

SECOND MEETING OF PLANNING OFFICIALS

Scope, Objectives and Special
Problems of Planning for Agri-
cultural Development with Refer-
ence to Barbados

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Introduction

Barbados is a small island. Its area is only 166 square miles or 40 500 hectares and 77% or 24 300 hectares are available for agricultural purposes. During the last decade, there was an annual average of approximately 28 000 hectares cultivated and about 18 500 hectares of these were planted in sugar cane which is the predominant and traditional crop of the country. The remaining 91 500 hectares are shared by such crops as yams, sweet potatoes, onions, vegetables and others. It has been estimated that there are about 800 hectares in vegetables with approximately half of this area under irrigation and 800 hectares in citrus, mango, avocado, bananas, coconut and other fruit trees scattered throughout the island, and about 10% of the remaining land of poorer quality is in pasture. Around 80% of the sugar cane and 75% of the rootcrops are produced on the large estates and the rest on small or medium size holdings. Most of the vegetables have been traditionally produced by small or medium size farmers. However, a few plantations have, within recent years, been increasing their production of vegetables. The yields on small holdings are lower by about 20 - 30% than those on the plantations. It is apparent that, with the exception of sugar cane and a few other crops, the yields of most farm crops are will below the potential standard, which suggests the need for organization and technical efforts.

It is only within recent years that livestock, especially poultry production, has developed on a commercial scale. The poultry, egg and dairy industries are, to a large extent, concentrated in the hands of the medium and large scale producers. Yet, over 70% of the cattle, 80% pigs, 90% sheep and goats are on the small farms.

Water resources for irrigation are limited and a significant increase in the irrigated area is not expected in the near future. However, with different and more modern techniques and a higher level of education, it is possible that a wider area than at present could be irrigated from the same amount of water currently used. Approximately 400 hectares are irrigated at present and this is mainly by small and medium size vegetable producers. The average annual rainfall is about 150 cms and favourable distributed. However, a high degree of technical skill is required to retain soil moisture during the dry season. Most of the soils are shallow but of fair quality and suitable for the cultivation of a variety of crops. Drainage is also a problem, especially in the Scotland District area during the rainy season.

The population of Barbados is estimated at 250 000 persons and about 25% of the working population is employed in agricultural and related occupations. It is reported that over 98% of the population is literate and primary and secondary schools exist all over the island.

Though the techniques employed in agriculture are fairly advanced on the large farms, there is still need for improvement in productivity especially of vegetables, food crops and livestock. This is particularly so among the small farmers. There is need for better production practices and the application of more effective farm management in order to obtain greater output from the land, water and labour.

The Ministry of Agriculture and its Services

The Ministry of Agriculture, Food and Consumer Affairs assumes a wide range of responsibilities in the field of agricultural development, planning, research and extension. In 1965, the old Department of Agriculture was renamed the Ministry of Agriculture, consequent upon the introduction of Ministerial Government. It was also in that year that the post of Deputy Chief Agricultural Officer for Research was established with responsibilities for non-sugar crops and livestock production. This was seen clearly in support of Government's policy to diversify agriculture and to show some regard for the development of the small farm sector, for it must be pointed out that prior to this time the staff of the old Department of Agriculture had represented only the needs of the sugar and plantation sector.

It is now regarded that the Ministry of Agriculture, Food and Consumer Affairs is the governmental organization with total responsibility for fostering, guiding and monitoring the development of the agricultural sector. This Ministry must therefore formulate and implement those policies and programmes which are consistent with the stated objectives of Cabinet. It is in fact the main governmental contact with the general public in matters related to agricultural development and policies. In order to formulate and implement the agricultural policies and programmes, the Ministry is subdivided into functional units and employs about sixty technicians and a larger number of persons in the related fields.

The major areas (or departments) through which the Ministry functions and have its outreach are as follows:

- (i) The Extension Services Organisation
- (ii) The Research Services Organisation
- (iii) The Planning Unit Organisation
- (iv) Other Support institutions
 - (a) Barbados Marketing Corporation
 - (b) Agricultural Development Corporation
 - (c) Barbados National Bank

The Agricultural Planning Unit in the Ministry of Agriculture, Food and Consumer Affairs has the responsibility for agricultural planning. It must submit its sector plan to the National Planning Division in the Ministry of Finance and Planning which incorporates the plan into the National Plan. The latest plan to be published is the Barbados Development Plan 1979-1983 and the Sectoral Plan on Agriculture and Fisheries is attached as an appendix II to this paper.

In addition to the Agricultural Planning Unit, operating units under the Chief Agricultural Officer may formulate and implement programmes without going through the Agricultural Planning Unit. Further efforts of the Planning Unit are aimed at developing a more co-ordinated planning mechanism within the Ministry of Agriculture.

Other Government controlled agencies such as the Marketing Corporation, the Agricultural Development Corporation and the Agricultural Credit Bank form part of the planning machinery. In addition, there are privately controlled agricultural organisations which play a role in the planning process.

1. Current Patterns of Agricultural Planning

During the past two decades, national planning for economic development as one sector of the overall plan, has become widespread. Mellor in his book "The Economics of Agricultural Development" states that "the purpose of planning for development is to achieve greater efficiency through co-ordination. Effective co-ordination is based on an overall view of the development process. Plans may concern themselves with direct provision and allocation of resources through the manipulation of market forces and incentives. Resources to be allocated include not only traditional forms of capital but administrative talent and skilled manpower necessary to develop new institutions."

The literature contains several good summary statements - almost idealized models of agricultural planning. These reflect the current concern with the place of agriculture in economic growth, the concern with food supplies, and the concern that vigorous programme action is necessary if agriculture is to grow at an acceptable pace. Szeze Panik of FAO presents a brief outline of the common steps in agricultural planning, dividing the process into formulation of objectives and preliminary targets, research, formulation of development policies and measures, formulation of investment schemes and projects, programming, implementation and evaluation.

