

CEPAL/CARIB 80/3
9 May 1980



ECONOMIC COMMISSION FOR LATIN AMERICA
Office for the Caribbean



MARKETING IN ST. KITTS-NEVIS

**A case study related to the Caribbean with a report
on a sample farm survey on marketing conducted in
St. Kitts-Nevis.**

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on marketing conducted in St. Kitts-Nevis

Prepared by
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UN Regional Economic Adviser

This report has not been cleared either with the Economic Commission for Latin America or with the UN Office for Technical Co-operation, who therefore, do not necessarily share the views expressed.

FOREWORD

In May 1978 the Adviser began a study of marketing in St. Kitts-Nevis-Anguilla at the request of the Government. The study was in fact confined to the island of St. Kitts-Nevis and no attempt was made to include Anguilla. The Adviser conducted a field survey in St. Kitts-Nevis in order to get basic data on the marketing structure for domestic grown food. The report on this survey forms part of this study, and is Appendix IV. The findings from that study were used in preparation of the main report based on the terms of reference agreed upon by the Adviser and Government. The Adviser held lengthy discussions with Government officials in St. Kitts-Nevis, St. Vincent, Barbados and Jamaica and also with U.N. personnel in these territories. He wishes particularly to mention:

Mr. Willy Dore, Manager of NACO, St. Kitts-Nevis

Mr. George Bradley, Permanent Secretary, Ministry of Agriculture,
St. Kitts-Nevis

Ms. Sheila Bass-Williams, Economist, Planning Unit, St. Kitts-Nevis

Mr. Herbert Hanley, Permanent Secretary, Ministry of Finance,
St. Kitts-Nevis

Mr. Richard Castanada, Manager of CEMACO, St. Kitts-Nevis

Mr. Clinton Antrobus, General Manager, St. Vincent Marketing
Corporation

Mr. Terrence Beddoe, CARDATS, Grenada

Mr. Oliver Williams, Planning Unit, St. Kitts (who prepared the
maps in Appendix I)

The field work on the sample survey was done by Messrs. Swanston, Wilkin, Pemberton, Ed Meade, Morris, Walters, Phillip, Solomon, and Miss Joseph, and the initial tallying was organized by Ms. Sheila Bass-Williams. The Adviser also benefited from discussions with two businessmen in St. Martin, who were very helpful in giving him an insight into the food trade in the Virgin Islands. Miss Gisele Santos was responsible for typing both numerous drafts and the final report.

The Adviser wishes to express his thanks and gratitude to all those whose assistance and cooperation made this report possible.

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SUMMARY AND MAIN RECOMMENDATIONS

1. The traditional higgler trade in the Caribbean has performed an important role in marketing of domestically grown produce and this fact should be taken into consideration in attempting to establish new marketing structures (pages 4 and 5).
2. Increased food production for domestic and regional consumption is essential if marketing corporations are to function efficiently (page 5).
3. Poor water supplies which put severe limitations on acreages under irrigated cultivation is a severe drawback to increased production (page 6).
4. There should be registration of all farmers in commercial food production and the acreages they cultivate (pages 7 and 20).
5. Steps should be taken to establish rental conditions for agricultural land which will give farmers secure tenureship and adequate compensation for disturbance (page 7).
6. There is need to improve the agricultural extension service to advise and instruct farmers on cultivation practices in food production (page 7).
7. In so far as food production for domestic consumption is concerned, at present levels of production there is little justification for an Agricultural Marketing Organization (pages 8 and 14).
8. It is recommended that CEMACO should cease its present involvement in supermarket operations (page 13).
9. The functions of CEMACO should be expanded to include responsibility for production of the locally grown food commodities it markets (pages 13 and 14).

VI

10. CEMACO and not NACO should be made the executing agency for the Basseterre Valley Project and changes should be made in structuring CEMACO (pages 17, 21 and 22).
11. Recommended personnel for the Basseterre Project (page 22).
12. There should be an efficient Planning Unit in the Ministry of Agriculture (page 24).
13. The Ministry of Agriculture should take steps to train cadres of young farmers (page 24).
14. An Agricultural Intelligence Service should be established in the Ministry of Agriculture (page 24).
15. A Nutritionist should be appointed to the Ministry of Agriculture (page 25).

MARKETING IN ST. KITTS-NEVIS

A case study of relevance to the whole Caribbean

Introduction

At the request of the Government of the twin islands of St. Kitts-Nevis, CEPAL (Caribbean) made the services of the Regional Economic Adviser available to undertake a study on marketing in May 1978. The scope of the study, as outlined by the Government, was "to include the production, wholesaling, retailing and consumption aspects of marketing, and the proper roles and functions of the National Agricultural Corporation (NACO) and the Central Marketing Corporation (CMC)*". The Government requested, however, that the actual terms of reference should be determined by the Adviser following preliminary enquiries conducted by him.

The following terms of reference were eventually drawn up by the Adviser and approved by the Government.

- To examine existing distribution of local food production in the state and relate this to distribution of consumer population.
- To examine current marketing, merchandising and distribution of locally grown foodstuff for internal consumption and make recommendations to improve efficiency.
- To examine current marketing and merchandising of locally grown foodstuff for external markets and make recommendations to improve efficiency.
- To examine the operations of CEMACO and make recommendations to improve efficiency.
- To examine the role of NACO as a major supplier of locally grown food and make recommendations.

* Also referred to as CEMACO.

- To study all other relevant aspects of food production, marketing and distribution and make recommendations to promote growth and expansion of this sub-sector of the agricultural economy.

The agricultural sector of any one territory in the Caribbean represents a special case of a general regional situation, and therefore it soon became evident that the St. Kitts-Nevis study had to be viewed against a broader background. This required an examination of historical factors which have led to current marketing practices and to the whole status of this economic activity within the region. This report therefore reviews the development of marketing in the Caribbean, and indicates the complexity of the producer-consumer chain in order to focus regional attention on the need for internal structures capable of making available to consumers the agricultural produce of domestic farm operators.

Since the assignment was potentially a case study of regional importance, it was decided to conduct a field survey on production and marketing practices of individual farm operators since such practices are likely to be found in other territories. Also on the domestic side the proposed operations of NACO and CEMACO in food production could not, in fact, have been divorced from agricultural practices of the generality of farm producers.

In October 1978 the Adviser therefore conducted a sample field survey of small farm operators in St. Kitts and Nevis. Ninety-two (92) interviews were conducted in the former island and 74 in the latter. The total, 166, represents 3.7% of the estimated population of all farm operators. The number of operators interviewed represents 4% of the total number 4,257 small farm operators on 5 acres and less.^{1/} The main control used to get a wide spread of behaviour patterns was the geographical division of the survey area. The survey areas into which the island were divided and the number of interviews collected from each area were as follows:

- Nevis - St. Thomas Lowland (7)
- St. James Windward (17)

^{1/} Summary report on the Census of Agriculture of St. Kitts-Nevis by W. R. E. Nanton 1975.

- St. Paul Charlestown and St. John Figtree (23)

- St. George Gingerland (27)

St. Kitts - St. Paul Capistere and St. John Capistere (22)

Christ Church Nichola Town, St. Mary Cayon
and St. Peter Basseterre (23)

St. Anne Sandy Point and St. Thomas Middle
Island (24)

Trinity Palmetto Point and St. George Basseterre (23)

The islands of Jamaica, Barbados and St. Vincent were also visited and discussions were held with officers involved in agricultural marketing in those territories.

Development of marketing in the Caribbean

Marketing practices accompanying infrastructural facilities in the Caribbean were, originally, designed to facilitate export of agricultural raw material, and not to promote internal movement of domestically grown food. On the obverse side, these historical marketing arrangements had the effect of making internal island economies easily penetrable by imported food, hence such produce became readily available substitutes for local food production. While road and haulage arrangements for export-import flows of commodities did also facilitate internal movement of domestic produce, the direction of the latter was dictated by an externally oriented infrastructure which restricted internal circulation of domestic food. Furthermore, provisions for credit, financing and other production service supports as prices, subsidies and storage facilities were not designed to promote produce for domestic consumption, but for export. As a result agricultural food production which grew out of slave plantation economies had a subsidiary independent existence from plantation agriculture, adjusting over time as far as it could, to meet increasing demands arising from higher incomes and population growth. Prior to World War II, government activity was primarily confined to increasing supplies of marketable produce through land settlement schemes, providing abattoir facilities and erecting physical installations for wholesale and retail distribution of domestic grown food. But vastly increased supplies of food during and

after the war put heavy demands on internal marketing arrangements set up by government and also on traditional higgler operations and both of these marketing structures were unable to adapt to new domestic and regional demands for food. As a result, some of the impetus for production which is usually promoted by efficient marketing was lost. In the 1950's colonial governments in the region addressed their attention to marketing problems in efforts to remove some of the impediments to production. In so doing, no attempt was made to examine the role and function of the higgler trade, to see how that traditional marketing system, which gave employment to hundreds of small traders in the region could be structured to meet new demands. Rather, in keeping with the economic mood of the decade governments were advised to establish Central Marketing Corporations, which were to take on responsibility for marketing non-traditional export crops, both internally and externally. Produce agencies for traditional export crops such as sugar, cocoa, coffee, nutmeg, cotton, rice, citrus, limes, etc. continued to function independently, but new state marketing agencies were established throughout the region with responsibility for:

- extra-regional exports of bananas
- import/export regional trade in locally grown foodstuff
- managing national wholesale and retail trading outlets, and in some cases
- handling extra regional food imports.

In so far as production for domestic consumption was concerned, the functions of these marketing corporations were very limited. They did not extend backward into farmer registration or into production, by issuing quotas or guaranteeing prices, nor did they extend forward in storage, processing, grading, packaging, etc. to ensure consumer satisfaction.^{2/} Since both ends of the marketing chain for most farm products remained untouched, the traditional higgler trade continued to

^{2/} It is important to note however that in keeping with tradition, Marketing Boards were deeply involved in production and marketing of fruit and vegetables for overseas consumers.

function as before, and not being hamstrung by legislation or by the marketing bureaucracy of corporations, showed greater flexibility and was able to adapt quite easily to meet consumer demand. As a result, the traditional higgler and entrepreneurial trade pattern has remained the dominant marketing system for movement of a wide range of domestic as well as inter-island trade in farm products not handled by produce boards.

It had been expected that as an off-shoot of the Agricultural Marketing Protocol (AMP) of the CARICOM Agreement, agricultural production would have been stimulated, and that State marketing agencies would have developed into efficient handlers of farm produce for regional consumption. This has not happened. Possibly the most important limiting factor was the absence of an organized production base upon which a marketing structure can be built. The existing disorganized food production system has, as its counterpart, a disorganized but, within its limitations, an effective higgler marketing system. While under present conditions this entrepreneurial system meets a need, its existence should not be regarded as an excuse for non-rationalization of activity in the agricultural sector. Marketing agencies can only function if they have something to market, and upon this fact must rest the need for organization of production. The Government's plan for increased vegetable production now therefore provides a base for building up an efficient marketing system in St. Kitts-Nevis.

Food Production, Population Distribution and Marketing

The closer the consumer is to the producer the shorter the marketing chain and the lesser the marketing problems. A prior requirement therefore is to examine the proximity of population clusters to production areas. In Appendix 1, maps 2A and 6A on St. Kitts and 2B and 6B on Nevis show population distribution, road communications and both urban and rural distribution and capability of agricultural land. These data, when related to the sample field survey, the report of which is an appendix to this study, show that:

- (a) vegetable cultivation is widespread in both islands
- (b) cultivation is practised in both urban and rural clusters, and
- (c) there is a good network of road communications between all population clusters.

Production

Land capability maps show both islands are well endowed with medium and good agricultural land. In so far as institutional factors are concerned, the field survey indicates that land tenureship system, inadequate financing and farm fragmentation mitigate against high levels of production. With respect to infrastructure, poor water supplies to facilitate cultivation under irrigation in both islands is a severe drawback to production. Rainfall maps for both islands in Appendix 1 show average annual rainfall in inches, but unfortunately much of this water runs off or percolates underground. Maps 4A and 4B in Appendix 1 show location and distribution of existing water supplies and also sites of proposed wells in both islands. Present indications are that the most single infrastructural drawback to production is a good water supply, especially in the case of Nevis, and urgent steps should be taken to remedy this defect.

