INSTITUTO INTERAMERICANO DE COOPERACION PARA LA AGRICULTURA
INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE
INSTITUT INTERAMERICAIN DE COOPERATION POUR L'AGRICULTURE
INSTITUTO INTERAMERICANO DE COOPERAÇÃO PARA A AGRICULTURA

IICA

OFFICE IN BARBADOS

P.O. Box 705C
Bridgetown
Barbados, W.I.
CABLE: IICABARB
Tel: 07993

PROJECT PROPOSAL

FOR

SMALL FARMER MARKETING PLAN

June, 1981

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

IICA PROJECT PROPOSAL FOR A SMALL FARMER MARKETING PLAN

I. INTRODUCTION

1.1 The small farmer problem

The small farming population of Barbados has its origin in the slaves that worked the plantation land in the 1600's and who after emancipation were offered a piece of land in exchange for their labour. This condition created a land distribution structure which did not allow for any expansion or change beyond the mere transfer of the same small holding.

It is generally considered that a small farmer is one who manages less than 10 acres of land. These farmers have incomes below acceptable standards and because of their small size they face a number of basic problems in their economic endevaours. In the case of the crop farmers and particularly those cultivating vegetables the economic problems are related to:

- large price fluctuations and uncertain outlets for their produce, and
- increased competition from the larger farmers who are expanding vegetable production.

Against this background together with their poor capacity to exercise any bargaining strength when marketing their produce, many small producers are abandoning agriculture.

Apart from the many other socio-cultural reasons, it is considered necessary to define and implement an agricultural marketing plan as a means to promote the participation of the small farmer in the rural development process of Barbados. The plan should increase the marketing opportunities available to the small farmers and improve their bargaining position.

1.2 Marketing component in the overall rural development problem:

There has been a growing trend toward increasing the proportion of total domestic fruit and vegetable supply being handled by large volume outlets i.e. supermarkets, hotels, restaurants, school meals. These buyers require large quantities of produce of a consistent quality and on a regualr basis. As a result of this structural change the small producer has been left with an increasing disadvantage in finding outlets for his produce. On the other hand this trend towards a larger proportion of fruits and vegetables being marketed through large volume outlets is likely to continue and therefore external changes will be needed in the marketing system to improve the participation of the small producer. The present problems facing

.../....

small producers are also being accentuated by the continued increase in transportation costs which discourages hawkers and other wholesalers form collecting at the farm in small quantities.

The specific factors which are contributing to the marketing problem faced by small farmers include the following:

(a) Small producers are unorganized and scattered throughout the island thus providing only limited quantitites of basic food crops at any point. As a result, it is difficult to organize shipments so as to attain economies of size for the efficient handling of fruits and vegetables and also for the Government to plan and implement production and marketing services for farmers.

(b) Farmers respond strongly to price changes, which results in seasonal surpluses or deficits and large variations in prices. Periodic gluts continue to discourage increased output on a regular basis.

(c) There is a wide variation in product quality among the different producers. Normally, farmers do not grade their produce at the farm, since price differentials do not encourage it.

(d) There is a lack of assured outlets for small farmers wishing to expand production and this/ is resulting in a lack of confidence among producers.

.../....

(e) The Barbados Marketing Corporation (BMC) is currently not a major force in either the domestic or export market for fruits and vegetables and has difficulties in supplying the marketing services which small farmers require. Small farmers are unable to meet price and market competition because they often occupy poor quality land and as a result adopt low technology and risk avoidance cropping practices.

(f) Low productivity and the inadequate support services available to them makes it difficult for the small farmers to maintain a consistent level of production and a continuous supply to the market.

(g) Lack of appropriate production techniques to overcome problems of soil fertility, lack of water and pest and diseases.

(h) Have insecure land tenure and difficulties in obtaining credit which often inhibit capital investment.

(i) Are affected by transportation, storage and marketing difficulties which further increase the risks involved in expanding production.

1.3 Government policies to solve marketing problems:

On the production side, the Government is currently engaged in a number of rural development projects to increase the output of agricultural products from small farms. An Integrated Rural Develop ment Project (RDP) is being launched which will result in the development of plantation tenantries as viable agricultural units. This programme will transfer the title of land to existing tenant farmers, develop infra-structure and irrigation facilities and provide credit to small farmers wishing to farm on a commercial basis. In addition the Spring Hall Land Lease Scheme will provide land on a tenanted basis to a number of small farmers in the north of the Island. A further project to be undertaken is the Scotland District Project which aims to bring unused land into cultivation for fruit and vegetable production, livestock rearing and forestry. It is essential that more reliable marketing outlets for the output of the small farmers in these rural development projects be made available.

In the Budgetary Proposal of March 31, 1981, the Government announced ploughing and cultivation subsidies in order to encourage the private sector to provide these services for small farmers. In the past, the Motor Tractor Cultivation Scheme operated by the Ministry of Agriculture has not been sufficiently equipped or funded to meet all the requests from small farmers for subsidised ploughing and cultivation services. The lack of this service has often acted as a barrier to increased output. The improved Scheme can be expected to result in expanded production by small farmers.

.../....

The Government's main initiative in the marketing field has been the creation of the Barbados Marketing Corporation (BMC) in 1963. The BMC is a statutory body with prime responsibility for the marketing of agricultural commoditites. The BMC has the following objectives:

(a) To stimulate, facilitate and improve the production, marketing and processing of produce in Barbados, particularly for the benefit of the producer;

(b) to secure the most favourable arrangements for the purchase, handling, transportation, storage, export, shipping, marketing and sale of produce and in particular assist agricultural and fisheries cooperatives societies to dispose of their produce to the best advantage.

Through its Cooperatives Unit, the Ministry of Agriculture provides incentives for the formation of cooperative societies. These cover both production and marketing activities.

In addition to domestic marketing, the Ministry of Agriculture through its Price Control Division, in consultation with the BMC and producer representatives, regualtes the importation of fruit and vegetables. Licences are required for imports and these are not normally issued when domestic supplies of the same commodity are available. In the case of exports, BMC is the sole exporter of agricultural produce. However it frequently grants licences to private exporters.

