400	349.79	--	--	--	--	--	24
8,000	331.83	--	--	--	--	--	25

Source: "Land Settlements in Malaysia Under the Federal Land Development Authority" (Kuala Lumpur: Federal Land Development Authority, March, 1966), p. 37.

^aCalculations are based on a rubber plot of eight acres and a rubber price of M\$0.70 per pound.

^bThe present interest rate is 6-1/4 percent. This increases the loan repayment period by two years.

FEDERAL LAND DEVELOPMENT AUTHORITY

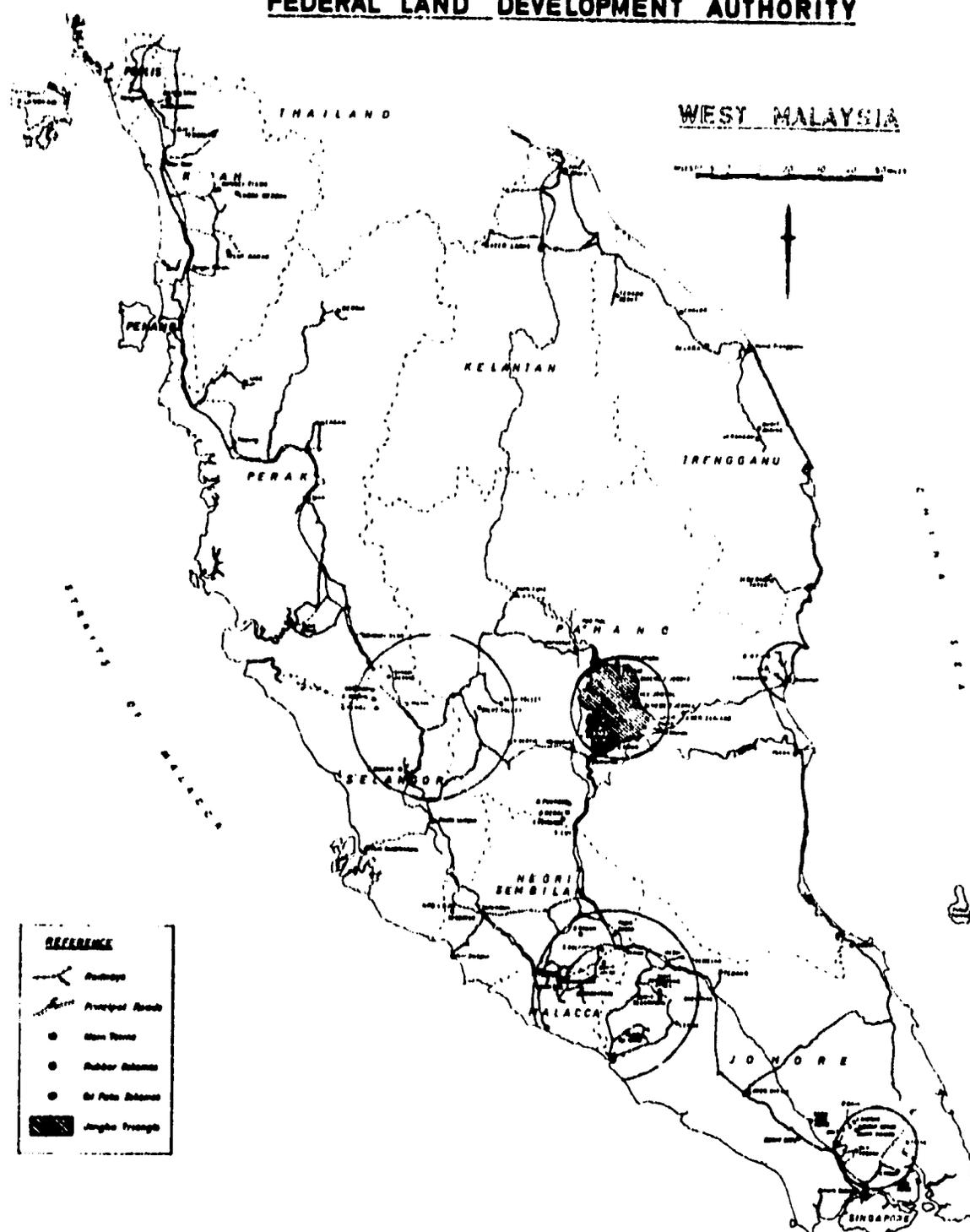


Figure 1. Map of West Malaysia showing the location of F.L.D.A. settlements and concentration of the settlements in five regions.

Source: Federal Land Development Authority Annual Report 1967
(Kuala Lumpur: Federal Land Development Authority, 1968), p. 52.