II. Objectives of Agricultural Plans and Policies

The fundamental purpose of development planning is to promote human welfare and growth. Increase of national income or the rate of economic growth is only the means to this end. Within this broad aim are always certain specific objectives, e.g. to maximise employment, to diversify the economy, or to deal with problems of balance of payments. To these may be added many more objectives which may be partly economic and partly social. Thus the long term development strategy in recent years for Barbados has been the diversification of the agricultural sector, expansion of tourism and development of industrial exports.

In recent years Barbados Development Planning has attempted to come to grips with the pre-eminent economic problems of its agriculture: an over dependence on one single crop - sugar. Although sugar cane is well adapted to the natural environment of Barbados the essentiality of agricultural diversification is recommended for the following reasons:

1. To overcome the structural rigidity of the agricultural sector due to its heavy dependence on sugar.
2. To overcome a growing deficit in the balance of payment on current account resulting mainly in increased quantities and costs of food imports.

While it is recognised that sugar is likely to remain the principal generator of foreign exchange in the foreseeable future, a hedge must be established against potential problems whose exact nature cannot be analysed now. The obvious remedy lies in a greatly increased emphasis on programmes for modernizing and expanding the production of non-sugar agriculture.

The years to come, must see an increasing emphasis on the positive contribution of agriculture to the overall pattern of economic growth and with it, a considerable change from planning for agriculture as a kind of welfare sector to a new emphasis on seeing agriculture as an essential, fully economic sector of a growing economy. Lewis notes, "if one were asked to pick a single factor as the most common cause of a low rate of economic growth it would have to be the absence of a vigorous agricultural policy. He goes on to say that agricultural stagnation is the main constraint on the rate of growth ... It contributes to a shortage of foreign exchange, either by failure to earn more, or by failure to supply the growing urban demand for food and raw materials, which must then be imported. Except for countries which have rich mineral resources, no under developed country can grow rapidly in which farm output is stagnating. "Hence a vigorous agricultural policy must head the list of developing measures". Much of the recent work of development economists focuses on the inter-relationship between agriculture and other sectors, with significant implications for agricultural planning. Much of this new concern for agriculture has grown from the fact that countries like Barbados are losing the capacity to feed themselves, evidenced by the growing food import bills. In addition foreign exchange earnings which chiefly come from agriculture have been declining at an increasing rate.

III. Plan Strategy Outline

Goals

The goals for the development of the agricultural sector in Barbados, which may be achieved by the implementation of an integrated production and marketing system, are to:

1. Increase sugar and non-sugar agricultural exports and import replacement.
2. Improve the standard of living of the agricultural community and the nutritional status of the community at large.
3. Maintain an adequate agricultural community.
4. Minimize the fragmentation of agricultural land.
5. Conserve land and bring under-utilized land into cultivation.

Resources

1. Land
 - (a) Erosion in the Scotland District
 - (b) Idle and underutilised lands
 - (c) Uneconomical use of land
2. Water
 - (a) Underdeveloped irrigation facilities
 - (b) Absence of dams to conserve run-off water in the Scotland District
3. Manpower
 - (a) Undertrained agricultural labour force
 - (b) Shortage of technical and professional skills in research, administration and management.
4. Physical Capital
 - (a) Inadequate stock of farm equipment
 - (b) Poor infrastructure in the Scotland District
 - (c) Underutilization of existing equipment owing to poor distribution of services.
5. Finance
 - (a) Low retention of earnings in sugar industry
 - (b) Inadequate credit facilities for small-scale farming
 - (c) Inadequate funding for agricultural support schemes.
6. Management
 - (a) Adherence to outdated and ineffectual management methods.
 - (b) Poor managerial performance in key statutory institutions
 - (c) Inefficient extension and other farmer services.

IV. Special Problems of Agricultural Planning

Planning for agricultural development in Barbados presents a number of special problems and difficulties. Unless these are clearly understood and adequately provided for in policies and measures for the implementation of plans the objectives sought are unlikely to be attained.

This is the more serious since a short fall in agricultural production can seriously hamper and dampen the growth of the whole economy where agricultural exports (sugar) is a major source of foreign exchange, where food is a considerable item of consumer expenditure and where a rise in food prices therefore gives rise to grave inflationary pressures. Among the more important of these special problems are:

- (1) The need to establish a pattern of land use, cropping and animal husbandry which will conserve or increase our very scarce soil and water resources.
- (2) The large seasonal and year to year fluctuations in output. These coupled with the low price elasticity of most farm products largely account for the great instability of agricultural prices. While the importance of price stability at the consumer level is generally appreciated, the serious disincentive effect on production of low and unstable farm prices appears to be of secondary importance.
- (3) The seasonal peaks of demand for labour tend to reduce farm productivity and make it more difficult to shift manpower to other occupations. This imposes the triple problem of finding systems of farming with more steady labour requirements, of finding ways of usefully utilising under-employed farm labour during slack periods and of substituting mechanised systems for labour intensive systems without the resultant retrenchment of labour.
- (4) The need to rationally transfer capital from agriculture to finance investment in other sectors, without at the same time checking the growth of agricultural production or making the farm sector unduly unprofitable. Much more research is needed to reach a better understanding how agricultural taxes in general and land taxes in particular can be used to provide compulsory savings for economic development on the one hand and how tax incentives can be used to bring about increases in agricultural production, to give some indication of the net fiscal burdens on agriculture, relative to other sectors and to show how administration of agricultural taxation may be improved.

It seems worth emphasizing that by no means all the transfers of resources from agriculture take place through the medium of taxes. If agricultural land prices are too high and are unable to give a return consistent with the level of investment, if the cost of credit to the farmer is too high in relation to the returns to the farm investment, then in effect resources are transfereed out of the agricultural sector. If because of defects in the marketing system, the producer must sell at low prices and in the end get a very small share of what the consumer paid, again there is effectively a transfer of resources out of agriculture. Perhaps the best recent general discussion is that of Stephen Lewis, in his paper "Taxation of Agriculture and Economic Development" - who reviews the main trends in post war professional thinking about agricultural taxation and non-tax policies in the context of their possibility for resources transfer from agriculture to other sectors.