1.4 Impact of Government policies:

Althouhg the BMC is the Government's sole marketing agency, in recent years it has not played a leading role in the domestic marketing or export of farm products. In particular, the marketing services available to small farmers have not improved and its system of contracts is not resulting in a significant volume of produce being marketed through the Corporation.

The BMC is generally viewed by producers as a buyer of last resort. Contributing to the lack of effectiveness of BMC have been its lack of flexibility in its day to day operation, its role as a price support agency, frequent changes in staff and policy and a lack of a market information system.

1.5 Marketing strategy for small farmers:

Two basic opportunities can be considered in marketing to assist small farmers to obtain a higher level of income: -the diversification opportunity and the bargaining oppoertunity. The diversification opportunity is the possibility of selecting from all the possible

.../....

products which a small farm can produce those that present the maximum income opportunities. The bargaining opportunity is the possibility of getting the best possible return for the products marketed.

1.5.1 The diversification opportunity

Although there may be a number of commodities that small farmers can produce their limited availability of land and capital resources together with generally surplus labour capacity suggests that the best diversification opportunities are within the Fruit and Vegetable sector. The disadvantage of these types of commodities is however the considerable market uncertainty and price fluctuation they experience. The possibility of exploiting this diversification opportunity to the advantage of the small farmer therefore requires a fundamental precondition that future market conditions can be anticipated to some extent by the farmer prior to making his production decisions.

1.5.2 The bargaining opportunity

With regard to the possibility of getting the best possible returns for their product four different alternatives can be envisaged:

- The capture of the marketing margin between the farm gate and the wholesale level.
- The control of supply
- The anticipation of future market conditions
- Increased participation in retail sales.

For the purpose of improving the market opportunities for small farmers it appears that in the medium and short run only two alternatives seem feasible. They are the capture of the wholesale margin and the anticipation of future market conditions. This is the case because supply control requires the ability to effectively control a sizeable part of total supply together with the enforcement of regualtions to prevent free entry of new producers into horticultural production. Those conditions are undoubtedly beyond the possibilities of any small farmers' group. The possibility of increasing the participation in retail sales is a long run objective through which small farmers could capture not only the wholesale margin but the retail margin as well. Although there have been some attempts to assist small farmers to participate at the retail level (farmers markets, road-side stands etc.), these efforts generally have had rather limited scope and represent a small part of small farmers total production potential. However, it is considered that as the output of small farmers and the volume of operation increase the introduction of small retail outlets strategically located should be looked at for implementation.

1.5.3 The strategy

The strategy to improve the small farmer's income and participation in the national economy will be based in directing the small farmer sector so that they can make the best possible use of the diversification and bargaining opportunities. In order to do this the following elements must be fulfilled. They are:

- the organization of small farmers
- increased participation in large market outlets.
- the anticipation of market opportunites
- the organization of production
- the operation of an independant marketing channel

1.5.3.1 The organization of small farmers:

In order to obtain increased bargaining power, small farmers should be grouped together at the local and national level and therefore participate in larger and expanding market outlets like supermarkets, hotels, restaurants, hospitals and other institutional markets. In this context, small farmers wil be grouped in marketing associations or other self-managed groups at the local level.

These local organizations will be integrated at the national level into a Small Farmers Marketing Organization (SFMO) that will manage the marketing operation on behalf of all associated farmers.

.../....

1.5.3.2 Increased participation in large volume outlets:

A major element of the strategy is to implement actions that will allow the SMO to gain and increase their participation in the following outlets:

- supermarket chains
- Hotels and restaurants
- Institutional demand: hospitals, school lunch programs , etc
- BMC
- Processing plants
- Export markets.

The handling by the SMO of the production of a larger group of farmers will ensure that the organization can provide quantity, quality and continuity in the supply of produce and therefore increase their possibility of penetrating these markets.

1.5.3.3 The anticipation of market opportunities:

The greatest contribution of the strategy to the overall objective of increasing the income of the small farmers is the provision of guidance to the farmers in producing those commodities with the best future market potential and not producing those commodities with low price prospects.

.../....

The anticipation is done by means of a direct survey of intentions to plant and an estimation of price trends. These two methods are described in the following chapter.

1.5.3.4 The organization of production:

The anticipation of market potential provides for the elements required to organize and plan the production of the small farmers associated into the national marketing organization. Two approaches can be envisaged to organize small farmers production: the persuasive way and the compulsory way.

The persuasive way involves communicating the information about future market conditions to the local small farmers organizations and letting them react freely to that information. The results are not completely anticipated but a range of supply response can be envisaged. The national organization of small farmers would not enter into agreements to buy until firm contracts are established with potential buyers. Only at that stage would the national organization allocate the volume contracted among the different local farm organizations.

The compulsory method represents a prior agreement to buy the product from the local organization before the planting process has taken place. This agreement is implemented in the form of production contract or quota allocation to the small farmers participating in the program.

..../....

1.5.3.5 The operation of an independant marketing channel

The strategy will aim to develop an independant marketing channel between the small farmers organizations and the large volume outlets. In this way, improved prices can be negotiated and small farmers will not have to rely on other intermediares e.g. hawkers.

II BASIC ELEMENTS OF MARKETING PLAN

The basic elements of the marketing plan will include:

2.1 Obtain wholesale margin for small farmers:

The larger the marketing margin between farmgate prices and wholesale prices, the greater will be the possibiliites of obtaining some of this margin for farmers through the operation of a small farmers organization performing marketing activities. Consequently it is important to obtain reliable information in order to quantify as precisely as possible the marketing margin for the wholesaling function. This analysis will be required for situations of low prices and high prices.

Preliminary analysis of some secondary information available leads to a tentative conslusion that wholesaling margins for fruit and vegetables are substantial, given that the services performed by wholesalers are limited. Further analysis completed with

.../....

approximate cost estimations shows that the wholesaling margins would over costs of operation of an assembly centre that would provide services of buying, transportating, sorting, packing, and selling to retailers (See Tables 1 and 2).