The field survey showed that two-thirds of the respondents sell some of their farm produce, and that they are widely distributed throughout the islands. Their levels of production are relatively low and since there is a good road network and haulage facilities are adequate there are apparently few, if any, occasional localized gluts in production.

In other words, a state of equilibrium seems to exist between marketable output and entrepreneurial market practices. A more sophisticated marketing structure is therefore in many ways dependent on increased production.

Irrespective of farm size a preliminary requirement is that there should be registration of all farmers in commercial production and the acreages they cultivate. This is the only way that a Ministry of Agriculture or a marketing agency can begin to get some idea of the levels of production which will have to be marketed. A second requirement to improve production relates to tenureship. The survey showed that only 10% of farm operators owned the land they cultivated, 63% paid rents and the remainder used land rent-free. If this represents the national situation then steps should be taken to establish rental conditions which will give farmers secure tenureship and adequate compensation for disturbance. Without these provisions occupants will only have immediate interest in the land they cultivate and do little to maintain and improve its productive capacity.

The survey also showed that over 50% of farmers use fertilizer and that seed and planting material are sometimes in short supply. It is also likely that few small farmers can get credit facilities. These are all areas which need to be looked into in order to expand production. Finally the survey showed that while ground provision production is common, few farmers cultivated a wide range of vegetables, and it is likely that guidance is needed in horticultural production. A further requirement to improve food production therefore is an extension service to advise and instruct farmers on cultivation practices.

Marketing

Current entrepreneurial marketing activities in domestic food production are conducted mainly by higglers, each of whom handles relatively small proportions of produce reaching the consumer. Production which is not sold retail at the farm gate, reaches urban and rural market sites either by private or hired transport. In a few cases produce is graded by size at point of sale, but the more common practice is to sell

mixed sizes by weight or by heap. The largest population cluster is Basseterre and most produce consumed in the domestic market finds its way there whether it originates in St. Kitts or Nevis. The field survey indicated that there is high preference for individual rather than co-operative action in marketing. In so far as St. Kitts is concerned, there is insufficient information to recommend any change in marketing practices. Movement throughout the island is facilitated by a good supply of roads and the volume handled by individual marketeers seems to be small. In the circumstances it seems as though the first requirement is to get more information about the higgler trade in the island. This calls for registration of higglers and information on the type and volume of produce they handle. If the quantities are small then there will be little point in interfering with current practices. If however, a successful programme for increased production bears fruit then there may be grounds for introducing grading at the farm; co-operative handling, marketing and processing; and forward contracting with hotels.

Nevis presents a different case because there is a Nevis Farmers Co-operatives and farm products marketed in St. Kitts are shipped from the pier at Charlestown. Since all supplies for Basseterre are brought to one point for shipping, it is possible to grade, sort and package produce if consumers will pay for these services. The Adviser was unable to assess the strength and efficiency of the Co-operative in Nevis, but steps should be taken to study this organization and ensure that it is an efficient marketing vehicle. The Adviser was also unable to check on volume and frequency of the trade in farm produce between both islands, but regular collection and processing of such data are important. The recommendation that records should be kept of both traders and produce is based on appreciation of the importance of basic data in order to develop a marketing strategy. At present there is too little information of volume of food production and its disposal. But machinery to provide this type of information should be established before the country embarks on an extensive production programme. If the eventual aim is to meet a high percentage of domestic food requirements then production and marketing output should be monitored so that the economy could plan a strategy towards processing and food storage.

External Marketing of Domestic Food Production

There are two broad categories into which external marketing may be considered - entrepreneurial marketing and the functions of CEMACO, the statutory marketing authority. With respect to the first there had been traditionally some trade in foodstuff with adjacent territories up to the 1960's, but the indications are that this has died down considerably. The Adviser formed the opinion that even if some of this trade is still extant it is too small to warrant attention in this study. Attention will therefore be focussed on CEMACO's marketing operation.

The Central Marketing Corporation (CEMACO) was established in 1974 to perform certain functions with respect to all agricultural and animal produce with the exception of sugar and cotton. For easy reference the functions of the Corporation are given in Appendix II. This chapter will concentrate on the following aspect of its functions in so far as it relates to external trade:

"To develop and carry out a coordinated programme with the view of securing the most favourable arrangements for the purchase, handling, distribution and transportation, storage, processing, exportation, shipping, marketing and sale of produce whether in the State or out of the State and to operate and maintain services necessary or incidental thereto in particular to assist agricultural and fishery co-operative societies to dispose of their produce."

CEMACO was in effect the agency charged with the responsibility of implementing for St. Kitts-Nevis the Agricultural Marketing Protocol (AMP) of CARICOM of which the state is a member. It purchases farm produce from NACO and private farm operators which it handles, packages, stores and ships to other territories in the area, some of which are not members of CARICOM. It also operates a retail food store, and it is this operation which dominates the day-to-day activity of the Corporation. (The food store will be dealt with in detail in a later section).

There have been many criticisms of CEMACO's marketing operations. The Adviser held lengthy discussions with the Manager whose main comments were:

- (1) CEMACO does not have the staff to do both a retail operation and the food marketing functions required by the Act.
- (2) There was a lack of proper coordination between NACO's operation as a grower and CEMACO as marketeer of NACO's production. There was insufficient notification of shortfalls and surpluses in production, which prevented CEMACO from giving adequate notice of changes in available supplies to customers.
- (3) There were very often shipping problems which prevented CEMACO from keeping delivery schedules to regional purchasers.
- (4) CEMACO did not have adequate storage facilities to keep perishable produce when there were shipping delays therefore losses through spoilage was high, and there were often additional costs of sorting and repackaging.
- (5) In so far as its domestic marketing operations were concerned, the Manager claimed that higglers were able to purchase produce from NACO's farms at lower prices than those paid by CEMACO, thus making it difficult for the Organization to secure regular domestic markets.

The Manager of NACO was highly critical of CEMACO which he felt did not do enough to find markets for NACO's produce. He reported that NACO had to undertake direct sales to overseas buyers because of CEMACO's operational weaknesses.

The Adviser held lengthy discussions with two wholesale dealers in food and vegetables in St. Martin who had traded with St. Kitts-Nevis both before and after the establishment of CEMACO. These traders, both operating on the Dutch side of the island spoke of the bustling tourist trade of the island and the opportunities it presents for horticultural production in the region. One of them marketed between 30 to 40 tons of vegetables per week and the other indicated that his imports were substantial. Most of their produce came from the Dominican Republic, Puerto Rico and Miami. Some of their fresh fruit came from as far away as Hawaii. They both said that they would prefer to import produce from St. Kitts-Nevis because their produce was of good quality and much

closer than other sources of supply. It was fresh and transport costs were lower. They reported that the quality of white potatoes and pineapples from St. Kitts are better than those from other sources, but they gave a number of reasons why they had stopped trading with the twin island.

- (1) Supplies were very uncertain and they never received timely notice of failure to meet supply schedules due to a poor crop so that they could arrange for alternative deliveries.
- (2) Sorting was unsatisfactory so that packages contained produce of both good and poor quality.
- (3) There was no grading, so that the merchant never quite knew what size range of products he was paying for.
- (4) Poor transshipment facilities, which led to high losses from damage.
- (5) Delays in deliveries due to unavailability of transport facilities; and
- (6) A tendency of the supplier to speculate on the market rather than honour firm agreements.

One trader gave a list of commodities with quotations received from Puerto Rico (see Appendix III). Transport and handling costs are additional. While some of these commodities are grown in Puerto Rico, most supplies originate in the United States. These data indicate the levels of price competition which growers in St. Kitts-Nevis have to face. In order to be competitive they must improve soil capabilities and attain higher levels of labour productivity.

Available data indicate that NACO has produced substantial volumes of vegetables and their sales in September 1976 to July 1977 was, by volume, 250 metric tons for ten commodities.^{3/} This includes 71 metric tons of peanuts exported by CEMACO valued at EC\$195,713 (US\$48¢ per lb) a unit price which compares favourably with imports from Puerto Rico.

^{3/} Source: Production of non-sugar agricultural products - A strategy for the agricultural sector in St. Kitts-Nevis by K.U. Buckmire.

It would appear, however, that if St. Kitts-Nevis wants to build up a reputation as a vegetable supplier within the region, it must both raise its levels of production and its marketing techniques. The Adviser formed the firm opinion that transport facilities both by air and sea are adequate and shipping will not be a hindrance to the island becoming a reliable supplier.

The Operations of CEMACO

While the ordinance under which CEMACO was established clearly specifies that the organization is to undertake the marketing of agricultural produce of the State of St. Kitts-Nevis-Anguilla, with the exception of sugar and cotton, and to carry out all acts relevant to the attainment of this end, CEMACO's main function has been the operation of a supermarket offering for sale to the general public both food and non-food items, most of which are imported. No attempt will be made in this study to consider the success or failure of the supermarket operation. The Adviser visited the food store on many occasions, examined its business operations and held lengthy discussions with the then Manager, Mr. Castanada. The central issue which the Government has to face is whether it wants to operate a supermarket and also to satisfy the provisions of the Act. If it wishes to do both then it has to establish the former as a separate entity with which CEMACO may or may not deal at arm's length commercially as it would with all other customers.

The supermarket poses many problems. It is located away from the main shopping centre, so that it cannot attract a passer-by clientele. The housewives upon whom it has to depend for most of its sales are those who own private transport. This severely limits growth of its clientele. The Manager made frequent reference to purchases from co-operative producers in the United States, which enabled him to compete successfully price-wise with other supermarkets in Basseterre. His overheads were, however, very high and even with competitive pricing one doubts that he was able to attract a sufficiently large number of customers to make a worthwhile profit margin. The Adviser suggests that an independent examination should be conducted into the operations of the supermarket to determine

its economic viability. If it has any future at all, it would seem to be as a consumer co-operative. As such it should be a success under competent management. Competitive pricing and the likelihood of dividends might attract a greater clientele, which should increase turn-over and profitability of the enterprise. Alternatively the Government should, subject to the study recommended, close down the supermarket operation and use the premises as the marketing headquarters of CEMACO.

The Adviser assumes that CEMACO will cease all involvement in supermarket operations and will confine its attentions to the functions as required by the ordinance which created it. As it stands the Ordinance does not give CEMACO any responsibility for production. It is to market the production of NACO and private producers and generally to provide those services which move produce from the farm gate to the consumer. The Adviser recommends that the function of CEMACO should be expanded to include responsibility for production. This will be dealt with more fully in considering the Basseterre Valley project, but here the *raison d'être* for this recommendation will be given. Horticultural production in the Caribbean has been approached only by a small minority of producers in a business-like manner. It has primarily been an off-shoot of plantation agriculture, and this mainly by legislation, requiring estates to put acreages under ground provision. Of course individual small farmers have done well where internal market conditions were attractive as, for example, the Aranguez farmers in Trinidad. With the large Port of Spain market as a dormitory they did not need a marketing organization to get to the market, nor did the Trinidad Central Marketing Corporation have to look for producers or to involve itself in production to be able to go into business.

The situation in St. Kitts-Nevis is however not a parallel one.^{4/} The islands are small with a total population of about 50,000 and one relatively large population cluster of approximately 17,000, namely, Basseterre the capital. (See Table 1 and Map 1). There is no internal market to justify an intensive programme of domestic food production such as is envisaged in

^{4/} In 1975, Nanton estimated the number of households at 8,622 in St. Kitts and 2,788 in Nevis.

the Basseterre valley. Domestic requirements can adequately be met by improving the capability of existing farms and improving labour productivity. At the same time, in so far as internal marketing is concerned, while there is need for improvements in handling, storage, and possibly grading, these can be effected through an efficient extension service. The volume of marketable produce would not justify a marketing organization.

The mere existence of an organization like CEMACO must be premised on opportunities for creating export markets, but if CEMACO has no involvement in production, then it will be operating without the assurance that it will have commodities to market. Hence the need to amend existing legislation to make CEMACO both a producer and purchaser of produce within the terms of the act. What this means in practice is that just as NACO is responsible for production and marketing of sugar-cane, so too CEMACO will be responsible for production, marketing, processing etc. of domestic food production, with emphasis on export. Because however of the multiplicity of the crops it is handling, CEMACO's success will depend very heavily on support from the Ministry of Agriculture and its extension service in the country at large, and on the research activities of the Caribbean Agricultural Research and Development Institute (CARDI) located in St. Kitts.