APPENDIX B

ISRAELI SETTLEMENT PROJECTS: TABLES

TABLE B-1

COMPOSITION OF FARM TYPES IN FINAL STAGE OF DEVELOPMENT OF THE POST-STATE MOSHAV^a

	Dairy Farm	Industrial Crop Farm	Citrus Farm
Arable Land (Dunams) ^b	27	39 In addition, 60 dunams of village lands are at each settler's disposal for grazing purposes.	26
Irrigated Area Under Rotation Crops (Dunams)	22	35	16
Orchards (Dunams)	5	4	10 citrus
No. of Cows	5 dairy plus young	2 meat plus young	—
Irrigated Crops (Dunams)	2--sugar-beet 3--vegetables 2--groundnuts 2--legumes 4--grains 17--fodder, hay and perennial grass	8--vegetables 3--groundnuts 5--cotton 5--sugar-beet 14--legumes and hay	10--vegetables 4--groundnuts 4--barley

TABLE B-1 (continued)

	Dairy Farm	Industrial Crop Farm	Citrus Farm
Annual Water Allocation (cubic metres)	16,500	15,800	15,000

Source: Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 27.

^aIn addition, all farms raise poultry.

^bOne dunam is equivalent to 0.22 acre.

TABLE B-2

CROP ROTATION SCHEME FOR 20 DUNAMS OF IRRIGATED LAND IN THE POST-STATE MOSHAV

Year	Area (Dunams) ^a	Distribution of Area in			
		Autumn	Winter	Spring	Summer
1st	4	greenmanure	greenmanure	1-tomatoes 1-cucumbers 1-various 1-land preparation	1-tomatoes 1-cucumbers 1-various 1-potatoes
2nd	4	1-preparation 1-Brassicæ (cauliflower cabbage) 1-various 1-potatoes	4 land preparation	4 cotton	4 cotton
3rd	4	4 land prepara- tion	4 land prepara- tion	3-groundnuts 1-potatoes	3-groundnuts 1-cucumbers
4th	3-hay 1-stubble grazing	3-hay 1-stubble grazing	3-hay 1-onion	3-hay 1-onion	4 land preparation
5th	4	4 sugar-beet	4 sugar-beet	4 sugar-beet	4 deep plough

Source: Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 21.

^aOne dunam is equivalent to 0.22 acre.

TABLE B-3

PROPOSED WORK SCHEDULE FOR CROP ROTATION SCHEME IN THE POST-STATE MOSHAV

Crop	Area in Dunams ^a	Number of Labor Days Per Dunam	Total Labor Days	Monthly Requirement of Labor Days											
				Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cotton	4	15	60	--	--	--	2	6	6	4	4	12	18	8	--
Sugar Beet	4	12	48	2	2	--	2	16	4	--	2	6	8	6	--
Groundnuts	3	11	33	--	--	--	7½	4½	4½	3	1½	3	6	3	--
Spring Tomatoes	1	35	35	--	--	--	1	3	6	5	9	6	4	1	--
Spring Cucumbers	1	24	24	--	--	--	3	3	15	6	--	--	--	--	--
Autumn Cucumbers	1	24	24	--	--	--	--	--	--	5	7	11	1	--	--
Spring Potatoes	1	15	15	--	2½	2	2	1½	7	--	--	--	--	--	--
Autumn Potatoes	1	13	13	--	--	--	--	--	--	--	2½	2	1½	1	6
Misc. Summer Veg.	1	20	20	--	--	--	--	3	1½	8½	7	--	--	--	--
Misc. Winter Veg.	1	16	16	1	--	--	--	--	--	1½	2	3	2½	3	3
Onions	1	20	20	1½	1½	1	3½	3	--	--	--	--	--	1	8½
Brassicae	1	10	10	2	--	--	--	--	--	--	1	2	1½	½	3
Hay	3	0.66	2	--	--	--	--	1	--	--	--	--	--	1	--
Green Manure	4	0.5	2	--	1	--	--	--	--	--	--	--	1	--	--
Total	27		325	6½	7	3	21	41	44	33	36	45	43½	24½	20½

Source: Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 27.

^aOne dunam is equivalent to 0.22 acre.

TABLE B-4

ESTIMATED INCOME OF FARM TYPES IN FINAL STAGE OF THE POST-STATE MOSHAV^a

	Dairy Farm I₪	Industrial Crop Farm I₪	Citrus Farm I₪
Gross Income from Field Crops	2,177	7,099	4,727
Gross Income from Animal Husbandry ^b	7,390	1,020	--
Gross Income from Orchards	1,890	1,344	4,200
TOTAL GROSS INCOME FROM FARM	11,437	9,463	8,927
Total Production Costs	6,737	4,883	3,612
NET INCOME FROM FARM OPERATIONS	4,700	4,580	5,315
Use of House (Value)	240	240	240
TOTAL NET INCOME OF FARMER ^c	4,940	4,820	5,555

Source: Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 28.