The profit that could be obtained from the assembly centre organization for small farmers would permit an increase of prices paid to participating farmers of 10% approximately. This price increase would be 12.5% if the organization handles 70% of the fruit and vegetables produced by small farmers (which has been assumed to be 50% of total production). If the assembly centre handles 30% of the small farmers' production the possible price increase to them would only be 8%.

In its operation, the small farmer assembly centre would prepare produce for delivery to BMC, and through BMC's facilities and arrangements, supply the official institutional demand (hospitals, schools and others). This could represent a stable demand with low risks, but it would require the farmers to provide the specified product qualities on a regular basis.

TABLE 1

ESTIMATED VALUE OF VEGETABLE PRODUCTION FRM SMALL FARMS, BARBADOS, 1979

PRODUCTS	TOTAL PRODUCTION 1/	SMALL FARMER PRODUCTION 2/	MARGIN FROM FARMER TO WHOLESALE 3/	FARM GATE PRICES 4/	WHOLESALE PRICES 5/	TOTAL REVENUE 6/
	TONNES	TONNES	$/lb	$/lb	$/lb	'000
CARROTS	2143	1072	0.14	0.96	1.10	2594
CABBAGE	1130	565	0.13	0.71	0.84	1044
TOMATO	702	351	0.20	0.98	1.18	911
CUCUMBERS	2104	1052	0.09	0.43	0.52	1203
PUMPKINS	285	142	0.08	0.41	0.49	153
STRING BEANS	297	148	0.17	0.86	1.03	335
BEETS	831	415	0.12	0.68	0.80	730
OTHER VEGETABLES (Est.)	510	255	0.10	0.50	0.60	337
TOTAL		4000				7307

1/ Agricultural Planning Unit, Ministry of Agriculture, Food and Consumer Affairs, 1979 (metric tons).

2/ Barbados Statistical Service, average Farm Gate Prices, 1979

3/ Estimated at 50% of between Total Production (See BMC Study)

4/ Estimated from % markup/farm gate and wholesale in 1976, See Stevenson & Kellogg report on "Barbados Horticultural Industry" (p. 81) and applied to 1979 Farm Gate Prices.

5/ Column 3 plus Column 4

6/ Small Farmers production valued at wholesale prices.

TABLE 2

ESTIMATED COSTS AND REVENUE OF OPERATION OF ASSEMBLY CENTRE

	TOTAL REVENUE	PURCHASE 1/	OPERATION 2/	FIXED 3/	TOTAL COSTS	NET REVENUE
	$'000					
70% Small Farmer Production 2.800 tonnes/yr.	5115	4346	158.5	120.3	4624.8	490.2
50% Small Farmer Production 2.000 tonnes/yr.	3654	3104	113.2	120.3	3337.5	316.5
30% Small Farmer Production 1.200 tonnes/yr	2192	1862	68.0	120.3	2050.3	141.7
14% Small Farmer Production 560 tonnes/yr.	1023	869	31.7	120.3	1021.0	2.0

1/ Cost of purchase of produce of farm gate.

2/ Operational costs e.g. transportation, temporary staff, grading, packaging etc.

3/ Overhead costs, e.g. permanent staff, equipment depreciation, rent, electricity etc.

Other target outlets would include supermarkets, hotels and restaurants. A preliminary study has been made by IICA covering these outlets as well as the institutional demand. This study shows that to a considerable extent the restaurant and hotel segments of the market are unsatisfied with the present marketing system. Although they are obtaining the quantities of produce demanded (except for fruits), the main complaints refer to:

- poor quality of products.
- unreliability of supplies
- need to deal with too many suppliers
- need to establish a more formal wholesale system (grading, information)
- high prices.

In conclusion it appears that enough supplies are getting to end users, except in the case of fruits, at the prevailing prices, but several segments of the demand are unsatisfied with the operation of the actual system. A small farmers' organization with the capacity to sell and deliver good quality produce in a reliable manner would compete very favourable with the existing suppliers and would be able to capture a proportion of this demand.

.../....

2.2 Anticipation of future market opportunities

The production of vegetables in Barbados exhibits annual price fluctuations which may be caused by cycles in production. This would be consistent with the market showing lagged responses to price changes (Cobweb theorem).

If this situation holds for most vegetables produced by small farmers, it is possible to take advantage of these fluctuations. This would be done by encouraging the production of products with "good" price prospects and discouraging the production of those products for which price decreases were expected. The greater the number of production alternatives would result in greater possibilities of implementing such a strategy.

(a) Direct method

The application of the above strategy would require the following steps:

i) Determination of normal national consumption for each commodity. By normal is meant the quantity consumed that is capable of maintaining prices at an average level, or close to it. Determination of normal consumption should be done at least twice a year, in the high and low tourist season. This could be done through interviews with qualified informants.

ii) Determination of planting intentions. At the time when decisions to plant are taken, a sample survey, which would not require a large sample, should be completed. This would permit the estimation of planting intentions for the crops included in the assembly centre operations for small farmers, and consequently an estimation of probable volumes and the price movements expected.

It seems that given Barbados' good communication system, volume of production, geographic patterns of production and short distances, this method would be applicable.

(b) Indirect method

While the direct method is undoubtedly more reliable, the conducting of regular surveys of intentions to plant could be very costly for the Government. Another alternative method will be to estimate future marketing conditions on the basis of historical data. The assumption behind this method is that future prices are the results of supply responses to actual prices. If the pattern of response between supply and price estimates could be detected, future supply and price conditions could be anticipated by simply knowing present supply and price conditions.

The real limitations of this method is the lack of data on the supply of fruit and vegetables. In theoretical terms the relation between future supply of one commodity and the price effect can be derived.

(c) Methods to regulate production

Comparative analysis between planting intentions and anticipated normal consumption:

Once probable production flows are determined on a product by product basis, the estimates should be compared with national normal consumption figures.

When significant differences appear action is required immediately. Plantings of small farmer members should be encouraged or discouraged depending on the deficit or surpluses expected for each crop.

Several alternative methods can be of use to induce small farmers to produce more of certain crops and discourage others.

i) The persuasive method consists of counselling members.

ii) The compulsory method includes the control of some support services for production in order to direct production in the desired way. Among these services are: credit, water for irrigation, at times inputs such as seeds, insurance or other input items.