TABLE 1

Population of Nevis and St. Kitts by Settlement

NEVIS - Settlement importance by population size
Average household size = 3.5

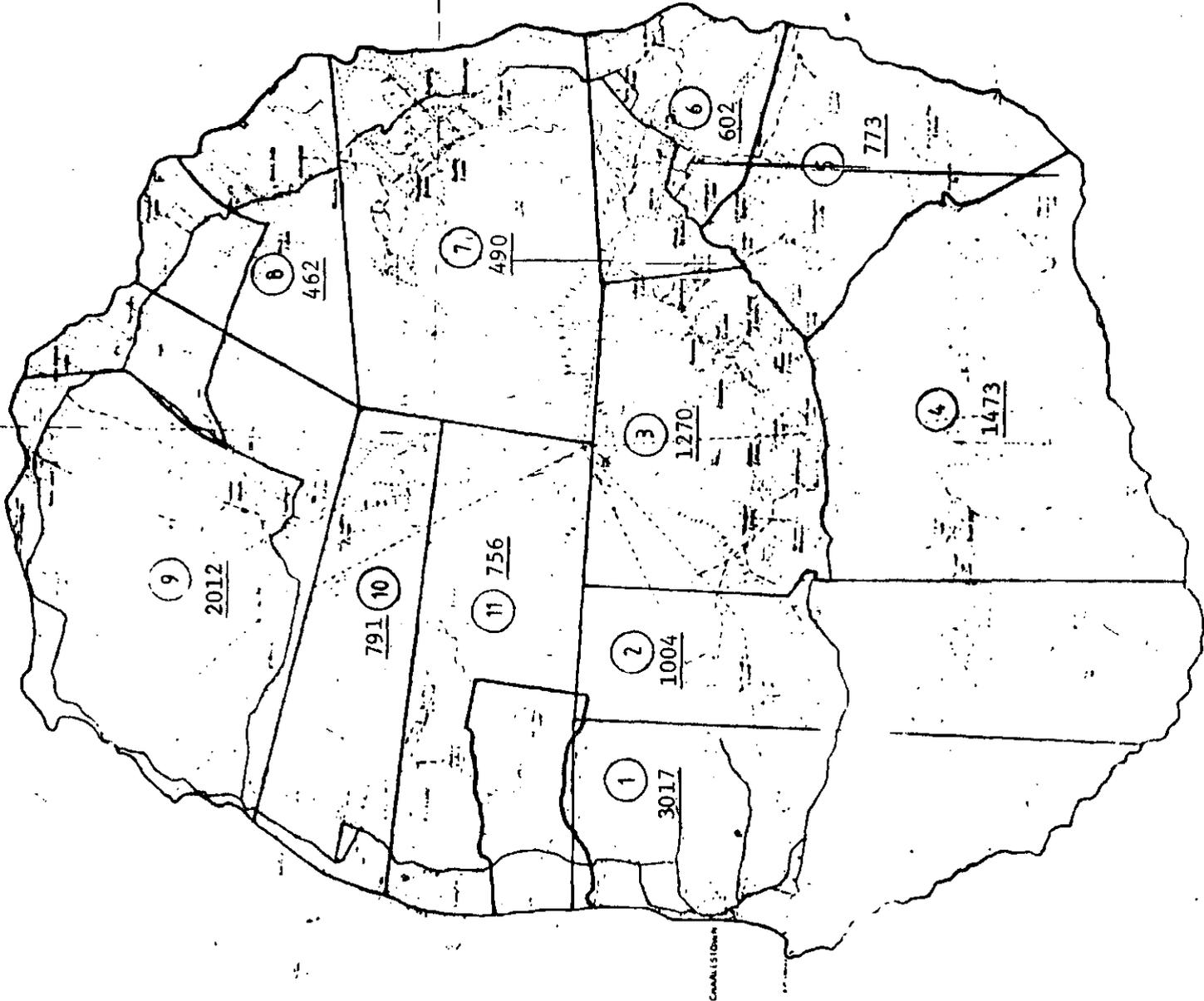
ST. KITTS - Settlement importance by population size
Average household size = 4.5

Area	Estimated Population
Section No. 1	3,017
Section No. 9	2,012
Section No. 4	1,473
Section No. 3	1,270
Section No. 2	1,004
Section No. 10	791
Section No. 5	773
Section No. 11	756
Section No. 6	602
Section No. 7	490
Section No. 8	462
	<hr/>
	12,650
	<hr/>

Area	Estimated Population	% of Total Population
Basseterre	16,839	45.77
Sandy Point	3,145	8.54
Cayon	2,272	6.17
St. Peters/Stapleton	1,530	4.16
Old Road	1,269	3.44
Tabernacle	1,237	3.36
St. Pauls	1,183	3.21
Saddlers	1,143	3.10
Newton Ground	828	2.25
Stonefort/Challengers	801	2.18
Dieppe Bay	679	1.84
Molineux/Stone Haven	630	1.71
Conaree	625	1.70
Phillips	616	1.67
Half Way Tree	567	1.54
Ottleys/Lodge	549	1.49
Parsons	531	1.44
Mansions/Christ Church	490	1.33
Keys/Canada Estate	418	1.14
Middle Island	369	1.00
Verchilds	252	0.68
Trinity	211	0.57
Boyds	202	0.54
Lamberts	184	0.50
West Farm	121	0.32
Godwin Ghaut	99	0.26
	<hr/>	<hr/>
TOTAL	36,790	100.00
	<hr/>	<hr/>

MAP 1

NEVIS SETTLEMENT MAP SECTIONS SHOWING ESTIMATED
POPULATION BASED ON 1975 HOUSING SURVEYS



Reduction of 1:25,000 original

The Basseterre Valley Project must therefore be a project under the control and management of CEMACO and not of NACO. The principle is a very simple one. He who bears the responsibility for sharing the cake must have the responsibility for making it. This is the way to ensure that there will be a cake to share.

CEMACO's operations will be many-faceted. It will first have to start from the marketing end and obtain forward contracts from buyers in the region for specific quantities within certain price ranges for delivery at specific periods. With its assured markets it can then organize production on its own acreages and at the same time, if necessary, enlist some domestic contract suppliers. All its suppliers must be registered, their acreages must be known and they must plant crops as instructed by CEMACO with seed and planting material distributed to them.

The following are the main recommendations related to restructuring the functions of CEMACO.

- (1) The Ordinance should be amended to enable CEMACO to be a producer of farm produce.
- (2) The management and operation of the 65-acre Basseterre Valley Project should be vested in CEMACO, which shall be responsible for production, marketing and all activities related thereto.
- (3) At present the Corporation consists of nine members. This seems to be unnecessarily large and it is recommended that the membership should be reduced to seven comprising:
 - a. The Permanent Secretary of the Ministry of Agriculture or a Senior Economist in the Ministry who should be Chairman;
 - b. The Chief Agricultural Extension Officer in the Ministry of Agriculture;
 - c. The Manager of the Basseterre Valley Project;
 - d. The Marketing Officer of the Basseterre Valley Project;
 - e. One farmer elected annually by the registered horticultural producers in St. Kitts;

- f. One farmer elected annually by the registered horticultural producers in Nevis or by registered horticultural producers of the Nevis Co-operative Society, if it is still an active body;
- g. One member elected annually by the Association representing the interests of wholesalers and retailers of foodstuff.

CEMACO must have power to co-opt specialist personnel from any Ministry or Government Agency involved in agricultural production and from the Caribbean Agricultural Research and Development Institute (CARDI). Co-opted members should act in an advisory capacity but should not have voting rights.

The Role of NACO in Food Production

There is no need to go into this subject in detail since it is already recommended that NACO's functions should be confined to production, processing and marketing of sugar-cane and its products. This organization has thousands of acres under its control throughout the island of St. Kitts. Much of this acreage is usually under sugar production but some of its land is periodically used for cultivating vegetables. It would appear that the practice has developed for NACO to use its field labour in sugar-cane production in non-sugar production as a means of providing out-of-season employment. The Adviser is fully aware of the importance of enabling agricultural field labour to earn a regular income, but he thinks that cost of production is an important factor in determining the competitiveness of vegetable produce in the region, and that CEMACO should be responsible for determining cultivation practices, the size of the labour force it requires, and the conditions under which it should be employed on land belonging to NACO which are, by agreement, periodically made available for vegetable production.

Furthermore, horticultural production calls for cultivation practices and management very distinct from those required for sugar-cane, and since one of the aims of this study is to build up the island's expertise in this field, NACO's personnel in food crop agronomy should be transferred to CEMACO. In so far as agricultural equipment is concerned, CEMACO can keep its costs down by renting services from NACO thus reducing idle hours of the organization's farm machinery.

VEGETABLE PRODUCTION
with special reference to
THE BASSETERRE VALLEY

Vegetable Project

Reference has already been made to the importance of institutional and infrastructural requirements for expanding agricultural food production. It is assumed that Government will ensure through its capital expenditure programme that there are adequate water supplies for irrigation, and that credit and financing facilities will be available for all inputs essential for satisfactory levels of agricultural output.

On the basis of the foregoing assumptions, the Adviser now wishes to distinguish between four vegetable production entities in the State:

1. The Caribbean Agricultural Research and Development Institute (CARDI);
2. The mass of small farm producers growing vegetables and other food crops;
3. CEMACO's production activities;
4. Relatively large scale private vegetable producers.

CARDI

This Institute should continue operating as it does at present, but there ought to be greater linkage with the Ministry of Agriculture so that its technical and production achievements could be fed into an Intelligence Agricultural Centre in the Ministry for transmission to farmers through the Agricultural Extension Service. In so far as CARDI's production is concerned, the Adviser was informed by the Institute that it sells direct to buyers, some of whom appear to be institutional. There is no reason why this practice should be stopped and all sales funnelled through CEMACO, since it is not the intention to make this organization a marketing bureaucracy. It seems desirable however that CARDI should provide CEMACO with its cultivation and harvesting schedules for all produce and anticipated levels of output. This will enable CEMACO to have a total picture of the demand/supply situation over time, thus increasing its potential for efficient marketing both internally and externally.

Small Farm Cultivation

Regional aspirations for increasing agricultural production have tended to by-pass the multiplicity of farm operators on farmlets, some of which are no greater than a patch of 1/10 acre. In the Adviser's view these small patches most likely truly reflect the managerial and labour capacities of the occupants, and there is no reason why our societies should not learn to live with them and adapt agricultural policies to suit this reality in the short run. The really important criteria is if the farm operator is farming commercially or no. If he is, then his farm output must be seen as part of food supply available to meet demand outside of his farm gate.

It is important to stress once more, therefore, that all commercial farmers must be registered as suppliers to CEMACO and there must be records of the acreages under their control. The marketing organization must, through the Agricultural Extension Service, approve cultivation of specified crops, supply seed and provide crop protection facilities if necessary. The farmer for his part must agree to sell his produce to the marketing agency at stipulated prices and must perform all sorting, grading and packaging functions on his farm in accordance with CEMACO's standards. The grower must also agree to adhere to cultivation practices laid down by CEMACO through the Agricultural Extension Service.

It may well be that on close examination CEMACO may not think it feasible or advisable to register private farmers operating on less than one or possibly two acres in the first instance, since the domestic market is small and most of it will continue to be serviced by higglers who can purchase produce from farmlets. In the long run however all potential agricultural land must make maximum contribution to the national production food programme, therefore the policies of the Ministry of Agriculture and CEMACO must be dynamic. There must be legislation to prohibit further fragmentation of agricultural land, and unceasing attempts to consolidate small parcels of land into larger holdings, the aim being to establish a minimum family size horticultural farm. The basis for determining such a farm should be the net cash income from farm operations. No recommendation can be made in this respect at present, but when the Basseterre Valley Project gets on stream, the necessary data on income and production should be provided for research into this subject.

CEMACO's Production Activities

If recommendations with respect to current horticultural activities of NACO are accepted, and also the proposal for management of the Basseterre Valley Project, then CEMACO will have under its control land released, on a temporary basis by NACO and also the 65-acre project in the Basseterre Valley. It is recommended that all this production should be under the same management.