- (5) A Characteristic of investment in agriculture of considerable importance in planning, is that to an extent greater than any other major sector, the bulk of the capital needed to raise agricultural productivity is not fixed capital but short term working capital. This applies particularly to the purchase of fertilizers, pesticides, improved seeds, animal feeds, etc. Because of the quick turn over of such inputs, conventional national accounting methods may miss changes in their use. They do not figure in capital output ratios, and this may lead to an underestimation of the real capital needs of agriculture. This gives the impression that capital output ratios in agriculture are very low and may lead to an underestimation of total investment requirements by leaving out the particular need for short term credit.
- (6) The presence of outmoded institutions in agriculture which until remedied will effectively block rational development. This applies especially to land distribution and condition of land tenure, of credit and of marketing.
- (7) The small scale, the dualism and dispersed nature of agricultural production. Since the course of production depends on the independent decision of thousands of small and scattered producers who cannot be effectively coerced, it is essential to enlist their co-operation if plans are to be effectively implemented.
- (8) The dispersed nature of agricultural production makes it very much more difficult than in other major industries to obtain reliable statistics or to implement measures (e.g. of land reform, credit or price stabilization) designed to increase incentives to expand production.
- (9) The dualistic structure of agriculture and the pre-eminence of part-time farming in Barbados are important considerations. A further dimension to the planning process is the thousands of landless farms that form part of the agricultural sector.
- (10) Then there is the "specialness" to agriculture as a production process that differentiates it from other forms of production. It is a biological process and is characterized by heterogeneity in its physical inputs and climatic factors. The time span required in agricultural production involves a large number and wide variety of decisions. Agricultural production involves a "crop cycle" or time lag between planting and reaping and the decisions to be made throughout this gestation period are many and require different skills and knowledge; which crop to choose, which variety, when to plant, when to weed, when to fertilise and when to harvest.
- (11) There are key identifiable factors that are essential to agricultural growth and will accelerate it. Mosher in his book "Getting Agriculture Moving" has identified five (5) essentials: (1) Transportation, (2) Markets for Products, (3) New Farm Technology (4) Availability of Purchasable inputs and (5) Incentives; and Five accelerations: (1) Education (2) Production Credit, (3) Farmer Association, (4) Improving or expanding land base and (5) Planning. The relative importance

of one or more of these factors must be based on the unique agricultural problem situation and most important each problem situation must be studied in totality. It is vitally important to recognize that uniqueness and totality are essential preconditions to the formulation of successful programmes for agricultural development in Barbados.

V. Decentralisation of the Planning Process

A major weakness in agricultural planning to date has been the failure to decentralise the planning process further. The weight of opinion in the literature is that more decentralization is necessary if agricultural planning is to enlist the support of cultivators local agricultural leaders and government administrators. As Waterston says: "The Planners task becomes a matter of trying to reconcile, or at least to strike a workable balance between a whole series of divergent interests. This can best be done by making the preparation a plan combined operation in which everyone and every group likely to be affected by it - government authorities and administrators, legislative and other representative bodies, regional and local authorities, technical and advisory bodies, the private sector and the public is involved in the process in some appropriate way".

A number of analysts feel broad support for planned programmes and participation in the development effort can come only if there is more public debate about planning policy and subsequent programme formulation. Effective agricultural planning calls for a national seminar on development where the plan designers, the programme formulator, the programme carry-outers and those affected by the programme have, in a sense, an equal responsibility in the formulation of policies and programmes. The best way to ensure acceptance is to bring into the implementation of the plan representatives of those who have to carry it out".

Agricultural planning is basically a political process and should embody and express the consensus of the society in terms of the strategy for agricultural development. Accordingly the preparation of a plan for agricultural development should provide the occasion for the Minister of Agriculture to exchange views with the Nation's agricultural leaders and scientists - Technically sound development programmes which fail to take political realities into account are destined to fail. By the same token, political plans which ignore the technical facts of agricultural science and economics are unlikely to accelerate agricultural progress. Price Gittenger of the World Bank submits that "developing countries with the best economic growth records are those where national development objectives are widely discussed, where programmes are argued over and formulated throughout the society, and where everyone from the Government Minister to the lay worker understand the harsh realities of economic growth".

VI. Organisation for Planning

The type of organisation for economic planning (including agriculture) naturally depends on the traditions, the political structure and other special circumstances of the country. But normally provision has to be made, however simple or elaborate the form of planning at three levels:

1. Determination of broad policies, such as the main objectives of development, and of the plan, the overall level of investment, the balance between different sectors of the economy, etc.
2. The more technical aspects of planning including the analysis, comparison and co-ordination of proposed development projects and programmes, reviews of trends and prospects on world markets for those commodities of economic importance to the country, formulation of targets, etc.
3. After the plan has been finalised implementation of the individual projects and programmes which make up the plan.

The main point for emphasis here, is the great importance of close consultation and co-ordination at all stages and levels if economic planning and development is to be coherent and effective. A plan for one sector, such as agriculture indeed becomes fully meaningful only within the framework of an overall plan.

By far the most extensive and best work dealing with general organizational problems, of development planning is Waterston's which draws on the planning experience of virtually every country in the world. After reviewing the experience in a number of countries Waterston recommends a Central Planning Agency or Ministry with rather aggregative responsibilities and establishment of "programming units" in the operating Agencies or Ministries.

Based on Waterston's model of plan organization in his "Development Planning - Lessons and Experience", and adapted to meet the specific needs of agricultural planning in Barbados, an organization plan structure is conceived of in the following ways:

- (1) A Central Planning Unit residing in the Ministry of Finance and Planning which has the responsibility for general economic analysis policy formulation and review and integration of sector plans. To this Unit obviously falls the task of estimating gross domestic product, balance of payment, ordinary government expenditure and revenue and similar national aggregate indicators, the articulation of national economic development objectives, the establishment of target rates of growth, and the integration of sector proposals into the final plan. To encourage co-ordination of sector plans the central planning agency must exercise a general administrative function of establishing deadlines and criticizing the programme submitted for individual sectors.
- (2) Programming Unit (Agricultural Planning Unit) residing in the Ministry of Agriculture, Food and Consumer Affairs adequately backed up by the various operating units, (crops, livestock, extension, fisheries, co-operatives, soil conservation, marketing credit, etc.).