It should be mentioned that the recommendation to produce given products should not always mean that the assembly centre undertakes a commitment to purchase all the production of its members.

2.3 Increased sales at retail level

Another source of price and income increases for small farmers could be the sale of their product directly at the retail level. This is a complex activity for small farmers requiring additional cost and time, but it may provide profitable returns. The organizational, technical and administrative requirements for this activity are demanding.

The limited information available indicates that retail margins are quite high. Average markups from wholesale to retail in recent years have been of the following order:- carrots 63%, cabbage 48%, tomatoes 52%, string beans 40%, bananas 65%, and onions 20%. (UNDP/FAO Project Planning Unit). Assessment of these margins in 1981 will be required with reliable data to come to definite conclusions.

Typically, retailing involves the following main services in the actual Barbados marketing system:

- Procurement at the farm or at the market
- Short term product storage and display (2 to 3 days)
- Sorting for some specialized consumers such as supermarkets and restaurants
- Packaging for consumers (at some supermarkets)
- Delivery of products (for some institutional buyers such as restaurants, hotels and hospitals).

If the reported margins of 1976 are prevailing today, it would probably mean that retailing would be the most profitable marketing level for the small farmers marketing association to aim at. Therefore, it might be desirable to plan its operation at the initial stage of the farmers organization.

Road-side stands, or other similar outlets could be other means of selling at retail level in a future phase of the project.

2.4 Other outlets

Although it is anticipated that the major markets to be supplied by the assembly centre will be supermarkets, hotels, restaurants and institutions, other outlets should also be considered. These will include export markets and vegetables for processing.

Export opportunities exist for both fruit and vegetables within the Caribbean and in extra regional markets e.g. U.S.A., Canada and Europe. In the short run, prospects are more favourable within the Caribbean region particularly in Trinidad which imports significant quantities of both fruit and vegetables. Since the assembly centre will be able to supply a large volume of produce it will be in an improved position to meet these requirements in export markets which are often quite stringent and precise.

At present, there is little processing of vegetables in Barbados with the exception of the use of hot peppers in the manufacture of hot sauces etc. In the future it is possible that the assembly centre could provide a focal point for the collection and distribution of other vegetables for processing. However it should be recognised that the requirements of processors in terms of quality, variety, time of harvest are often quite exact and this would have to be taken account of in the farmers' production plans.

III. DESIGN OF THE PLAN

3.1 Potential Market for the Plan

It is expected that initially the major market for the plan will be large volume outlets within Barbados. In the future, it is possible that export markets could become more important.

a) Large volume outlets

These include supermarkets, hotels, restaurants and institutions. An estimate of the present volume of sales of selected vegetables by these outlets is shown in Table 3. It is indicated that these large volume outlets utilise approximately 6,000 tonnes of vegetables annually.

By reference to production and trade data, an estimate has been made of total consumption of vegetables in Barbados, after making an allowance for losses and wastage (Table 4). Based on this estimate, it is indicated that large volume outlets (i.e. supermarkets, hotels, restaurants and institutions) represent approximately 70 per cent of total sales. In view of the increase in the number of supermarkets and hotels in recent years it is probable that the proportion of sales through these large volume outlets has increased.

b) Estimated Market share for the plan

The extent to which small farmers, through the operation of an assembly centre, could supply a share of the requirements of large volume outlets is difficult to estimate with any precisions. Existing marketing channels may be well established although a survey of hotels

TABLE 3

ESTIMATED VOLUME OF SALES OF SELECTED FRESH VEGETABLES, BY LARGE VOLUME OUTLETS, BARBADOS, 1980

	SUPERMARKET	HOTELS	RESTAURANTS	INSTITUTIONS	TOTAL
	Tonnes				
MAJOR VEGS.					
Beets	137	31	105	83	357
Beans	233	39	158	98	528
Cabbage	433	85	101	49	668
Carrots	562	63	116	155	896
Pumpkins	302	58	55	102	517
TOTAL	1,667	276	535	487	2,966
SALAD VEGS.					
Tomatoes	447	112	117	54	730
Lettuce	81	108	127	14	330
Cucumber	671	73	137	73	954
TOTAL	1,199	293	381	141	2,014
MINOR VEGS.					
Egg Plant	77	28	115	---	220
Christophene	94	39	152	9	294
Breadfruit	67	30	12	5	115
Sweet Peppers	89	27	28	1	146
Marrow	18	22	104	11	155
Squash	43	18	22	5	88
Cauliflower	74	17	38	1	130
Okra	78	13	4	2	98
Seasoning	63	5	3	2	73
Spinach	17	2	1	1	22
Peas	1	2	10	6	18
Parsley	8	2	---	---	10
Hot Peppers	1	2	---	---	3
TOTAL	630	207	489	43	1,369
GRAND TOTAL	3,496	776	1,405	671	6,348

(Totals may not add up due to rounding)

SOURCE: IICA Survey of Vegetable Requirements, November 1980.

TABLE 4

ESTIMATED DISTRIBUTION CHANNELS FOR VEGETABLES, BARBADOS, 1980

	SUPERMARKET	HOTELS	RESTAURANTS	INSTITUTIONS	DIRECT SALES[1]	TOTAL
	'000 Tonnes					
Major Vegs.[2]	1.7 (38%)	0.3 (7%)	0.5 (11%)	0.5 (11%)	1.5 (33%)	4.5 (100%)
Salad Vegs.	1.2 (48%)	0.3 (12%)	0.4 (16%)	0.1 (4%)	0.5 (20%)	2.5 (100%)
Minor Vegs.	0.6 (33%)	0.2 (11%)	0.5 (28%)	0.1 (6%)	0.4 (22%)	1.8 (100%)
TOTAL	3.5 (40%)	0.8 (9%)	1.4 (16%)	0.7 (8%)	2.4 (27%)	8.8 (100%)

1/ By farmers, street vendors and at public markets.