The Adviser does not think it necessary to go into this subject of his recommendations with respect to CEMACO's operations. He has studied the feasibility report on the Basseterre Valley Project by Dunn and Beddoe, and does not think that more need be said to encourage Government to implement the main proposals. The Adviser differs from the specialists who prepared this study in one major regard, namely: the Executing Agency. In summary the basis for the Adviser's recommendation that CEMACO should be the executing agency are as follows:

- (1) All agricultural enterprises are not the same. NACO is concerned with production, processing and marketing sugar-cane, which is essentially a plant of the grass family. The management of that enterprise and research into cultivation, crop protection and by-product utilisation are all specialized areas which are legitimate aspects of NACO's operations.
- (2) Horticultural production is another specialized field of agricultural activity, one vastly different from mass production of sugar-cane. Agronomy, crop protection, managerial and marketing requirements are different, and call for levels of specialization entirely different from those required for sugar-cane.
- (3) It would be inadvisable to separate the functions of production and marketing in the horticultural project. This is the existing arrangement which results in NACO undertaking production and then calling on CEMACO to find markets. Even advanced information from NACO on expected levels of production have not made it any easier for CEMACO to function efficiently. Because horticultural marketing essentially centres around the supply of fresh fruit and vegetables, forward contracts should provide the base for cultivation. In other words, production should be undertaken on the basis of contractual arrangement and market intelligence.

With respect to personnel for the project the Adviser recommends as follows:

- Project Manager - An horticultural agronomist with experience in tropical production, in management, and with appreciation of the importance of marketing.
- Marketing Officer - He will have practical experience in marketing horticultural produce and must be able to arrange contractual purchases with potential buyers.
- Records Clerk - He will be able to keep all farm records relating to production, income, etc.
- Support Staff - Clerical and typing.

CEMACO as the executing agency will have a Board of Management already referred to, but its activities must be closely integrated with those of the Planning Division of the Ministry of Agriculture and the Agricultural Extension Service. All records from the horticultural project must be forwarded to the Planning Unit in the Ministry of Agriculture for analysis. These data will help to guide the Project Manager and the Board of Management in making policy decisions. It is expected that the Agricultural Extension Service of the Ministry of Agriculture will provide agronomic and other production support to the Project Manager, thereby obviating the need to have volunteer assistance. This consideration is important because production activities on the project must not be seen in isolation from other horticultural activities in the country.

In these recommendations relating to management of the Basseterre Valley Project the Adviser has not concerned himself with whether the project should be manned by national, regional or international personnel. He has focussed on the qualifications required.

Large scale producers

The Adviser was unable to look into the operations of the few relatively large-scale vegetable growers in St. Kitts-Nevis to assess to what extent they may affect CEMACO's economic performance. These producers should be encouraged to operate independently especially if they can help to improve

expertise in horticulture. They should however be registered as growers with CEMACO, which should be informed of their expected levels of output. They should also be willing to work in close collaboration with CEMACO and the Ministry of Agriculture.

Growth and Expansion in the Agricultural Sub-sector

In scope this study deals mainly with marketing and has had to consider aspects of agricultural production in both traditional exports produce and in the more recent horticultural sector. Both immediate and long term goals of agricultural policy are geared to increase substantially all agricultural production, to obtain an optimum balance between land under traditional production, most of which is exported, and land in horticultural use, which can both increase the nation's reliance on domestically grown foods and also create net inflows of foreign exchange. Some of the infrastructural and institutional bottlenecks to achieving these goals have already been referred to. This final section will deal with the major question of policy making and execution. Essentially it will look at the Ministry of Agriculture, and its role in the development process.

During the course of interviews with government officials the Adviser learnt that when NACO was established most of the qualified agricultural personnel were shifted to this quasi-government body. The island of St. Kitts was virtually left without an extension staff. The island of Nevis continued to have such staff, but it was difficult to find evidence that it was making its fullest contribution to the island's food production. Though all agricultural officers interviewed showed interest and dedication in their work, the links between themselves and farmers need to be substantially strengthened.

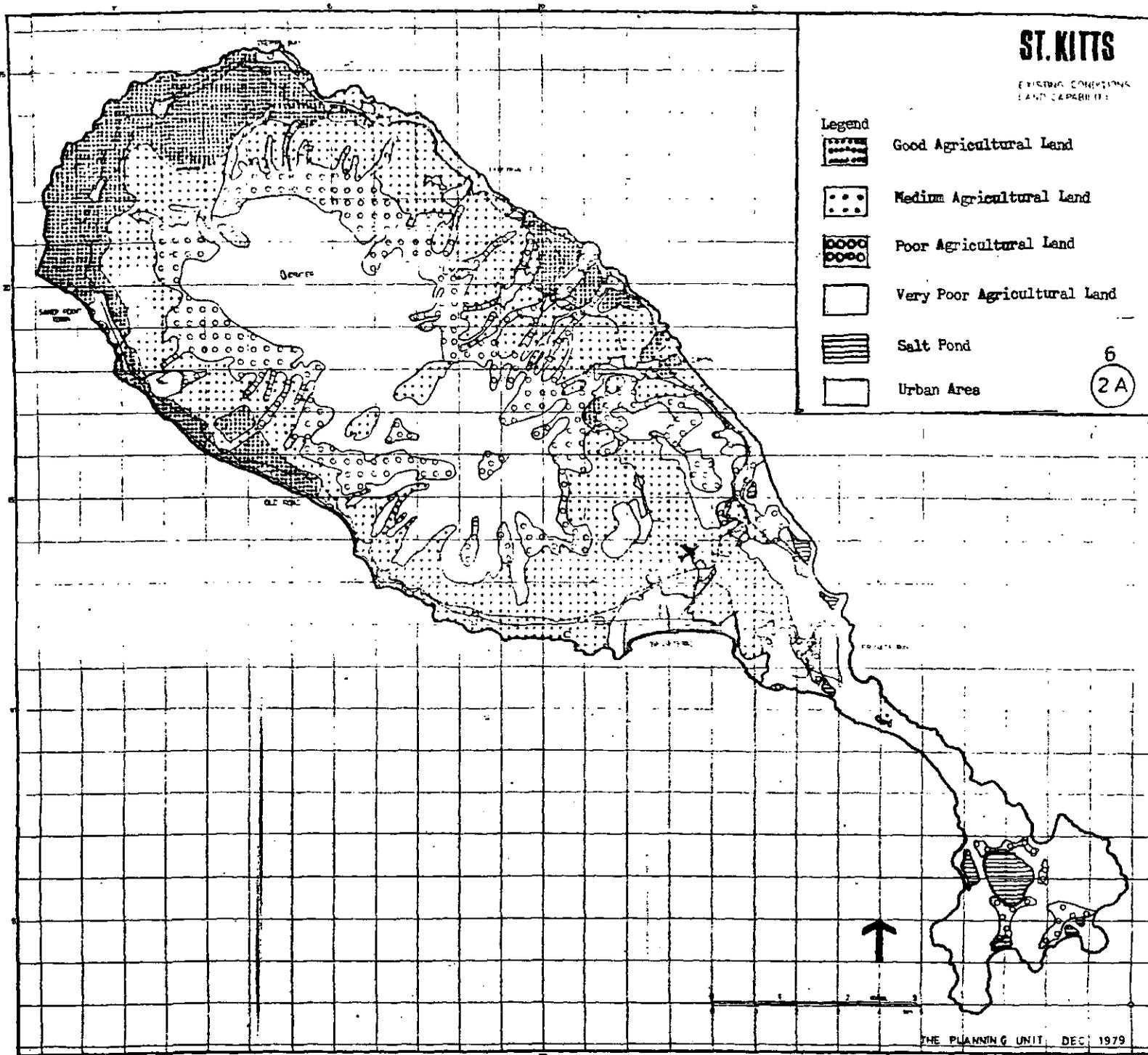
The Adviser thinks that even if NACO and CEMACO are charged with responsibilities for executing government policies, the Ministry of Agriculture still has a crucial role to play in formulating those policies and in providing support personnel to ensure their success. In the first place, the Ministry seems inadequately staffed to deal with normal everyday administrative matters. It is recommended that consideration be given to strengthening the Ministry in the following areas:

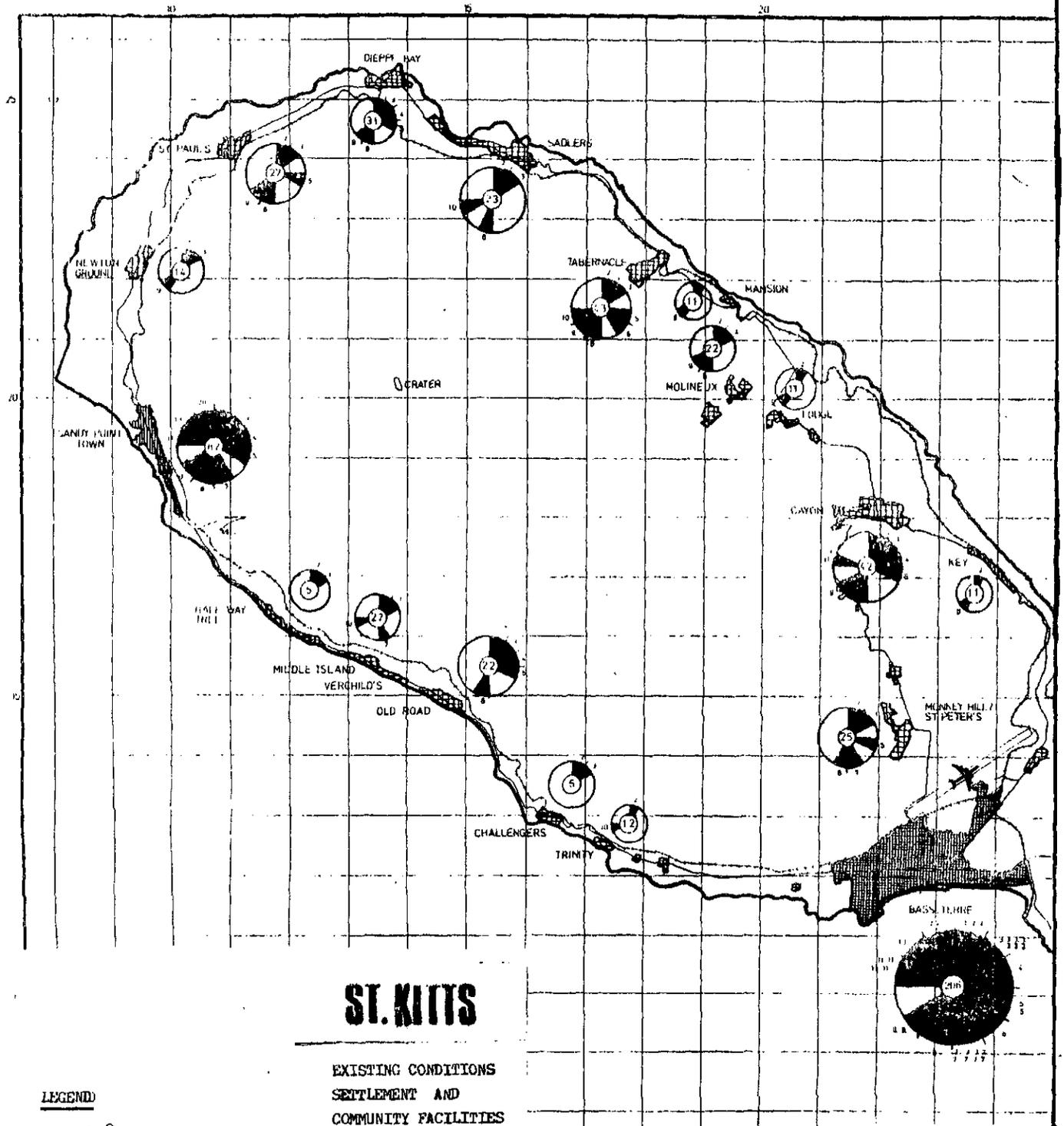
- (a) Agricultural Planning - a planning unit should be established in the Ministry headed by an officer with training in Economics with at least an interest in Agricultural Economics, or preferably by an Agricultural Economist with interest in sample surveying. The incumbent should be provided with clerical assistance. The Planning Unit should receive data from CEMACO and should monitor the food supply and demand system in the country. It should, among other things, conduct field surveys which would help in shaping government food production, food import and nutrition policies. It should undertake farm income studies based on data from NACO and CEMACO to devise policies for establishing stable farming communities. It must deal with such questions as what are optimum farm sizes and farm incomes to keep trained farmers in agriculture.
- (b) Agricultural Training - responsibility for training cadres of young farmers rests with the Ministry of Agriculture. Quite apart from internal facilities, there are regional ones which can produce practical farmers and agricultural scientists. These facilities should be used to the full. There should be an officer in the Ministry, one of whose functions should be to deal with training.
- (c) The Agricultural Extension Service - this is the link between the farming population and the Ministry of Agriculture and all credit and financing institutions. The extension officer must be an adviser to the farmer, but he should also by frequent contact know the farmer's credit-worthiness and on the whole know how seriously he takes his occupation. He must be the funnel through which farm data gets to the planning unit from the commercial farming community, and the farmer should be encouraged to see the extension officer as the source of agronomic and crop protection skills which can help to increase his production.
- (d) Agricultural Intelligence Service - an important aid to the extension officer's success is the agricultural intelligence service. This should make frequent use of radio broadcasts to communicate with farmers. Modern means of communication lessens the need for a high ratio of extension officers to farmers, and therefore all farmers should be encouraged to own small transistor radios. There should be regular weekly broadcasts on farming providing data on production and prices, information on appropriate times for given agricultural practices, etc. Live interviews with farmers will help to make the general public aware of farming problems and the importance of this industry to national welfare.