The primary function of the Agricultural Planning Unit would include (1) the combining of projects and proposals of the operating units in the Ministry of Agriculture into agricultural sector programmes; (2) submitting and defending them before Central Planning Unit; (3) recommending policies, instruments of economic policy, administrative of other measures and machinery required to implement the Ministry of Agriculture programme; (4) reviewing and

evaluating agriculture sector projects and programmes; and (5) co-ordinating the Ministry's demand for, and the use of technical assistance. From time to time the Agricultural Planning Unit would be required to undertake special assignments, such as drafting loan application for projects, preparing project reports for foreign aid missions and international agencies, or assessing the impact of a specific project or programme.

To permit the preparation of the required studies and reports, the Agricultural Planning Unit would need to collect, record, process and analyse relevant statistical data provided by the operation units and from elsewhere. A desirable way to organise the Agricultural Planning Unit would be to set up two loose, flexible sections. One of these would be concerned with general analysis, research and statistics; the second with programming, progress reporting and evaluation.

The Agricultural Planning Unit should occupy a crucial position in the agricultural planning process and should be the main channel of communication between the Central Planning Unit; and the Ministry of Agriculture. It should receive information from central planning about planning objectives and directives which will permit the Ministry of Agriculture to prepare projects and programmes for incorporation into the national plan. In turn the Agricultural Planning Unit should act as an agricultural information reservoir for central planning. An agricultural plan prepared by the Agricultural Planning Unit is necessarily tentative until central planning reconciles it with other sectoral plans and available resources.

The Agricultural Planning Unit should not prepare or execute projects, since these are properly the functions of the operating units in the Ministry of Agriculture. It should however set up forms and standards for the various operating units to follow in the preparation and execution of projects. These should provide among other things for (1) feasibility and engineering studies, and cost benefit analyses; (2) the identification of "milestones" in executing projects which permit the setting up of realistic work schedule and phasing of a project with other related ones; (3) building into the project suitable means for determining, on an up-to-date unit with other costs, as well as physical progress during the execution of the project; (4) assigning responsibility for each task (5) training programmes required to produce personnel qualified to operate a project when completed; and (6) the creation of a suitable organisation and management cadre to run the finished project.

Because the Agricultural Planning Unit transcends organisation lines in a Ministry of Agriculture and because it must transmit certain guidelines and directives to which operating units must conform in preparing and executing their projects, it is desirable that an Agricultural Planning Unit be established as an independent staff unit reporting directly to the Minister through the Permanent Secretary.

The Agricultural Planning Committee should be made up of the Minister of Agriculture, his Permanent Secretary, the Chief Agricultural Officer, the Deputy Chief Agricultural Officers, and the Head of the Agricultural Planning Unit as standing members and the Heads of the various operating units to be co-opted as needed. Such a committee would constitute the planning group for the Ministry of Agriculture and as such should review policy proposals which the Ministry's Agricultural Planning Unit has prepared for consideration

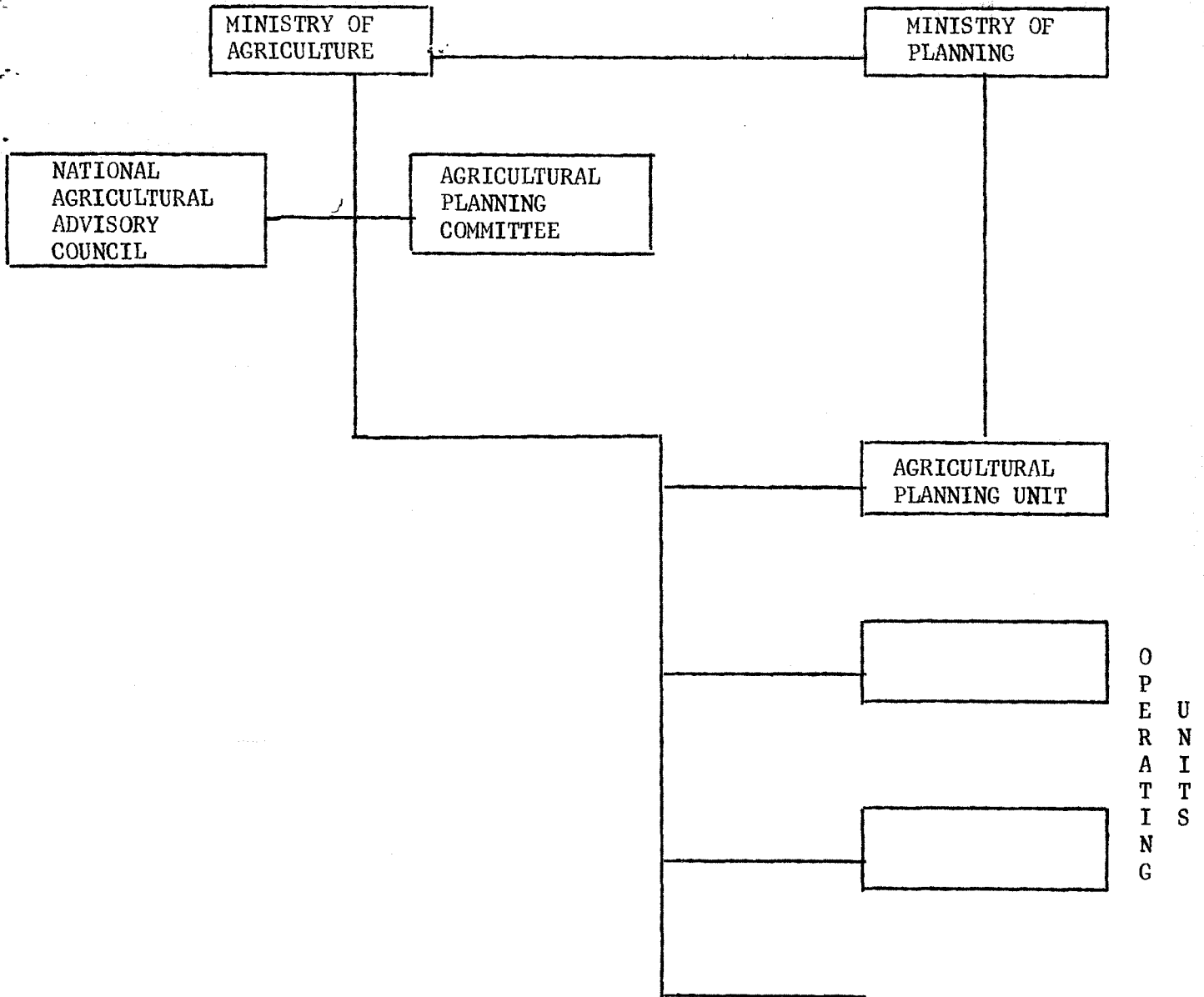
for the Minister or Permanent Secretary, and where appropriate for Cabinet or Central Planning Committee. This planning committee should also endeavour to evolve means for achieving economy avoiding waste and ensuring efficient execution of projects.