2/ See Table 3 for classification.

and restaurants would suggest that for some of these outlets suppliers tend to change frequently. An assembly centre will have the advantage of being able to supply a wider range of fruits and vegetables than any individual producer. Similarly an assembly centre should be in a favourable position to supply institutional requirements particularly when these are government operated. Entry into the supermarket sector may be more difficult in view of the corporate links between some estates and supermarkets chains. Nevertheless, some small farmers currently sell to supermarkets and it is anticipated that the assembly centre will be in a position to supply a portion of their requirements.

When fully in operation, an island wide system of small farm organisations marketing through an assembly centre might be expected to obtain the following shares of the large volume outlets:

	PERCENTAGE SHARE (%)
Supermarket	25
Hotels	33
Restaurants	33
Institutions	80

In relation to the estimated sales of vegetables by large volume outlets in 1980 (Table 2), this would represent an annual turnover of approximately 2,200 tonnes. Such a volume would be approximately 50 per cent of the output of small farmers and 25% of total vegetable requirements.

c) Export Markets

The potential exists for export sales both within the Caribbean and in extra regional markets. Within the region, prospects are favourable for the sale of onions, carrots and on occasions cabbage and other vegetables to Trinidad and other countries in the Eastern Caribbean. The major limitations at present to exploiting these opportunities are the lack of reliable shipping and also uncertainties in relation to the continuity of domestic supplies of high quality produce.

With the exception of exports of yams to the UK and the U.S.A. prospects for the export of produce to extra regional markets are less certain. The major markets are UK, U.S.A. and Canada. Competition for sales of tropical and off-season fruit and vegetables in these markets is usually very strong. As a result product quality, packaging and presentation and reliability of supply as well as competitive pricing are the key factors required to break into these markets on a regular basis.

Vegetables with the most favourable prospects for export are egg plant (UK), peppers (UK) and okra (USA). In the case of fruit, there are opportunities for exports of paw paw and passion fruit if sufficient domestic production can be generated.

3.2 Estimated Supply Potential

Available estimates indicate that small farmers (farmers with less than 10 acres) produce about 50% of the fruit, vegetables and root crops of Barbados[1/]. These farmers number about 2000, excluding those with less than 1/8 of an acre, and have control of about 1,200 acres; on the average 0.57 acres per farmer.

FARMS PRODUCING FOR SALE

SIZE OF FARM (acres)	Other Non-sugar crops No.	Other Non-sugar crops Acres	Mixed farming No.	Mixed farming Acres	Other No.	Other Acres	TOTAL No.	TOTAL Acres
0-1	1338	338	284	91	65	12		
1-5	235	371	102	193	12	22		
5-10	9	57	13	91	1	7		
	1582	766	399	375	78	41	2059	1182

Source: Census of Agriculture 1971

Apart from those small farmers mentioned there were 8587 small farmers producing sugar on 7659 acres, according to the 1971 census.

1/ Atlee Brathwaite, "Small Scale Farming", 1980. P.13 indicates that 47% of the vegetable production and 94% of the fruit production comes from small farmers; in the latter case mostly from backyards.

Halcrow Caribbean Limited in "Relocation and Expansion of BMC Facilities", 1979 indicates that 52% of the vegetable production comes from small farmers.

The potential suppliers of fruit and vegetables in the short run for this project would be about 370 farmers that have farms from 1 to 10 acres and control 740 acres. They could deliver these products on a more regular and specialised basis. The project could also serve those 1700 farmers from 0 to 1 acre, although it is known that they do not earn their living primarily from agricultural production. As a result they would be less interested in joining a farmers' association and changing their production and marketing techniques. These smaller farmers would be of secondary importance to the project but could benefit through occasional sales of produce particularly fruit and peanuts.

Total small farmer production of fruit and vegetables in 1979, assuming the estimate of 50% participation in total domestic production, would have been as follows:-

VEGETABLES	TONNES
Carrots	1072
Cucumbers	1052
Cabbage	565
Beets	415
Tomato	351
String Beans	149
Pumpkins	143
SUB-TOTAL	3747
Root Crops (10% of total production)	
Sweet Potato	463
Yams	770
SUB-TOTAL	1233

FRUITS (90% of total production)

Avocados	675
Citrus	900
Mangoes	360
Plantains	360
SUB-TOTAL	2295
TOTAL	7275

The Government is currently implementing a Rural Development Project (RDP), which will develop about 30 rural development units consisting of groupings of tenantry and small holder families comprising in total 1000 acres and about 1500 families. It is expected that 500 acres will be developed for irrigated vegetable production, mainly in the south-eastern part of the country. This project is being implemented during the next five years and vegetable production from these small and medium sized farms is expected to increase by about 3100 tonnes (500 ha producing 6.2 tonnes per ha.).

Another important initiative that will make possible an increase of fruit output is the Scotland District Project. It is expected to produce some additional 560 tonnes of fruit in the fifth year of its operation, (see p. A4.80 Scotland District Development Study). Most of this increased output will be bananas (484 tonnes), cherries (68 tonnes), mangoes and avocados from predominantly small farms.

The ADC is also making land available to small farmers in the Spring Hall Land Lease Project, which will involve 22 farmers. These farmers will have 4 acres of irrigated land for vegetable production giving a total of 88 additional acres.

These efforts are an important initiative by the Government of Barbados to implement the policy outlined in the 1979-83 Development Plan. A major objective of the Plan is to ensure that:

> "The future income of small non-sugar farmers is assured as more estate lands are released from sugar into large scale non-sugar production."

This was a response to overcome the fact that in recent years

> "the specialist non-sugar producers in the estate sub-sector began to gain the competitive advantage in production over their counterparts in the small farmer sub-sector" (p.62, Development Plan).

The potential for increased output by all the farmers in these projects is estimated below:

	1979 Output	Expected Increase in Output by 1985*	% increase
	...........tonnes..............		
Vegetables	7753	3640	47%
Fruits	2550	500	20%

*Includes only planned output increase in each project but no increase in yields and area of fruits and vegetables outside of these projects.