- (e) Nutrition policy - this is an area to which sufficient attention is not paid in the region. Where there are nutritionists, jurisdictional problems arise of whether they should be in Ministries of Agriculture or Health. There are sound arguments on both sides, but much depends on what one wants a nutritionist to do. In the case of St. Kitts-Nevis a nutritionist should be closely associated with food production to give housewives instructions on how to prepare locally grown food to preserve their nutritional values. She should have close ties with the extension and intelligence staffs in the Ministry of Agriculture, and she would therefore be most effective if located in that Ministry.

This study would lack in realism if no reference were made to the problems of credit and finance in agriculture. The opportunities for overcoming bottlenecks posed by these constraints are much greater today than they were before the establishment of the Caribbean Development Bank and the interests shown by both national and international agencies in helping to expand world agricultural production. The Adviser did not address his attention to domestic credit and financing arrangements nor to subsidy provisions to stimulate agricultural production. These are areas which the government needs to examine to ensure that it creates the appropriate climate for expansion in agricultural production.

APPENDIX I





ST. KITTS

EXISTING CONDITIONS SETTLEMENT AND COMMUNITY FACILITIES

⑨⑩ SETTLEMENT RANK

LEGEND

- 13
 - 11
 - 10
 - 9
 - 8
 - 7
 - 6
 - 5
 - 4
 - 3
 - 2
- 2 POST OFFICE BOX
 - 3 SPORTS FIELD
 - 4 POST OFFICE
 - 5 POLICE STATION
 - 6 INFIRMARY
 - 7 INFANT SCHOOL

- 8 HEALTH CENTRE
- 9 PRIMARY SCHOOL
- 10 ALL AGE SCHOOL
- 11 SECONDARY SCHOOL
- 13 FIRE STATION
- 20 HOSPITAL

NOTE

A NUMERICAL VALUE IS ASSIGNED TO EACH FACILITY. A TOTAL OF SUCH VALUES REPRESENTS THE RANK OF THE SETTLEMENT NEXT TO WHICH THEY ARE LOCATED.

THE SIZE OF A CIRCLE INDICATES THE APPROXIMATE RELATIVE POPULATION OF A SETTLEMENT. THE DIAGRAM (CIRCLE) ABOVE REFERS TO AN AREA OF 800-900 PERSONS.

- SETTLEMENT (URBAN)
- ▨ SETTLEMENT (RURAL)

6

6A

NEVIS

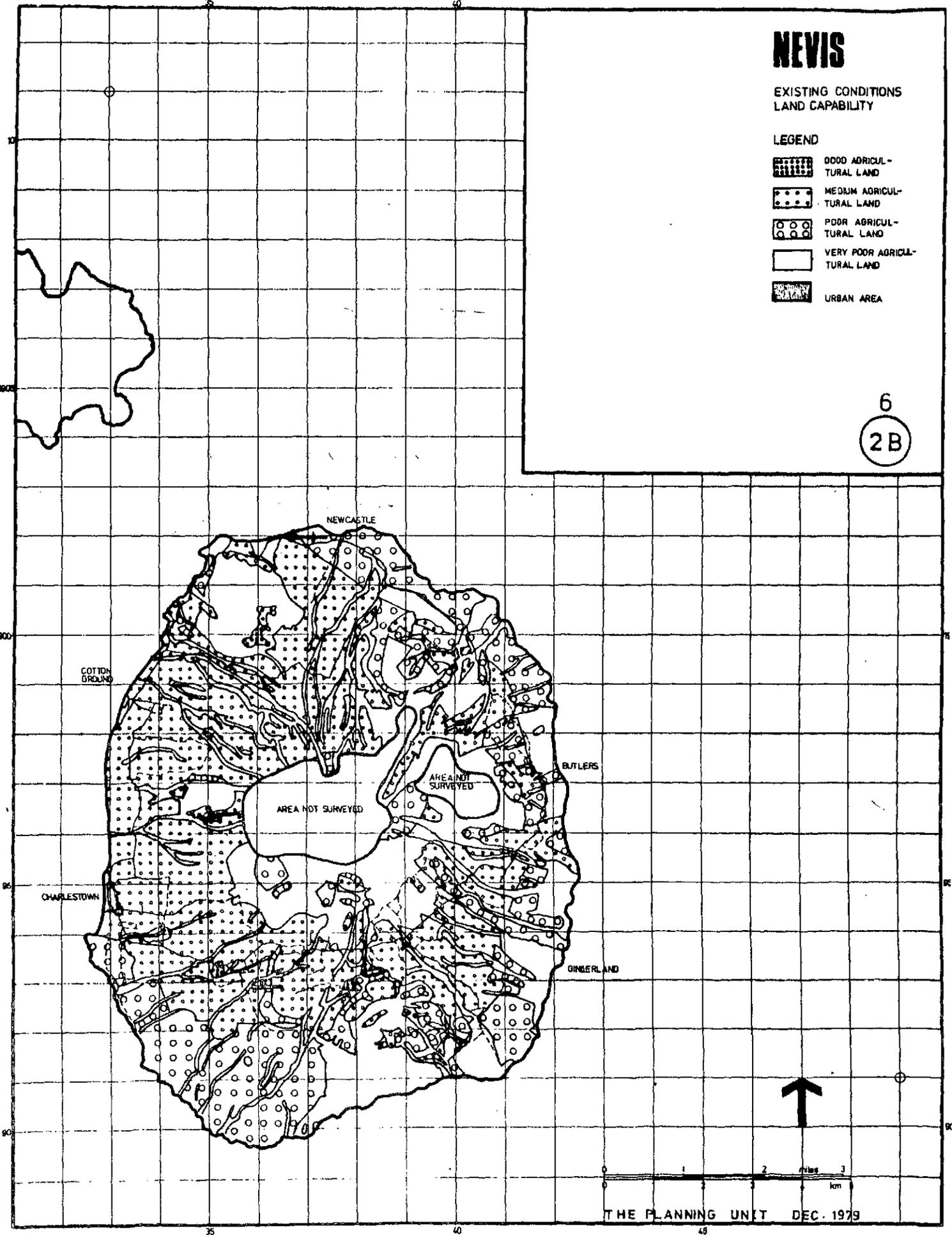
EXISTING CONDITIONS
LAND CAPABILITY

LEGEND

-  POOR AGRICULTURAL LAND
-  MEDIUM AGRICULTURAL LAND
-  POOR AGRICULTURAL LAND
-  VERY POOR AGRICULTURAL LAND
-  URBAN AREA

6

2B



NEVIS

EXISTING CONDITIONS SETTLEMENTS AND COMMUNITY FACILITIES

LEGEND



- 2 POST OFFICE BOX
- 3 SPORTS FIELD
- 4 POST OFFICE
- 5 POLICE STATION
- 6 INFIRMARY
- 7 INFANT SCHOOL

98 SETTLEMENT RANK

- 8 HEALTH CENTRE
- 9 PRIMARY SCHOOL
- 10 ALL AGE SCHOOL
- 11 SECONDARY SCHOOL
- 12 FIRE STATION
- 20 HOSPITAL

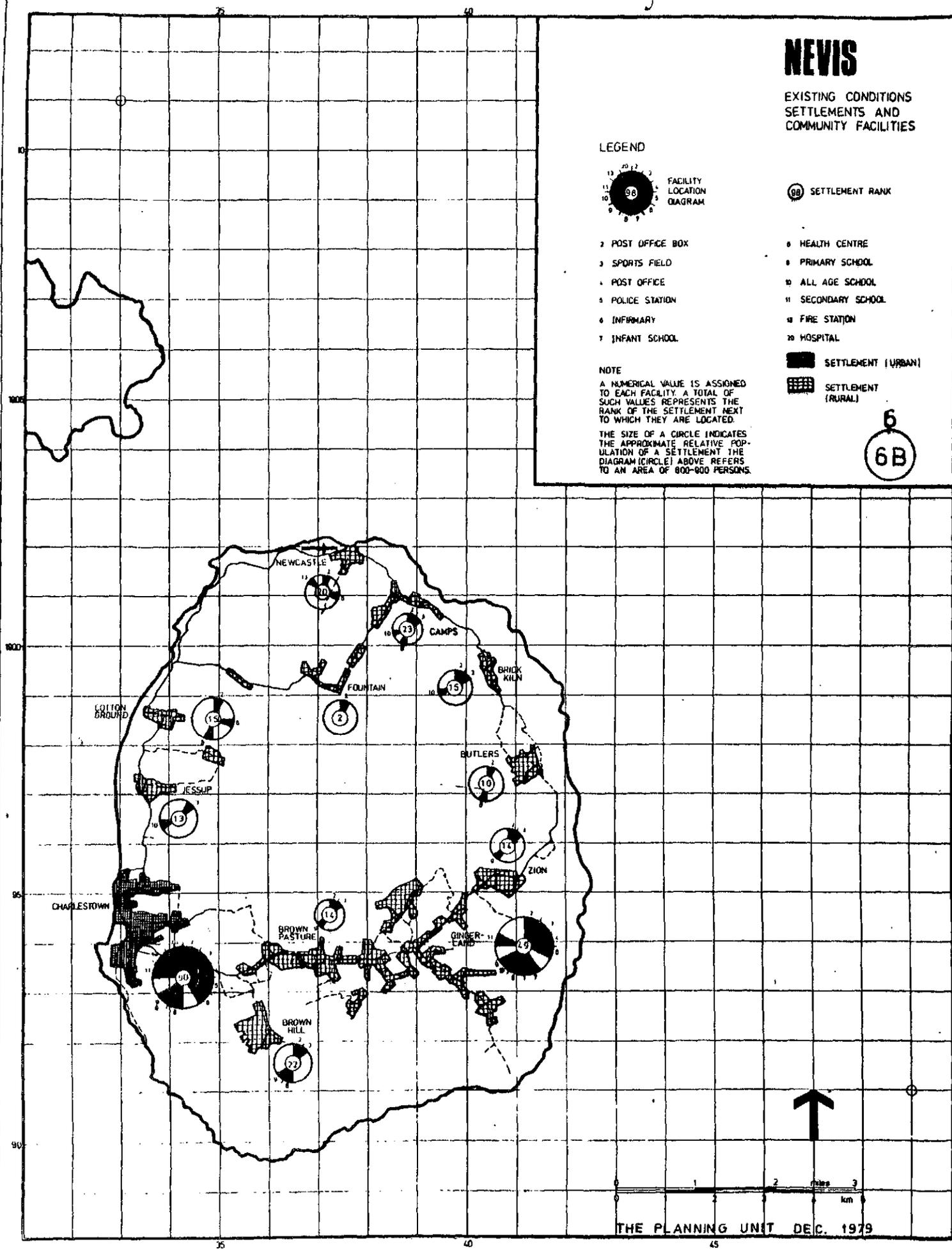
NOTE

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THE SIZE OF A CIRCLE INDICATES THE APPROXIMATE RELATIVE POPULATION OF A SETTLEMENT. THE DIAGRAM (CIRCLE) ABOVE REFERS TO AN AREA OF 800-900 PERSONS.