It is further desirable for the Ministry of Agriculture to have an advisory body (National Advisory Council) composed of persons outside the Ministry to participate and help in the process of preparing and executing the Ministry's programme. Representation on this committee should be wide as possible and should aim at covering the range of problems that impinge on agricultural development, institutional, production, marketing, financing and credit and manpower. The size of this council should be determined on the basis of compromise. Such an advisory body would be composed of representatives of important producer groups, of the processing and distribution trades of consumers, of agricultural co-operative organisations, technical staff of other Ministries, outside experts and the like.

The National Agricultural Advisory Council not only should prepare policy suggestions for the Minister, but should also act as a sounding board for contemplated policies. It should perform an educational and extension function as well, since the Minister should call upon it for co-operation in disseminating information about adopted policy. The council's suggestions should be studied and analysed by the Agricultural Planning Unit and submitted to the Agricultural Planning Committee for consideration.

To summarize therefore the simple outline of the planning machinery (see Agricultural Planning Organisation chart) thus identifies five important components: the central Planning branch whose main function would be to undertake the considerable task of co-ordinating and integrating all sector programmes in an overall national development plan, providing advice and guidance for the Ministry of Agriculture on general resources distribution and broad economic objectives: An Agricultural Planning Unit to work in close co-operation with appropriate operation units and other departments in the assessment of agricultural resources, the preparation of development projects and programmes, the economic appraisals, policy alignments and identification of priorities, as well as in the implementation of schemes and the evaluation of results: the operating units which will prepare and execute their individual projects following guidelines and standards set up by the Agricultural Planning Unit: the Agricultural Planning Committee, concerned with broad formulation of development policy and with the general shape of the overall national development programme, and the continuous direction and adjustment of agricultural planning activity: a National Agricultural Advisory Council composed of outsiders to recommend policies and otherwise to assist in preparing and executing the Ministry's programme.

AGRICULTURAL PLANNING ORGANISATION CHART



(Extracted from Barbados Development Plan, 1979-83)

Chapter 5

AGRICULTURE AND FISHERIES

INTRODUCTION

The agricultural sector in Barbados, by virtue of its dominance in the economy has always been the major sector in any development plan strategy. This sector contributed significantly to foreign exchange earnings and to employment. As the economy diversified and developed in the 1960's the agricultural sector was also diversified. The strategy was to pursue an agricultural diversification programme aimed at encouraging the shift of some sugar cane lands from producing sugar to producing vegetables and livestock products.

The agricultural diversification strategy of the decade preceding 1975 was part of a land use policy which was initiated to permit the subdivision of selected estates into two and four acre lots. This policy was theoretically to give momentum to the non-sugar diversification programme, but it failed at the implementation stage. This land use policy, because of its flexibility, failed to differentiate between the development objectives of land ownership redistribution and agricultural land re-distribution. As defined here, a land ownership re-distribution policy is a socially and politically oriented policy to cater to the need for wider ownership of land; whereas an agricultural land re-distribution policy is an agriculturally oriented policy to re-distribute holdings of a viable size according to intended use. The adverse long-run effect of this past policy was a significant build up in the portion of idle lands in the agricultural sector.

Future agricultural policy will ensure that land use is maximised and that the benefits of the agricultural diversification programme are economically, financially and socially maximised.

OBJECTIVES AND STRATEGIES FOR AGRICULTURAL DEVELOPMENT

The major thrust of an agricultural development policy will focus broadly on the areas of land use, import substitution, export generation, employment opportunities and farm income improvements, efficiency in administration and resource conservation.

Objectives

These areas of thrust may be translated into the general objectives which follow:

- 0 to implement a land-use policy which will ensure the economic use of the existing arable land;
- 0 to maintain and if possible increase agricultural export earnings from sugar and to develop exports of other agricultural commodities;

- O to reduce agricultural imports where import substitution is technically and economically feasible, and not unduly costly to the consumer, and where the overall effect on the balance of payments is favourable;
- O to encourage a policy of employment stability and where financially feasible to encourage employment generation in the sector;
- O to improve the level of efficiency in the administrative elements of the sector;
- O to ensure a fair return to producers and workers and reasonable prices to consumers;
- O to conserve and protect the resource land from erosion and to develop and utilize efficiently the resource water.

THE STRATEGY

Land-use

A land-use policy must firstly focus on the future of sugar cane production, which now occupies about 85% of arable land in Barbados.