These figures when compared to expected demand growth in Barbados suggest that the vegetable market in the coming years will tend to be fully supplied and possibly saturated, and prices could be depressed if no export outlets are planned ahead of time. These approximate calculations also indicate that the production planning component of these projects should be carried out very carefully with particular reference to possible market constraints. A trend to lower prices could have a very negative impact on small farmer vegetable production. It could mean the continuation of small famers abandoning agriculture due to large estate competition and marketing difficulties. A BAS survey of small farmers with over one acre of land in 1979 showed that of 92 farmers interviewed only 58, or 63%, were still producing vegetables; 37% had abandoned the production of vegetables.

Location

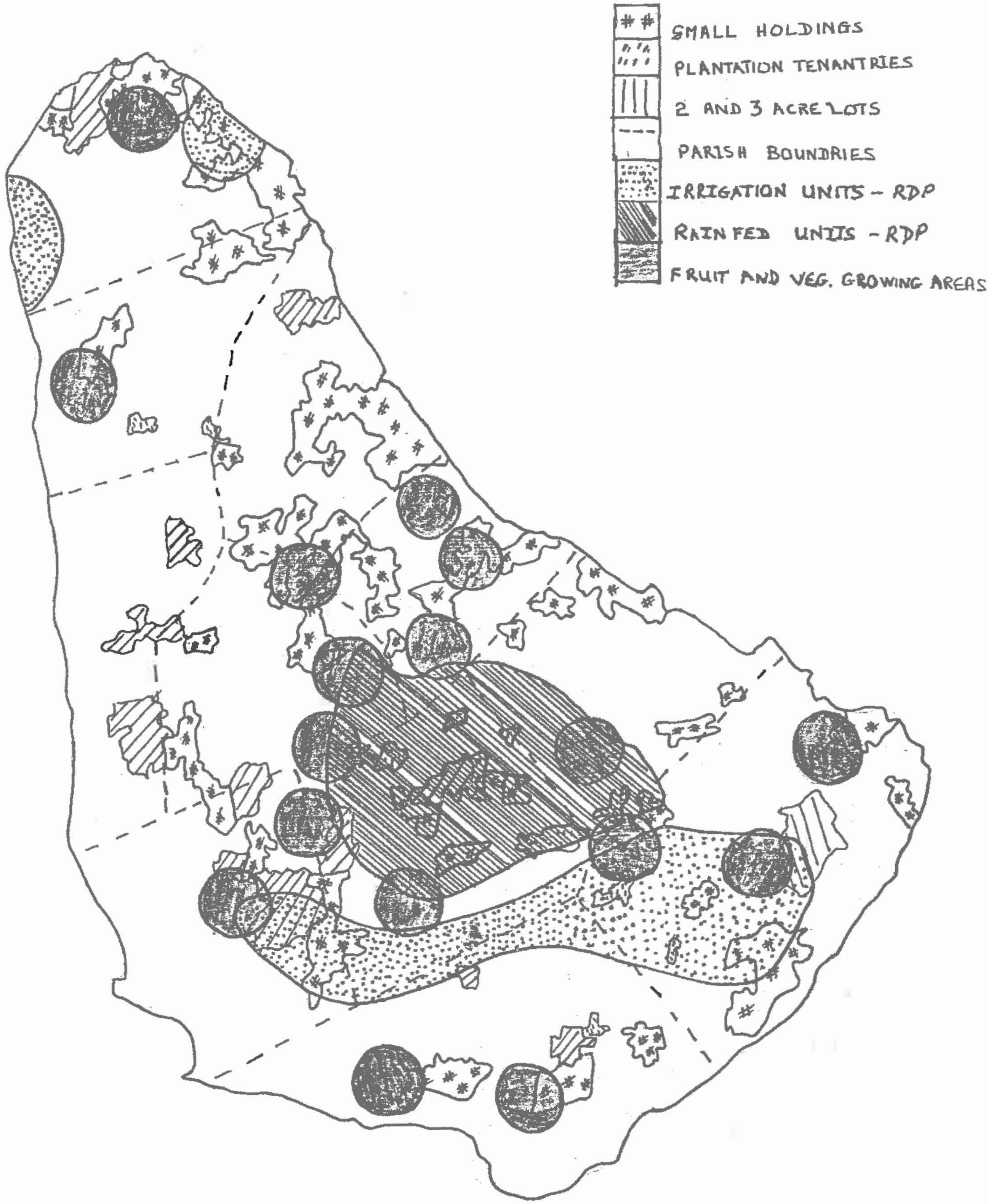
The target group of this project, small farmers producing fruit and vegetables with farms of 1 to 10 acres, is widely dispersed throughout the country.

Vegetable production is concentrated in the parishes of Christ Church, St. George, St. Philip, St. Thomas and St. John. Fruit production is concentrated in the parish of St. Joseph.

Figure No. 1 shows a map with the areas of small farms and the areas where fruit and vegetable production is concentrated.

FIGURE 1

LOCATION OF SMALL FARMS.



3.3 Technical design of the plan.

The main components of the Plan will be

(i) Small Farmer Organisation

(ii) Market and Production Information Unit

(iii) Assembly Centre.

(i) Small Farmer Organisation

The organisation of small farmers at the local level into effective, self-managed groups will be an essential element in the Plan. It is considered that little real progress can be achieved unless producers agree to market a significant proportion of their output through an organisation in which the producers themselves have a direct interest and with which they can identify. Without such an involvement, it is unlikely that the marketing services which major purchasers of fruits and vegetables currently require can be delivered. These services include:

(1) a regular supply

(2) a large volume

(3) dependable quality

(4) a variety of commodities

(5) rapid delivery

If such a group marketing objective can be achieved, small farmers will be in a much improved position to supply alternative large volume outlets i.e. supermarkets, hotels and restaurants, BMC, BAS. As a result greater returns will be obtained than if each individual farmer must depend on uncertain outlets for his limited production.

Incentive to Market through the Plan - In the initial stages of the project, an incentive may have to be provided to encourage farmers to undertake marketing on a group basis. Such an incentive could be an assurance of a minimum price for a given quantity of produce as long as this quantity is marketed through the association. Under normal market conditions the price received by the producer would be well above the guaranteed minimum but his entitlement to the minimum price in the future could only be maintained if the produce was marketed through the association. In this way, the organisation would initially be in a better position to find reliable outlets for the farmers' produce, since it would have more likelihood of receiving produce on a regular and consistent basis. Similarly producers would have an incentive to market jointly in order to be assured of an outlet for their normal level of production in times of glut.