SETTLEMENT (URBAN)

SETTLEMENT (RURAL)

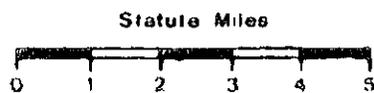


Eastern Caribbean Natural Area Management Program
Survey of Conservation Priorities in the Lesser Antilles

RESOURCE DATA MAPS • ST. KITTS

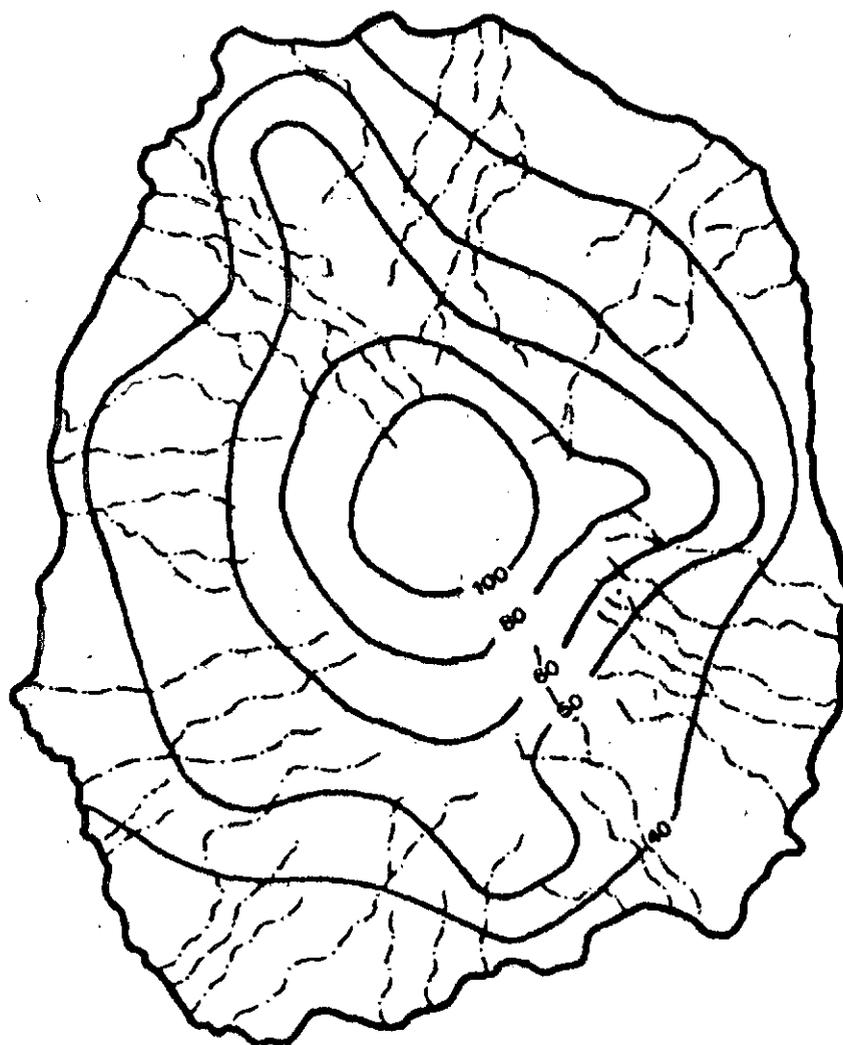


ST. KITTS
2. RAINFALL
Average annual rainfall in
inches.
Source:
U.W.I., 1962.

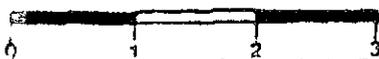


Eastern Caribbean Natural Area Management Program
Survey of Conservation Priorities in the Lesser Antilles

RESOURCE DATA MAPS • NEVIS



Statute Miles



NEVIS
2. RAINFALL
Average annual rainfall
in inches.

Source:
U.W.I., 1961.

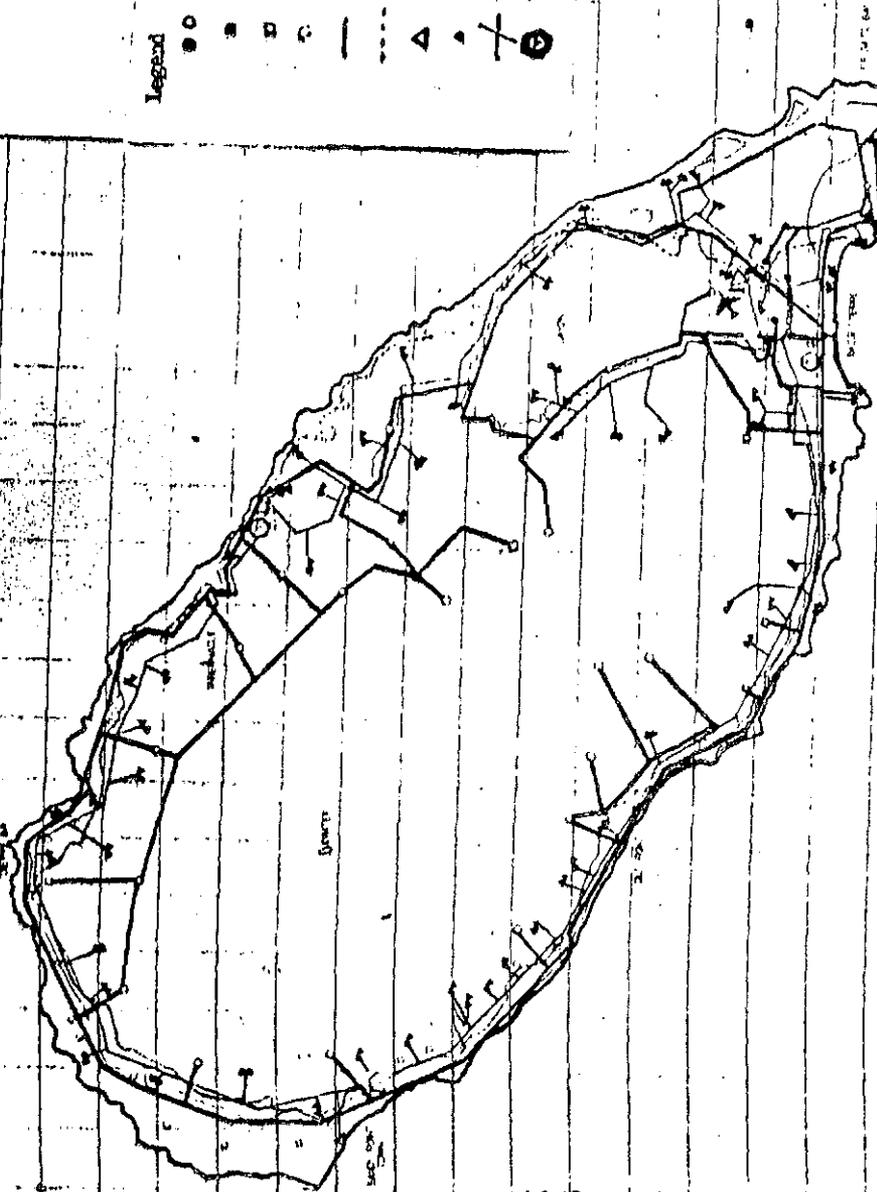
ST. KITTS

EXISTING CONDITIONS
TECHNICAL
INFRASTRUCTURE

Legend

- Well Intake
- Treatment Plant
- Reservoir Tank
- Well Proposed
- Pipeline (existing)
- - - Pipeline (proposed)
- ▲ Power Plant
- ▲ Transformer
- ⚡ Power Line / underground
- ⊕ Telephone Exchange

6
4A



THE BARRON, J. J. 1962

NEVIS

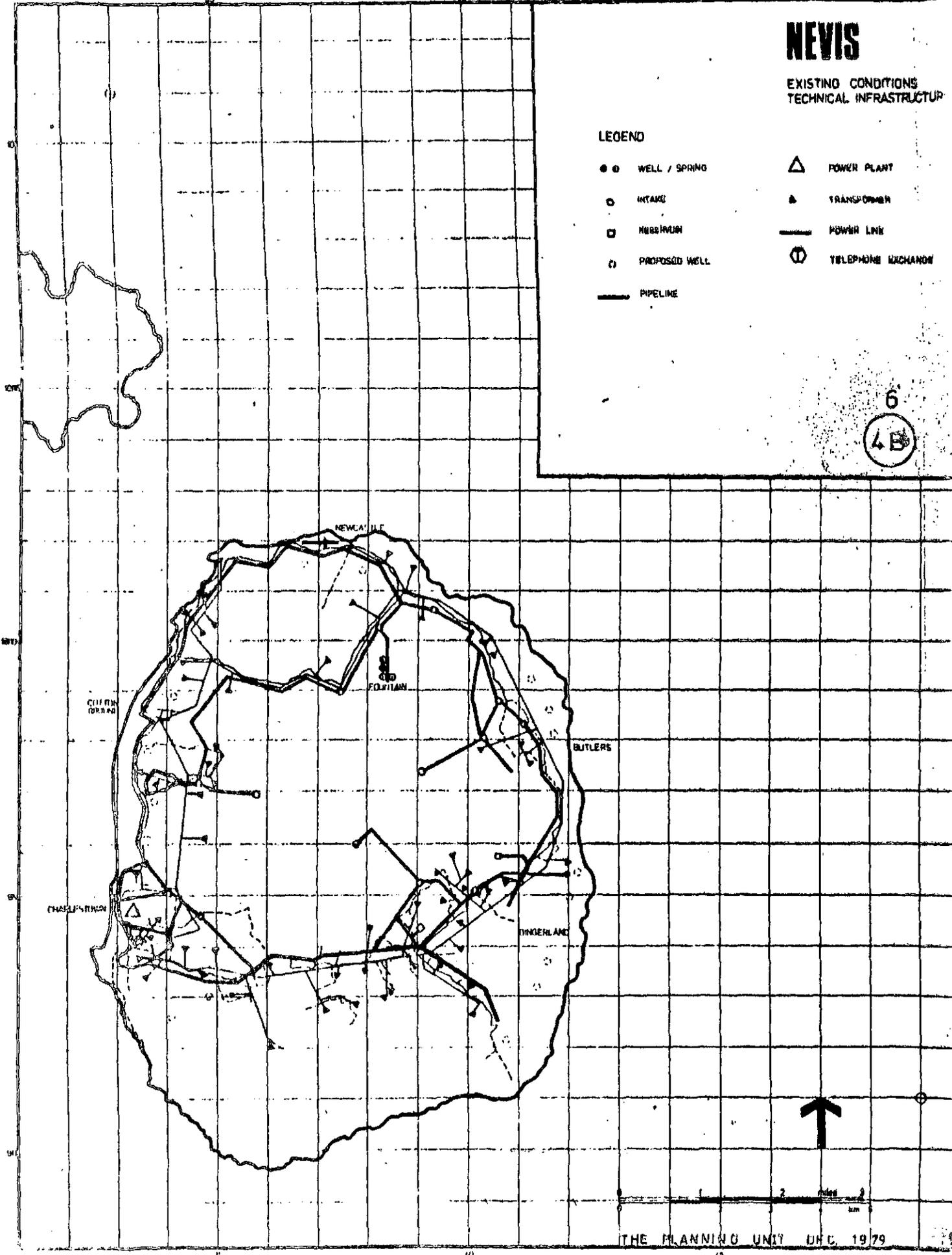
EXISTING CONDITIONS
TECHNICAL INFRASTRUCTURE

LEGEND

- | | | | |
|-----|---------------|---|--------------------|
| ● ● | WELL / SPRING | △ | POWER PLANT |
| ○ | INTAKE | ▲ | TRANSFORMER |
| □ | RESERVOIR | — | POWER LINE |
| ○ | PROPOSED WELL | ⊕ | TELEPHONE EXCHANGE |
| — | PIPELINE | | |

6

4B



APPENDIX II

FUNCTIONS OF THE CORPORATION

"Functions of
the Corporation

5. It shall be the duty of the Corporation:-

- (a) to stimulate, facilitate and improve the production, marketing and processing of produce in the State, particularly for the benefit of the producer;
- (b) to develop and carry out a co-ordinated programme with the view of securing the most favourable arrangements for the purchase, handling, distribution and transportation, storage, processing, exportation, shipping, marketing and sale of produce whether in the State or out of the State and to operate and maintain services necessary or incidental thereto in particular to assist agricultural and fishery co-operative societies to dispose of their produce.
- (c) upon being required so to do by the Minister to make recommendations on any matter directly or indirectly relating to the production and marketing of produce;
- (d) to collect, analyse and disseminate where necessary statistical data on agricultural production, particularly horticultural crops and livestock numbers by obtaining basic data on acreage, yield, production, livestock numbers in collaboration with the Agricultural Extension Service;
- (e) to assist and advise producers in the selection of commodities and their delivery to the market in order to regulate market supplies and to avoid marketing gluts with a consequent sudden drop in prices;
- (f) to give, when necessary in collaboration with the Extension Service, practical demonstrations to producers in the timing of harvesting fruits and vegetables, packing and preparation for the market;

- (g) to supply to the producers the necessary means of production such as seeds, fertilizers and insecticides;
- (h) generally to carry out the provisions of this Act."