In order to formulate a strategy for the future of sugar production, the Government, the sugar industry and the Barbados Workers Union agreed to support a comprehensive study of the future of the sugar industry. This study, which is well underway, has as its major terms of reference:

- O to identify those areas presently under sugar cane cultivation which could economically be put to other agricultural use;
- O to identify the resources required to optimise the use of the lands suitable for sugar production and the use of those suitable for non-sugar agricultural purposes;
- O to evaluate the applicability and efficiency of available and existing machinery for use in the industry;
- O to evaluate the efforts of mechanization and the utilization of labour on the financial and economic performance of the sugar industry;
- O to make recommendations on the organisations and institutions necessary in order to realise the potential contribution from sugar.

The findings of this sugar study will form the basis for formulating the future development strategy for this most vital industry.

As for the future of non-sugar agriculture, the viability of continued expansion in vegetable production will be influenced by the development of our irrigation water resources. In 1978, the findings of a comprehensive Water Resources Study were submitted to the Government. That study found that some 52.6 million litres of water per day were available for irrigation use. This water is found in areas with a gross area of 3,725 hectares. However, not all this area is arable land. The development of this water resource will require the assistance of the Government and the international agencies in providing the required investment capital for irrigation.

The statistics show that Barbados is markedly increasing its per capita consumption of meat. Given about 80% of this consumption is imported, it is imperative that the economics of increased livestock production, within the land-use context, be examined. Therefore, where feasible, Government will encourage the expansion of areas of lands, not suitable for sugar or vegetable production, for livestock production.

Of significance to the future strategy is the land-use policy which will be adopted. Previous land-use policy permitted the indiscriminate sub-division of agricultural land. During the Plan period 1979-83 the land-use policy will ensure that no indiscriminate sub-division of agricultural land is permitted. Rather it is intended that an agricultural land re-distribution policy be the focus of the land-use policy.

To this end, Government has embarked on an Integrated Rural Development Project which will result in the development of plantation tenancies as agriculturally viable units. This project will first transfer title of land to the tenant and then develop infrastructure and irrigation facilities, and provide adequate credit for those tenants who wish to become viable producers. It is expected that funds for this project will be provided by the Inter-American Development Bank. In addition Government will implement a land-lease project at Spring Hall. This project will involve the leasing of Government owned land to about twenty-four (24) farmers to embark on full scale small farming. It is expected that investment funds for this project will be provided by the Caribbean Development Bank.

Of relevance to the land-use strategy is the need to get arable fallow/idle lands back into production. There are about 2429 ha of former sugar cane lands now lying idle. Some of those lands are undoubtedly lost to agriculture. For the remainder, the Government will analyse and formulate appropriate measures to get such lands back into production.

Generation of Foreign Exchange

Sugar

The foreign exchange generating capacity of the agricultural sector will be exploited to the fullest. The sugar sub-sector is undergoing an in-depth analysis and a sugar strategy will be implemented to maximise the foreign exchange receipts from sugar within the marketing constraints facing sugar exports.

Indications are that the existing major sugar markets will continue to experience instability and depressed prices during the Plan period. Therefore, more than ever, a skillful marketing strategy will be implemented to maximise the receipts from available markets. Barbados will continue to support the ACP efforts to gain maximum price levels from the EEC and on the U.S. market.

To supplement sugar receipts, efforts will be made to increase significantly the receipts from rum exports. In addition Government will continue to monitor the research and economic feasibility of producing by-products from sugar. Two of these by-products which will be foremost in the planning objectives are fibre board from cane rind and industrial alcohol. If necessary, the Government will seek investment participation in implementing these sugar by-product projects when proven feasible. In any event, the Government and the sugar industry will continue to co-operate in the efforts to maximise foreign exchange earnings from sugar cane production.

Vegetables and Root Crops

The foreign exchange efforts in the non-sugar sub-sector will be focused on export vegetables and selected root-crops. It is known that markets exist in temperate countries for fresh vegetables during the winter season. To penetrate such markets calls for specific measures on the supply side as well as the demand side. To co-ordinate these two variables, the appropriate project evaluation and formulation procedures will be undertaken. The investment needs of an export vegetable project will be identified and if necessary, appropriate financial assistance will be sought. Investment assistance will also be sought for appropriate irrigation development.

Black Belly Sheep

During the Plan period the expansion of the Black Belly sheep population will be encouraged within the private sector and implemented on the Government sheep multiplication stations. Exports will continue to be developed.

Import Substitution

The export thrust of the foreign exchange objective will be complemented by an import substitution emphasis. The import data show that feed-stuffs imports are significant. This is a direct result of the ever increasing per capita consumption of meat in Barbados. It is therefore planned that local production of grains and other feeding-stuffs will be emphasised during the Plan period. Included in this strategy will be the implementation of the commercial use of cane-feed as it becomes more economically and technically feasible. There are some products which can be utilized economically in agro-industries. As adequate supplies become available, processing will be encouraged.

Employment and Income Distribution

The import substitution strategy will be strengthened by a drive to encourage the continued consumption of locally produced foods. When necessary, quantitative import restrictions will be employed to stimulate greater demand for local produce.

The age profile of the agricultural labour force, particularly sugar, coupled with the less than favourable attitude of youths towards agricultural labour, will shape the employment objective of the future strategy. The national goal for employment is one of aiming to achieve virtually full employment in the medium-term. For the agricultural sector, the short-term employment policy must be one of employment retention and stability rather than expansion.

This policy has in part, been influenced by the financial and social variables which in aggregate restrict employment expansion. For several years, the wages of the agricultural worker have been lower in real terms than those in the new sectors of the economy. This situation was perpetuated in part by the inability of the industry to grant substantial wage increases (prior to 1973) because of the guaranteed prices earned for sugars. The cyclical but steep rise in sugar prices in 1974 and 1975 enabled the sugar industry to greatly improve its ability to pay higher wages. The result of this phenomenon was that in 1978 sugar workers enjoyed a competitive wage position, and in some cases an advantage over other sectors. The financial implication of the prevailing wage rates is that an expanded labour force would aggravate the cost/price squeeze now being experienced in the sugar industry.