(ii) Market and Production Information Unit

A unit to evaluate the present market situation and future outlook will be necessary to identify future market opportunities for small farmers. The unit would also conduct regular surveys of planting intentions, estimated yields, production estimates etc. The operation of the unit would provide a focal point for the operation of the Plan.

(iii) Assembly Centre

Structure:

Since Barbados is relatively small in size and has a good road system, the transportation of fruits and vegetables does not present any major difficulties. It is possible for fresh produce to move from producers to consumers in less than a day. Against this background, it is considered that a network of assembly centres is unnecessary. A single centre connected with an island-wide pick-up service for small farmers on a regular basis would be sufficient to provide the basis for the plan.

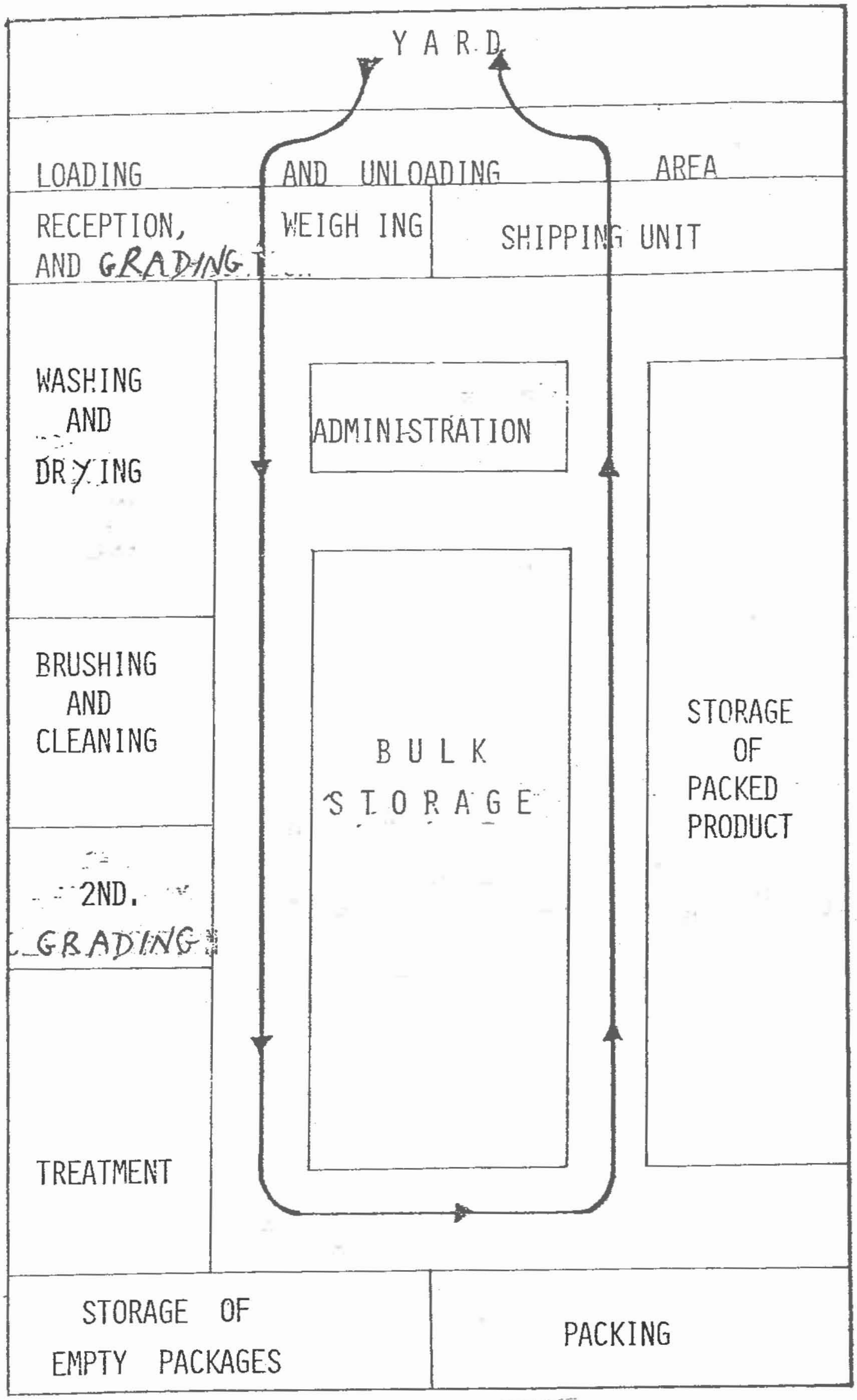
Location:

The assembly centre should be located near to the main consuming area i.e. within Bridgetown or vicinity. This would allow for the efficient servicing of the large volume outlets, particularly supermarkets, hotels and institutions. A wide range or selection of fruit and vegetables could be supplied and this should represent an attraction for buyers who currently often have to contact several suppliers in order to obtain all their requirements.

Operation:

A new building could be constructed or alternatively an existing building could be rented. Equipment requirements would not be large as the operation of the centre will be as labour - intensive as possible. Tables for grading and sorting together with basic office equipment will be the main requirements. Some storage space will also be required. A proposed layout for the centre is shown in Figure 2.

FIGURE 2



STANDARD LAYOUT OF AN ASSEMBLY CENTRE OPERATION

IV OPERATIVE PROGRAMME

4.1 Components:

The major aim of the project will be to provide an initial stimulus to the formation of a marketing system for small farmers. The essential elements in this process will be greater diversification of production by small farmers, and the establishment of an organization of small farmers to operate an assembly centre and collection system. At the same time an improved market information system will be developed.

After an initial period of development it would be expected that the small farmer marketing system would be both self-managed and self-financing. However an essential element in both the initial stages of the project and after it is fully operational will be the continued provision of government support services. These will be necessary in two major areas:

(a) Extension: Extension services will be required both in relation to production and marketing as well as the promotion of small farmer organizations. Advice will be necessary in relation to crop varieties to be planted, planting dates, production techniques etc.