APPENDIX III

Showing quotations from Puerto Rico (f.a.s.)
for vegetable and fruit imported by
a St. Martin wholesale dealer

Commodity	US\$ Price per case/bag	US\$ Volume per case/bag	US\$ Price per lb
Tomatoes	11.50	30	0.383
Pineapples	8.90	40	0.222
Melon	15.50	30	0.517
Onions	6.85	50	0.13
Potatoes	6.15	50	0.12
Peanuts	28.75	50	0.57
Bananas	15.50	50	0.31
Cabbage	7.50	50	0.15
Cucumber	13.00	50	0.26
Tannia	14.75	50	0.295
Yams	14.75	50	0.295
Sweet potatoes	14.75	50	0.295
Sweet potatoes	22.00	50	0.44
Loose carrots	6.75	25	0.27
Packaged carrots	10.00	48	0.21
Pumpkins	10.00	48	0.21
Sweet peppers	10.00	48	0.21

These prices are free alongside ship in Puerto Rico and the importer pays US\$0.07 a lb. for transport, plus handling charges.

APPENDIX IV
REPORT ON A SAMPLE FARM SURVEY
CONDUCTED IN ST. KITTS-NEVIS

One of the main factors which led to the request of the St. Kitts-Nevis Government for this survey was the reported failure of CEMACO to organize successfully the marketing of domestic agriculture food production. The National Agricultural Corporation (NACO) which was the sole producer of sugar-cane also carried out subsidiary food growing operations, the produce from which are marketed by CEMACO. At the time when this study was undertaken, NACO had plans for considerable expansion of its food growing operations. These plans called for establishment of a farm enterprise on 65 acres of land at Ponds Estate under direct NACO management.^{1/} Since CEMACO's efficiency would have been crucial for success of this project, the operations of this marketing agency became a central subject for study. The planned implementation of NACO's project has since been changed to a small farm 2-acre project conducted by 32 full-time farmers.^{2/}

After preliminary enquiries the Adviser formed the opinion that CEMACO's competence as a marketing agency for NACO depended, in part, on the volume of non-NACO food production available on the market, and the marketing structure by which this food supply reached both internal and external consumers. He therefore decided to conduct a field survey to determine:

- what food crops were grown by farmers;
- how much of what is grown is marketed;
- what is the marketing structure for this domestically-grown food.

The total number of farmers interviewed was 166, and the sizes of holdings which they operated ranged from 1/8 to 5 acres. These farmers represent 3.7% of estimated 4,467 farm operators in the state, but about 4% of operators on holdings of five acres and less.

^{1/} See "Benefit cost analysis of 65 acre vegetable crop project for St. Kitts" prepared by Sheila Bass.

^{2/} See "The Basseterre Valley Vegetable Project" prepared by Messrs. Beddoe and Dunn.

Questions 1 and 2 aimed at finding out food crops cultivation at the time of the survey and also at periods prior to the survey. The replies received are shown in Tables 1 and 2.

TABLE 1
Food Crops under Cultivation
at time of Survey
and numbers of Farmers growing them

Food Crops	No. of Growers	Food Crops	No. of Growers
<u>Ground provision</u>		<u>Vegetables</u>	
Yams	102	Cabbages	29
Sweet potatoes	88	Tomatoes	20
Tannia	62	Carrots	19
Sweet cassava	44	Pumpkin	8
Eddoes	22	Cauliflower	8
Dasheen	17	Eggplant	7
		Ochroes	7
<u>Tree Crops</u>		Cucumber	6
Breadfruit	1	"Greens"	4
Plantains	2	Sweet pepper	3
		Hot pepper	1
<u>Seed Crops</u>		Herbs	33
Corn	18	Christophene	1
Peas	22	Onions	3
Beans	3	Ginger	1
Peanuts	58		
		<u>Fruit</u>	
		Watermelon	2
		Mangoes	1
		Pineapples	1

TABLE 2

Food Crops which had been grown
by Farmers at periods prior to the Survey
and number of Farmers who grew them

Food Crops	No. of Growers	Food Crops	No. of Growers
<u>Ground provision</u>		<u>Vegetables</u>	
Sweet potatoes	29	Cabbages	28
Yams	18	Tomatoes	23
Dasheen	9	Cauliflower	2
Eddoes	8	Pumpkin	9
Tannia	8	Carrots	19
Cassava	5	Turnips	1
<u>Tree Crops</u>		Onions	4
Bananas	5	Egg plant	2
<u>Seed Crops</u>		Cucumber	1
Peas	10	Sweet peppers	6
Beans	2	Herbs	7
Corn	8	Lettuce	1
Peanuts	22		

The importance of these data is that they indicate:

(1) Farmer preferences in cultivation - there is a clear preference for cultivation of ground provisions - starchy foods - which provide a high proportion of carbohydrate intake of consumers. The most commonly grown carbohydrate, yam, was cultivated by 72% of respondents, and sweet potatoes, the second most popularly grown tuber was cultivated by 53% of respondents. On the other hand vegetable production on the whole had a much lower rating, with only 17% of farmers growing the most frequently grown crop - cabbages. On the whole the low percentage of farmers in vegetable production is of great significance from a developmental point of view for it indicates that experience in this type of production is not common, and therefore much supervision and guidance will be required in any programme of expansion.

(2) Possible competitive areas between NACO and farmer production

The areas of competition, of course, depend on what produce farmers market, how much of their output is marketed, and how efficient is the traditional marketing system. The indications are that over 50% of farmers cultivate the range of crops which NACO intends to grow, and most of the 111 respondents, who in reply to question 7 said that they market most of their produce, do grow these crops. The total volume which enters the market may however be small because yields are usually low due to poor cultivation practices.

Question 4 sought information on harvesting periods. Table 3 shows the months when farmers were going to reap their produce. This harvesting pattern reflects the growing cycle of each crop based on rain-fed water, since these small farmers do not have irrigation facilities. This is most likely a regular production pattern, and therefore NACO can find out from these data and from the number of farmers growing each crop when its own production will face a competitive market.

Question 5 sought information on harvesting practices. Table 4 shows that much use is not made of paid labour in harvesting agricultural produce. The predominantly used methods are self and family harvesting. An advantage with this type of reaping is that the percentage of loss in this process is likely to be low and therefore output relatively high, since the farm owner is more concerned than a farm employee with maximum returns per unit of land. In addition, since imputed costs of reaping are not considered by the farmer in pricing his produce, he can sell at a lower price than NACO, which has to pay labour for all operations.

TABLE 4

Methods of Harvesting adopted by Farmers

Method of Harvesting	No. of farmers using method	Method of Harvesting	No. of farmers using method
a	53	bc	4
b	51	bd	2
c	4	cd	-
d	12	abc	1
ab	31	abd	3
ac	1	abcd	1
ad	3		

a = self b = family harvesting c = friends d = paid labour

Table 5 shows where farmers carry their produce from the farm and how produce gets to its destination. The most frequent practice is for farmers to carry produce from their farms to their homes themselves - 92 respondents did this.

TABLE 5

Carrier and destination of produce from farm*

Carrier and destination	No. of farmers using methods	Carrier and destination	No. of farmers using methods
aA	92	abA	1
aB	23	abB	9
bB	2	baB	2
aAB	27		

a = self portage

A = home

b = paid portage

B = market

* 10 responses missing

Twenty-seven (27) respondents carried their produce both to their homes and to markets, and 23 carried all produce to market. Here again the indication is that a high proportion of farmers - 85.5% - incurs no expenditure to get their produce from the farm to either home or market.

Question 7 sought to find out whether farmers kept most of their crops for domestic use, or whether they sold it. Replies shown in Table 6 indicate that 111 (67%) farmers sold most of their produce while 55 (33%) kept most for domestic use. This indicates that given all things equal, in supply terms, the produce of small farmers can influence price levels.

TABLE 6

Predominant disposal practices of produce
by Farmers interviewed

Disposal Practices	No. of Farmers
For sale	111
For family use	55
TOTAL	166

Question 8 sought to establish the length of the chain between the farm gate and the consumer. Table 7 records replies to this question. It shows that 94 (64%) of those who answered it sell their produce wholesale to one buyer, 24 sell retail and 38 sell to both retailers and wholesalers.

TABLE 7

Showing Marketing Channels
used by Farmers*

Marketing Channel	No. of Farmers
Wholesale	94
Retail	24
Both retail and wholesale	38

*No replies from 10 farmers

Question 9 enquired into location of disposal points for those farmers who sold produce wholesale. Table 8 shows that only 67 farmers gave replies to this question. Of these 46 said that they sold produce from their homes. Two (2) sold from their farms and 7 sold in the market. According to this, the dominant practice is marketing from the farm, so that the farmer does not bear transport cost. This is borne by the wholesaler.

TABLE 8

Disposal points for Wholesalers

Disposal point	No. of farmers
a	46
b	2
c	7
ab	2
ac	8
bc	2

a = home b = farm c = market

Question 10 sought to establish whom the farmer sold his produce to when he sold wholesale. The replies, listed in Table 9, show that buyers were offering their produce for sale mainly in market places and on the roadside. No produce is sold to factories for processing. One farmer sold direct to a hotel, one direct to a supermarket, and two to government. Only two respondents reported that their produce was sold to exporters.

TABLE 9

Showing wholesale outlets used by Farmers

Outlets	No. of farmers	Outlets	No. of farmers
a	25	ab	28
b	4	ad	1
c	nil	abd	1
d	2	c	2
f	2		

a = market sellers b = roadside sellers c = factory
d = hotel/supermarket e = government f = for export

Questions 11 to 13 sought information on farmers' attitudes to co-operative activity and State involvement in agricultural marketing. Replies to these questions are shown in Table 10. Of the 166 farmers interviewed, 78% said quite definitely that they wanted to market their produce individually, and only 19% said that they would prefer to act co-operatively with other farmers. This predominantly individualistic tendency on the part of farmers will have to be overcome by educational methods and policy incentives and disincentives if the Government wants to encourage co-operative marketing. In this connection it is interesting to note that 60% of respondents would like to sell their produce to a Government Marketing Agency. On the question of organization of production through a Government Marketing Agency, only 57 (34%) respondents said definitely that they would like Government registration of all farmers, while 63 (38%) were opposed to the idea. With respect to farm quotas and guaranteed prices, more than 50% of farmers interviewed were in support of the latter, but there was less support from the former.

TABLE 10

Showing Attitudes of Farmers to Co-operative Activity and State involvement in marketing

Questions	Answers		
	Yes	No	Don't know
Do you prefer to sell your crop by yourself?	130	-	-
Do you prefer to sell your crop jointly with other farmers?	31	-	-
Would you like to sell to a Government Agency?	101	45	14
Would you like a Government Agency to:			
a) Register all farmers	57	63	43
b) Give farmers contracts for specific quantities	62	60	34
c) Give farmers a guaranteed price for specific amounts	89	46	24

Negative responses to questions in Table 10 should not be taken as evidence that a given policy should not be implemented, but rather as evidence that certain lines of policy are likely to meet resistance, therefore education and orientation programmes must be devised in order to get the desired response.

Replies to Question 14 which asked as follows: Do you think that you make sufficient money from farming? indicated that 102 (61%) farmers felt that they did not make enough money, and only 37 (22%) said definitely that they do. Those who felt that they do not make enough money were further asked what help they would like in order to make enough money from farming. Their replies are shown in Table 11. The types of assistance with high priorities are: land preparation, improved land capability, crop protection, cultivation practices and financial assistance.