An analysis of the age structure of the sugar workers reveals that in 1976, 60% of the regular labour force were over 50 years of age. This figure is in contrast to the age distribution of the national labour force in 1976 where a mere 20% were over 50 years. The type of replacement policy adopted for the over 50's in the sugar industry will therefore have a significant impact on the total employment generated by sugar.

Mechanization in agriculture (sugar and non-sugar) has perhaps increased at a more rapid rate than is socially desirable given the level of unemployment. Because of the desire to maximize the future employment potential of the agricultural sector, a rationalization study of the labour/capital ratio most suited for the development of agriculture will be undertaken as part of the sugar industry study.

Income Distribution

The objective of farm income distribution seeks to ensure that the small farmer¹ in Barbados continues to survive not only socially but economically.

Traditional agriculture in Barbados was characterised by an estate sub-sector on the one hand and a small farm sub-sector on the other. As our agriculture modernized and diversified, there emerged a group of enthusiastic non-sugar producers in both sub-sectors. These modern non-sugar producers were forced to become more farm income conscious than the traditional sugar producers. To these producers the cost of investment capital, land and labour were only available at market cost. No massive grant funds or 'cheap' labour were abundant. Economies of scale in production were necessary to sustain adequate incomes.

¹ The 1971 Census of Agriculture defines small farmers as those holding less than 10 acres (approx. 4 hectares) of land.

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As the modernization process continued, the specialist non-sugar producers in the estate sub-sector began to gain the competitive advantage in production over their counterparts in the small-farm sub-sector. In fact, the small farmers utilized high levels of family labour and devoted longer hours on the farming activity in order to compete in production. On the demand side small farming gained from the frequent shortages, particularly with vegetables, which produced rather high prices.

What this planned agricultural development strategy is concerned with is that the future of the small non-sugar farmer is assured, as more estate lands are released from sugar into large scale non-sugar production. The justification for the continued survival of the small farmer cannot be based exclusively on economic analysis of land utilization. This sub-sector consists of more than 10 000 small farmers as compared to about 200 large sugar holdings. Social stability and the right to a fair standard of living will be weighed against economic criteria.

The intention of the Government through its agricultural development strategy is to provide the necessary incentives and assistance to guarantee a fair standard of living to all small farmers. The formulation of a rural agricultural development project is the first major step in this direction. In the medium term it is planned to develop land settlement schemes for small farmers, to promote co-operative farming and to initiate youth farms to encourage our youth population to participate in the agricultural modernization process.

Resource Conservation

The conservation of soil and water resources will be an essential component in the agricultural development strategy. For over a decade large sums were expended on the Soil Conservation Scheme in the Scotland District of the Island. Such activity was essentially geared at erosion control to arrest slippages and landslides. Despite such efforts, the agricultural production of the area remained stagnant. The Government has embarked on a project that should result in a significant increase in production from the area. With the financial assistance of the IADB, a comprehensive study of the area has been undertaken and a Master Plan for the development of the Scotland District will be prepared for the consideration of the Government.

From this Master Plan, projects will be developed and implemented in the area. Such project activity will require significant capital investment. The Government will be approaching the IADB, CDB and other international lending agencies for financial assistance to exploit to the fullest the agricultural potential of the Scotland District. In addition, appropriate soil conservation measures will be applied to all lands in the island. The Government will expect the private farmers to intensify their usual cooperation in this area.

As for ground water conservation, the use of this resource will be monitored and where necessary regulated by the new Water and Sewerage Authority. This Authority with the assistance of the Hydrology Unit of the Ministry of Agriculture will identify water resources suitable for irrigation and advise producers on the appropriate rates of application.

Where groups of farms are located in a given irrigation water zone, the Government will encourage through incentive measures the development and use of irrigation facilities on a co-operative basis.

Agricultural Institutions

The major agricultural institutions are the Ministry of Agriculture, the Agricultural Development Corporation, the Barbados Marketing Corporation and the Agricultural Credit Division of the Barbados National Bank. As a matter of policy, the Government will implement measures to ensure greater management and technical efficiency in these institutions.

The Ministry of Agriculture will continue to be the major arm for implementing the Government agricultural policy. The Research and Extension activities of the Ministry will be subjected to analysis and evaluation with the aim of increasing efficiency in the Ministry. The assistance of the Inter-American Development Bank will be utilized in this exercise.

The ADC during the past decade has drifted along without an encouraging productive performance. In fact its existence has been rather costly to society. As a result, the future role and functions of the ADC will be the subject of a detailed study. Before the end of the Plan period it is intended to have the ADC re-oriented more towards a greater contribution toward agricultural production than previously. Where possible the recommendation of the study will be implemented with urgency. Meanwhile, however, the Corporation is being restructured and one of its functions will be the implementation of the integrated Rural Development Project.

The Barbados Marketing Corporation has also failed to assume the leadership role in the field of agricultural marketing. The Government has therefore secured financial assistance from the Caribbean Development Bank to formulate a marketing project which will include the re-location and expansion of the BMC facilities at a site identified at Lower Estate, St. George. Construction is due to commence in mid 1980 and the plant is expect to commence operation late in 1981.

The Agricultural Division of the Barbados National Bank will be the major single source for financing agricultural development. The Bank is the agency responsible for administering loans raised by the Government for on-lending to farmers. As the investment needs of the agricultural sector increase during the Plan period, the Government will, where necessary, approach international lending institutions for loan capital. It is estimated that during the Plan period, the Agricultural Bank will be asked to administer new lines of credit to farmers of approximately \$6.4 million.

Price Policies and Incentive Schemes

In order to continue its policy of controlling inflation within the economy the Government will continue a policy of price control. As far as domestic agriculture, is concerned, this policy will continue to ensure that on the one hand, commodities reach consumers at a reasonable price, and on the other, farmers receive a fair price for their products and to regulate trade in a manner that will serve the best interest of the community.