.../....

Similarly the operation of the assembly centre will require advisory services in relation to grading, packaging, reduction of post-harvest losses, adminis tration and accounting.

(b) Market information and forecasts: Estimation of futu re market opportunities as well as increased informa- tion on current prices and supply situation will be required. A key element in this process will be an on-going survey of planting intentions and estimation of production.

4.2 Time schedule:

The project has been designed to be implemented in two phases

The first phase would take $1\frac{1}{2}$ years and would include the follo wing set of major activities:

a) Promotion and establishments of local small farmer groups in the major fruit and vegetable production areas (possibly three localities with 50 to 70 farmers).

b) Set up the Assembly Centre with its operating procedures and staff. Initiation of business.

c) Design of market intelligence methods and recruit staff.

d) Maintain appropriate institutional connections and smooth market information flows. Indication of fruit and vegetable production problems to research and extension services.

e) Identification and initial promotion of second priority areas for development of small farmer groups.

A chronogram outlining more details of the activities in the first phase is shown in Figure 3.

The second phase of the project would extend for $1\frac{1}{2}$ years to 3 years and would include the following:

a) Setting up of secondary priority areas and establishing additional small farmers groups. This would include the RDP, Scotland District and ADC Land Lease Scheme.

b) Initiate marketing services for these additonal groups.

c) Initiation of the market intelligence services to counsel and plan production.

d) Study the export possibilities for a possible third phase of the project.

4.3 Budgetary Estimates:

A tentative budget for the first phase of the project is shown in Table 5.

FIGURE 3

CHRONOGRAM

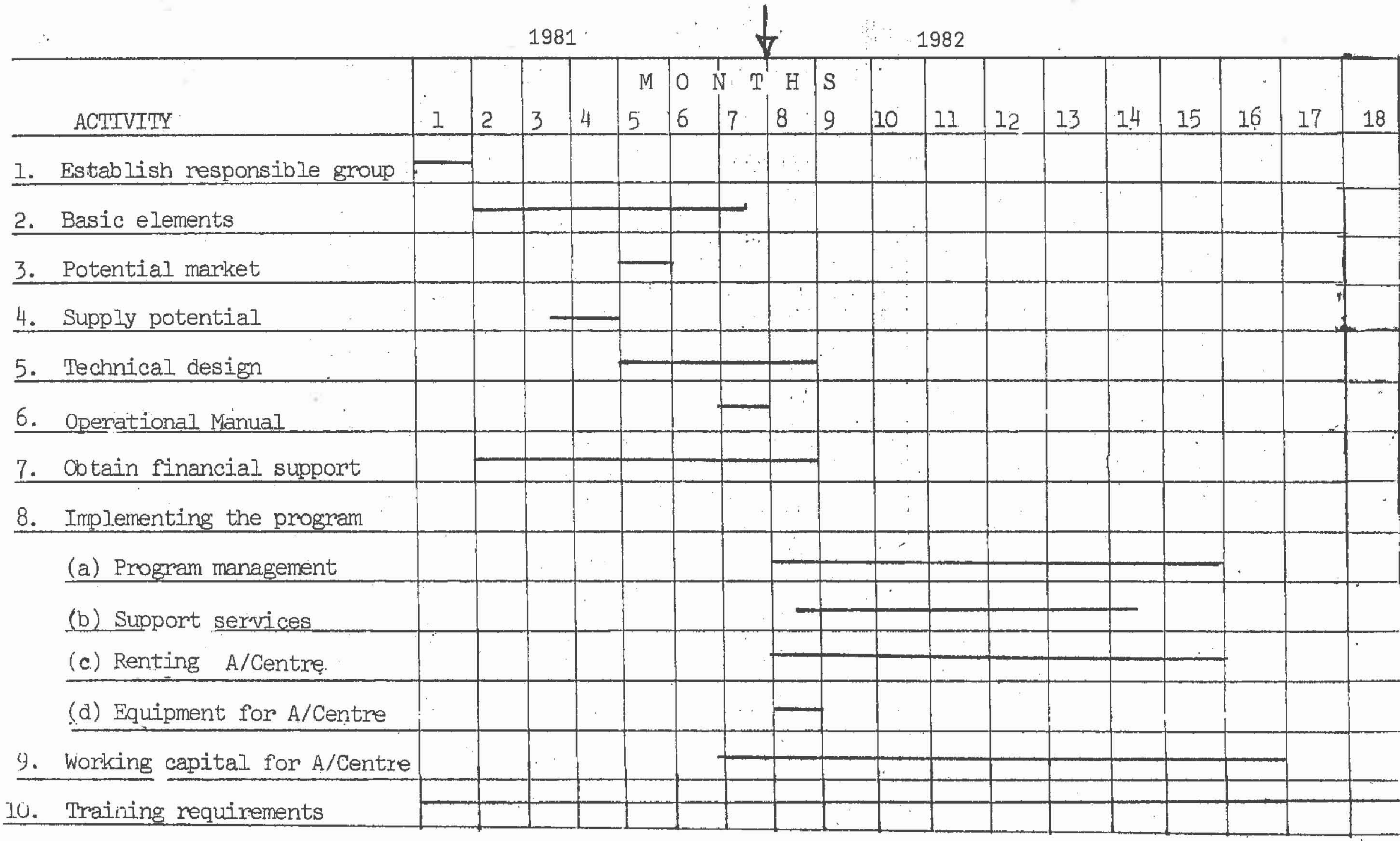


TABLE 5 ESTIMATED BUDGET, 1981 - 82

	1981 (7 months)		1982	
	IICA	GOVERNMENT	IICA	GOVERNMENT
	$Bds			
Personnel	46.000		100.000	
Technical Assist.	6.000	40.000	10.000	80.000
Operations	26.000	10.000	12.000	20.000
Equipment			14.000	
Working Capital				50.000
Contingencies	4.000	4.000	4.000	4.000
TOTAL	82.000	54.000	140.000	154.000

2 Bds $ = 1 US $