TABLE 11

Showing types of assistance required
by farmers to improve their incomes

Assistance Required	No. of Farmers
1) Land preparation e.g. ploughing	19
2) Improved land capability e.g. fertilizer	16
3) Crop protection e.g. pesticides, herbicides, etc.	16
4) Advice in cultivation practices	13
5) Loans and credit facilities	13
6) Supplies of planting material	7
7) Fair price	7
8) Labour supply	7
9) Improved marketing	5
10) More land	4
11) Irrigation facilities	2
12) Protection from praedial larceny	2

Table 12 shows the levels of monthly income which some farmers indicated they expected to get from agriculture. The median income range is \$175 - \$250. At current prices this is a barely satisfactory income for a medium size household, and those below this income range can most appropriately be classed as living in poor circumstances. A more acceptable income bracket would most likely be between \$300 - \$350.

TABLE 12

Monthly income expected *
by farmers from agriculture

Income Expectations	No. of Farmers	Income Expectations	No. of Farmers
\$ 50	4	\$300 - 350	17
\$ 75 - 90	8	\$400	9
\$100 - 150	17	\$500	3
\$175 - 250	24	\$600 - 650	2

* Two (2) said that they did not know and 80 gave no reply.

Question 17 sought information on sizes of land farmed and numbers of parcels farmed by individual farmers. This information is presented in Tables 13 and 14. The first of these tables shows that 98 (59%) of the 166 farmers interviewed farmed only 1 parcel of land each. At the other extreme there was one farmer who farmed 7 parcels of land. Most of the single parcel farm operators were located in St. Kitts. In Nevis there were 29 operators each of whom farmed 2 parcels of land while in St. Kitts there were only 10 such farm operators.

TABLE 13

Showing Number of Parcels of Land
farmed by Respondents in each island

No. of Parcels	No. of Farmers		
	St. Kitts	Nevis	Total
1	77	21	98
2	10	29	39
3	2	14	16
4	2	7	9
5	1	2	3
7	-	1	1
TOTAL	92	74	166

Table 14 shows that the total number of parcels farmed by the 166 respondents was 280. Of these 117 were located in St. Kitts and 163 in Nevis. A breakdown of the sizes of these parcels shows that a quarter acre was the most numerous size. Of the 68 parcels in this size group, 20 were in St. Kitts and 48 in Nevis. In the latter island, there were 34 1/8-acre garden plots. These data on parcel size show that 244 (87%) of the 280 parcels farmed by respondents are less than the minimum size of 2 acres which according to NACO's proposals is the appropriate size of farms for vegetable cultivation which would yield a satisfactory farm income. It is quite possible that many of these small farmers lack the know-how to use their small acreages to full capacity and therefore it is still worth-while taking steps to improve their cultivation practices. These data indicate the need for a farm policy which in the short run attempts to improve farm productivity on these small units, and in the long run tries to effect farm consolidation towards a minimum farm size of 2 acres.

TABLE 14

Number of Parcels of land farmed
by Respondents, by size, in each island

Sizes of Parcels (acres)	No. of Parcels		
	St. Kitts	Nevis	Total
1/8	nil	34	34
1/4	20	48	68
1/2	18	28	46
3/4	7	8	15
1	27	20	47
1 1/4	nil	2	2
1 1/2	23	6	29
1 3/4	2	1	3
2	5	9	14
2 1/2	1	nil	1
2 3/4	nil	1	1
3	11	4	15
4	1	2	3
5	2	nil	2
TOTAL	117	163	280

Data on status of land under cultivation was collected under Question 17, and is recorded in Table 15. One hundred and seventy-nine (179) (64%) of the 280 parcels under cultivation were rented, only 28 (19%) parcels were owned and most of the remaining 73 were occupied under share-cropping arrangements. There was a marked difference between the conditions under which land in both islands was used. In St. Kitts most land used by respondents was rent free while in Nevis 84% of the parcels under cultivation were rented. With respect to ownership, 25 parcels in Nevis were owned by respondents but in St. Kitts the number was only 3. Taken as a whole 90% of the parcels farmed were either rented or share-cropped. Tenure of farm operators under these conditions does not encourage efficient farming, and more permanent relationships to land must be developed if farming is to be put on a sound basis.

TABLE 15

Status of Farm Land under Cultivation
by Respondents in each island

Status of Land	St. Kitts	Nevis	Total
Rented	42	137	179
Owned	3	25	28
Rent free *	72	1	73
TOTAL	117	163	280

* Most land cultivated under this category provided for share-cropping arrangements.

Table 16 shows ranges of monthly rentals over a spread of farm sizes. At one extreme rents for 1/8 acre of land ranged from under \$0.50 to \$1.51 - \$2.00 per month, and at the other end of the spectrum, rent for a 5-acre farm was under \$3.50 per month. Of the 139 parcels for which monthly rental were given, payment for 105 did not exceed \$1.00. This low level of rent which was paid for acreages ranging from 1/8 acre to 4 acres is certainly too low to stimulate farm activity. Certainly many cultivators can afford this rent from occasional earnings in unskilled casual employment in Government projects. Rents should perform an incentive function in agriculture, and where they do not, the farm operator has no urge to earn a high farm income.

TABLE 16

Payment per month for land parcels cultivated

Acreage	\$ 0.01-0.50	\$ 0.51-1.00	\$ 1.01-1.50	\$ 1.51-2.00	\$ 2.01-2.50	\$ 2.51-3.50
1/8	3	3	-	8	-	-
1/4	19	13	-	7	-	-
1/2	4	23	-	3	-	1
3/4	2	5	-	-	-	-
1	3	14	2	2	1	-
1 1/4	1	-	1	-	-	-
1 1/2	4	2	1	-	-	-
1 3/4	-	-	-	1	-	1
2	-	2	-	-	-	2
2 1/2	-	-	-	-	-	-
2 3/4	1	-	1	-	-	-
3	2	2	-	-	-	-
4	-	2	2	-	-	-
5	-	-	-	-	-	1
Number of parcels	39	66	7	21	1	6

Question 19 sought information on the farming practices of respondents. The data collected are shown in Table 17. Only 24 of the respondents used tractors in cultivation. This is not surprising given the small acreages of most farms. Pen manure was used by over 50% of the respondents, and is more commonly used than artificial fertilizers. The most commonly used crop protection aid was pesticide, and weed control is not in common use.

TABLE 17

Showing Farming Practices of Respondents

Implements used in Ploughing		Aids used in Cultivation	
Implements used	No. of Farmers	Aids used	No. of Farmers
Tractor	24	Pen manure	90
Fork	35	Fertilizer	8
Hoe	94	Pen manure and fertilizer	2
Mattock	9	Pesticide	29
Tractor and Hoe	8	Pen manure and pesticide	17
Tractor and Fork	1	Fertilizer, pesticide, weedicide	1
Pick Axe	4	Pen manure, fertilizer, pesticide	3
Fork and Hoe	41	Fertilizer, pesticide	1
Tractor, Fork and Hoe	2		

Questions 20 to 22 sought information on the willingness of farmers to take cooperative action in purchasing inputs and in marketing. Table 18 shows that none of the respondents ever acted cooperatively in purchasing fertilizers and weedicides, 2 did with respect to the purchase of pesticides, and 1 with respect to marketing farm produce. When asked if they would join together to do any of these things, 5 did not commit themselves while 67 said 'yes' and 94 (57%) replied in the negative. These data are shown in Table 19. The areas in which respondents indicated they would be willing to act jointly are listed in Table 20. Less than one-third of the farmers interviewed showed interest in cooperative action in any one field, but it is still encouraging to note that there is some inclination among farmers to cooperation. Since joint activity of this type can make a valuable contribution to the level of return to the farmer for his produce, special attention should be paid to promoting cooperatives among the farming population.

TABLE 18

Showing Incidence of Cooperative Behaviour by Respondents

Cooperative Behaviour in	Farmers' Replies	
	Yes	No
1. Buying fertilizer	nil	166
2. Buying pesticide	2	164
3. Buying weedicide	nil	166
4. Marketing crops	1	165

TABLE 19

Showing willingness of Farmers to act cooperatively

Would you act cooperatively to purchase inputs and market produce?	No. of Farmers
Yes	67
No	94
Don't know	5

TABLE 20

Showing incidence of Respondents willing to cooperate in farming activities

Activities	No. of Farmers
Purchase of fertilizer	48
Purchase of pesticide	51
Purchase of weedicide	32
Marketing crops	27

Table 21 shows age distribution of 140 of the 166 farmers interviewed. Only 24 (17%) were under the age of 45, while 56 (40%) were 60 years of age and over. This reflects a pattern of age distribution among the farming population which is common among the less developed islands in the Caribbean. Special consideration has to be given to this phenomenon in planning agricultural development. To attract young able-bodied workers into farming, conditions of tenureship, and levels of net income should be such as to secure fairly long term commitment. It may also be advisable to try to get young married couples interested rather than unmarried persons since the former are more likely to have greater incentive towards achieving a satisfactory family income.

TABLE 21

Age Distribution of Farmers Interviewed*

Age group	No. of farmers	Age group	No. of farmers
25 - 29	6	55 - 59	19
30 - 34	2	60 - 64	17
35 - 39	7	65 - 69	27
40 - 44	9	70 - 74	9
45 - 49	24	75 - 79	2
50 - 54	17	80 - 84	1

* The ages of 26 respondents were not recorded.

QUESTIONNAIRE

ST. KITTS-NEVIS AGRICULTURAL FIELD SURVEY

1. What crops are you growing now in your garden?

2. Have you grown any other crops during the past three years?

Yes No Can't remember

3. If the answer to Question 2 is Yes list crops below.

4. When will you reap the crops you are growing now?
(Name each crop below and name the months for reaping).

Crop	Time	Crop	Time

5. Do you reap your crops yourself?
- reap with family help?
- reap with help from friends?
- reap with paid labour?

Tick appropriate box/boxes.

6. What do you do when you reap your crops?

- Carry them to your home yourself?
- Carry them to the market yourself?
- Pay someone to carry them home?
- Pay someone to carry them to market?

Tick appropriate box/boxes.

7. Do you sell most of your crops or keep most for family use?

Tick appropriate box.

8. Do you sell your crops retail to individual buyers, or do you sell wholesale to one buyer?

- Retail Wholesale Both

Tick appropriate box/boxes.

9. If wholesale or both where do you sell your crops from?

Your home

Your farm

The market

Tick appropriate box/boxes.

10. If wholesale, whom do you sell your crops to? (Tick off those which apply)

a. People who want to sell them in the market?

b. People who want to sell them at the roadside?

c. To a factory for processing?

d. To hotels?

e. Name other _____

11. Which do you prefer:

To sell your crop by yourself?

To join with other farmers, form a co-operative and sell jointly?

Tick appropriate box.

12. Would you like to sell your crops to a Government Marketing Agency?

Yes

No

Don't know

13. Would you like a Government Marketing Agency to:

- a. Register all farmers? Yes No Don't know
- b. Give farmers a contract to supply specific quantity of a crop? Yes No Don't know
- c. Give farmers a guaranteed price for a specific amount? Yes No Don't know

14. Do you think that you make sufficient money from farming?

- Yes No Don't know

15. If no what help would you like so that you can make enough money from farming?

16. How much money would you like to make every month? _____

17. Give the following information about each parcel of land you are cultivating now: (Put tick to indicate if land is rented or owned)

Parcel	Size	Rented	Owned
A			
B			
C			
D			
E			
F			
G			

18. Give monthly rent per acre for each parcel you rent.

A _____ B _____ C _____
D _____ E _____ F _____

19. Which of the following do you use in farming?

For ploughing:

Tractor

Fork

Hoe

For cultivation:

Pen manure

Fertilizer

Weedicide

Pesticide

20. Have you ever joined with any farmer or farmers to:

a. Buy fertilizer?

Yes

No

b. Buy pesticide?

Yes

No

c. Buy weedicide?

Yes

No

d. Market your crops?

Yes

No

21. Would you join with other farmers to do any of these things?

 Yes No

22. If the answer to Question 21 is Yes put tick in box/boxes.

 Fertilizer Pesticide Weedicide Market Crops

Name of farmer _____

Residence _____

Year of birth _____

Date of interview _____

Name of interviewer _____

Name of supervisor _____

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