The Government's policy on price control is being effected through:

- O The price control division of the Ministry of Agriculture, Food and Consumer Affairs;
- O The Barbados Marketing Corporation, through its policy of guaranteed prices to farmers and its intervention to stabilize the market during shortages by importing the necessary requirements.
- O The Agricultural Planning Unit by the provision of marketing intelligence information and the identification of incentives for the Agricultural Sector.

The Barbados Marketing Corporation has been made sole importer of a number of food items, and this has allowed for the proper regulation of the supply of these commodities on the local market.

The aim of policy measures taken so far is to ensure that prices are stabilized as much as possible to ensure that supplies reach consumers so that the nutritional requirements of the population can be satisfied.

Every effort will be made during the Plan period to ensure that farmers receive a fair price for their produce, by improving the marketing facilities and the mounting of a marketing intelligence programme. These measures will also be aimed at a policy of price stabilization by trying to remove the gluts and shortages which now plague the agricultural sector.

With a view to motivating agricultural production and diversification, subsidies have been extended to farmers through the farm incentive scheme to ensure that farmers are able to produce commodities at reasonable prices and make a fair return on investments. The present subsidies include the purchase of inputs, tractor services, sinking of wells and purchasing of irrigation equipment, spraying equipment, pasture development, co-operative development, livestock breeding services, services to fruit tree owners, slaughtering services provided at the abattoir, and a rebate on repairs to boats and fuel for boats registered with the fisheries department. In the past, farmers have taken advantage of these incentives and efforts are underway to ensure that wherever possible concessions are made to producers, which will allow stimulation of local food production, expansion of the fishing industry and ensure a reasonable return on investments. To achieve these objectives during the Plan period the Government will continue to provide these incentives necessary to sustain the sector.

It is hoped during the Plan period that farmers will utilize the opportunities available to them in the farm incentive schemes.

The Barbados Marketing Corporation is continuing to offer guaranteed prices to farmers in order to help stabilize prices during the plan period. The B.M.C. will continue to intervene in the market when there is a shortage of supplies and import commodities in the quantities desired and at the time desired. The B.M.C. will also perform a similar role during periods of high production by providing guaranteed prices to farmers on contract in an effort to stabilize prices to producers.

Through the incentive scheme, efforts will be made to ensure that farmers are aware of the subsidies available to reduce the cost of production, so that the production of local commodities can be exported at competitive prices to regional and extra-regional countries.

FISHERIES DEVELOPMENT

The development of the fisheries potential of Barbados will be fully exploited during the Plan period. The fishing industry that has evolved is predominantly one comprising of about 500 small fishing boats. These boats are often constructed with limited holding capacity and are non-refrigerated. Consequently fishing time is restricted to one day expeditions. Every effort will be made to encourage fishermen to improve their vessels and remain much longer at sea during fishing expeditions.

To provide these incentives, the Government has sought the financial assistance of the European Development Fund to implement a major project at Oistins. This project will provide a new and elaborate fisheries terminal, ice making facilities, new pier and jetty and more efficient marketing arrangements for fishermen. It is planned to extend the Oistins fisheries project concept to other selected fish landings in the Island, particularly Speights-town.

The Government will also continue to provide a line of credit for small fishermen through the Barbados National Bank.

There is, however, the need to evaluate all aspects of the fishing industry. The supply issues and demand problems will be analysed with a view towards identifying ways of increasing supply to meet anticipated demand growth through an adequate marketing system. The achievement of stability of fish prices to the fishermen and consumers will be an objective of any future fisheries strategy. The Government has obtained the assistance of the Canadian Government in conducting the planned in-depth study of the fishing industry.

In 1978, the Government took the decision to phase out the shrimping operations of its wholly owned company, International Seafoods Limited. Shrimping had become a non-viable operation partly because Barbados had to depend upon the good-will of other nations to permit Barbadian vessels to shrimp in their grounds which were distant to Barbadian waters. Added to this, was the fact that Barbadian shrimp vessels had become unduly costly to operate. The constant need for subventions from Government became unjustified.

The Government is investigating the feasibility of a trawl fishing operation using some of the existing shrimp vessels. In this activity, the Governments of Barbados and Guyana have entered into a fishing agreement which is mutually beneficial to all. The successful implementation of a trawl fishing project will go a long way in increasing the supply of local fresh and processed fish. The Government is also investigating the utility of providing trawler storage facilities at sea for small fishermen to allow them to remain longer on fishing expeditions.

CO-OPERATIVES

Government is convinced that a viable and vibrant Co-operative Movement in Barbados can result in the kind of development which portrays self-help and promotes self-sufficiency. Government is also concerned that with a few notable exceptions the co-operative movement in Barbados has experienced only modest progress over the years. Based on the conviction that real improvement is possible and the will to succeed exists, Government is prepared to continue its support to co-operative enterprise in Barbados.

To this end, it has sought to identify the constraints to co-operative development in Barbados and to encourage a re-organization of the Movement along lines which would stress co-operation and self-help as well as upgrade the awareness of the membership at large to the value of good business practice as an aid to co-operation.

Plans are underway to re-organize the movement through the establishment of a Co-operative Federation and for effecting changes to the present arrangements consequential upon this approach. It is recognised that the fullest involvement of co-operators is essential to the success of whatever approach is taken.

Technical assistance has been secured for the services of an expert from the International Labour Organisation to assist in upgrading cooperative awareness, education and management skills of key cooperators in the first place, and of the movement in due course for more effective organisation.

EXPENDITURE

The budgetary estimate of capital expenditure for the agricultural sector during the 1979/80 to 1982/83 period is \$69.8 million. Of this amount, it is expected that over \$20 million will be raised from external funding agencies as loans or grants.

The major externally funded projects include the relocation of the Barbados Marketing Corporation, the construction of a new Central Agronomic Research Laboratory, the Oistins and Speights-town Fisheries Terminal Complex, the Integrated Rural Development Programme, the Development of the Scotland District, the Spring Hall Land Lease Scheme and a Fisheries Development Project.