^aThis estimate is based on 1959 price levels. For the period 1955 to 1962, the official exchange rate dropped from I₪0.56 to I₪0.33 compared to the U.S. dollar.

^bExcluding income from poultry

^cThe settler's actual income is less than this, since in the final stage he must also repay the investment loans which he received from the settlement authority.

TABLE B-5
 INVESTMENT PROGRAM FOR INDIVIDUAL FARM UNIT
 IN THE POST-STATE MOSHAV^a

	Total Investment Value (for 30 farms) I₪	Investment Per Farm Unit I₪
1. <u>Farm House:</u>		
2-1/2 rooms, 45 sq. metres water installations, shower, shutters, outside W.C.		6,150
2. <u>Communal Buildings:</u>		
2 classrooms	17,000	
Children's creche and Kindergarten	13,000	
Assembly hall and club	14,000	
Grocery	12,000	
Clinic	8,000	
Armoury	7,000	
Office	6,000	
Kindergarten kitchen	12,000	
Synagogue	11,000	
Ritual bath	<u>7,000</u>	
	107,000	1,330
3. <u>Farm Buildings:</u>		
Multi-purpose shed (24 sq. metres) with concrete floor		1,750
Open farm shed (24 sq. metres) tin roof, 2 walls		850
Chicken run for 300 chickens and equipment (15 sq. metres)		780
Stable (30 sq. metres)		750
Poultry batteries for 100 layers		<u>250</u>
		4,380

TABLE B-5 (continued)

	Total Investment Value (for 80 farms) I₪	Investment Per Farm Unit I₪
4. Communal Farm Buildings:		
General warehouse-storeroom (210 sq. metres)	18,000	
Sheep dip (at village center)	4,000	
Grading station for vege- tables (at village center)	4,600	322
Technical supervision of farm buildings and houses (6% of total value)		733
		<u>1,065</u>
		12,925
5. Irrigation Equipment:		
Central and lateral piping (permanent for 24 dunams of irrigated land, including orchards, sprinklers and 13 metres galvanized iron piping or 9 metres aluminum piping per dunam)		4,320
Water-meter		<u>160</u>
Total investment in irrigation equipment		4,480
6. Equipment:		
Half-share in auxiliary imple- ments for traction animals		460
Poultry equipment		<u>100</u>
		560
7. Stock:		
100 pullets or cocks and chicks		400
8 head of sheep or 2 meat cows		800
Half-share in traction animal or one work cow		<u>450</u>
		1,650

TABLE B-5 (continued)

	Total Investment Value (for 80 farms) I£	Investment Per Farm Unit I£
8. <u>Settler's Share in Heavy Equipment</u> (at Rural Center):		1,240
9. <u>Orchards:</u>		
Planting and maintenance of 4 dunam orchard		2,400
10. Electrical installations, including cost of linking to main national network	30,000-	375
11. <u>Roads:</u>		
To storehouse, center of village, tec.	24,000-	300
12. <u>Deep Plough:</u>		
Cost of ploughing 29 dunams of irrigated land.		290
13. <u>Circulating Capital:</u>		
For 20 dunams at I£100 - per dunam		2,000
14. <u>Water Rights, etc.:</u>		<u>1,000</u>
TOTAL INVESTMENT IN EQUIPMENT AND STOCK		27,200
15. <u>Planning, Instruction and Administration Costs</u> (15% of I£27, 200)		<u>4,100</u>
TOTAL INVESTMENT PER FARM UNIT		I£ 31,300

Source: Raanan Weitz, The Composite Rural Structure, A Settlement Pattern in Israel (Jerusalem: Agricultural Settlement Department, 1960), p. 27.

^aBased on 1959 prices.

VITA

Ti Teow Choo was born on December 11, 1941, in Raub, Pahang, Malaysia. He attended primary and secondary school at Mahmud School in Raub and completed his Higher School Certificate course at the Victoria Institution in Kuala Lumpur in 1960. He entered the University of Malaya and graduated with a Bachelor of Agricultural Science degree in 1965. He was appointed to the position of Agricultural Officer by the Federal Government of Malaysia in 1965 and is currently employed in the same position. In 1969, he was awarded a fellowship by the Agricultural Development Council, Inc., of New York to study for the degree of Master of Science in Agricultural Economics at The University of Tennessee and is currently a candidate for that degree.