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REPORT OF THE PROJECT PREPARATION MISSION

Solomon Islands

Agricultural Research, Extension, **and Support Facilities Project**

Prepared by

**International Service for
National Agricultural Research**

ISNAR

The International Service for National Agricultural Research (ISNAR) began operating at its headquarters in The Hague, Netherlands on September 1, 1980. It was established by the Consultative Group on International Agricultural Research (CGIAR) on the basis of recommendations from an international task force, for the purpose of assisting governments of developing countries to strengthen their agricultural research. It is a non-profit autonomous agency, international in character, and non-political in management, staffing and operations. Most of its funds are provided by an informal group of approximately 30 donors: countries, development banks, international organizations and foundations, which make up the CGIAR.

ISNAR is the youngest of the 13 centers in the CGIAR network, and it is the only one which focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on organization, planning, manpower development, staff requirements, financial and infrastructure requirements, and related matters, thus complementing the activities of other assistance agencies. Additionally, ISNAR has an active training and communications program which cooperates with national agricultural research programs in developing countries.

ISNAR also plays an active role in assisting these national programs to establish links with both the international agricultural research centers and donors.

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Agricultural Research, Extension, and Support Facilities Project

Mission Conducted in September-October 1982

isnar

International Service for National Agricultural Research
The Hague, Netherlands

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Currency Equivalents at September 1982

1 S.I. dollar = US\$ 0.95
1 U.S. dollar = SI\$ 1.05

Acronyms used in the text

ADB Asian Development Bank
AIU Agricultural Information Unit
ATC Administrative Training Centre

BSAL Brewers Solomon Associates Ltd.

CDA Cattle Development Authority
CDC Commonwealth Development Corporation
CFO Chief Field Officer
CRO Chief Research Officer
CVO Chief Veterinary and Livestock Officer

DBSI Development Bank of the Solomon Islands

EDF European Development Fund
EEC European Economic Community

FTC Farmer Training Centre

GDP Gross Development Product

HTI Honiara Technical Institute

IBRD World Bank, Washington
IFAD International Fund for Agricultural Development
IHE Institute of Higher Education
IITA International Institute for Tropical Agriculture
IRRI International Rice Research Institute
ISNAR International Service for National Agricultural Research

LDC Land Development Cooperatives
LSL Levers Solomons Limited
LUD Land Use Development Section (Project)

MHAND Ministry of Home Affairs and National Development

NATI National Agricultural Training Institute

ODA Overseas Development Administration, United Kingdom

PWD Public Works Department

RTMC Rural Marketing and Trading Centres

SIPL Solomon Islands Plantations Ltd.

USP University of the South Pacific

SOLOMON ISLANDS

Agricultural Research, Extension,
and Support Facilities ProjectSUMMARY

- i The Government of the Solomon Islands requested the Asian Development Bank to provide technical assistance to prepare a project to strengthen the Agricultural Research, Extension, and Support Facilities. There were several delays in bringing this proposal to the point of decision; agreement was reached in September 1981, and the technical assistance proposal was drawn up. The change of government in the Solomon Islands at that time resulted in further delay and some revision of the terms of reference of the preparatory mission to reflect the changing situation in the Solomon Islands and to take account of other project proposals in the agricultural sector.
- ii Responsibility for agricultural research is with the Division of Agriculture of the Ministry of Home Affairs and National Development. The Division is also responsible for the central Extension Service in which all staff, except the few in headquarters, are seconded to the provincial governments and work under the direction of the provincial executives. The division is responsible for the land use development program (in which the cooperatives section is also involved), quarantine, and veterinary and livestock matters. The devolution of responsibility for agricultural development to the Provinces has brought with it problems of staffing, which are particularly acute in any technical subjects because of the small size of the Provinces and of their staffs.
- iii The emphasis on agricultural development has been shifted in recent years -- and particularly under the present government -- from enterprises mainly devoted to raising revenue from the export of plantation crops to production in both the smallholder and plantation sectors, with some increase in the range of crops to be grown.
- iv The total spending on agriculture in 1981 was not small in relation to the total population; at about 3% of total government

expenditure, however, it could be considered small in relation to the importance of agriculture to the economy of the country. The figure given is of direct government funds; it does not include the substantial amounts of assistance received from several major donors.

v Major considerations taken into account in the design of this project include the:

- need to ensure that the project does not merely provide the means to do the various tasks but also motivates staff to apply themselves to the challenges of a devolved administration in agriculture and many logistical obstacles to effective working;
- importance of having a research service of effective size and composition working within a program which has a wide measure of support from policy makers, research and extension workers, and farmers and is oriented to the smallholder sector and to systems of production as well as to individual crops;
- major shortage of candidates for higher educational opportunities, which aggravates an already inadequate level of training of staff in post in relation to the changes in program emphasis and in the administrative system within which they have to work;
- national objective of localization of posts as soon as adequately trained staff can be recruited; in the research service this is inevitably a long term objective, but more readily attainable in some other parts of the division provided regular in-service training can be given;
- problems associated with the devolution of authority to units of small size and resources;
- importance of effective information management to make full use of information from outside the country, to ensure free and rapid movement of information in appropriate forms to different groups within the agricultural services, and to promote development by transfer to farmers to increase production and to policy makers to sustain support for the services as a whole;
- critical importance of outlet channels, i.e., secure markets at reasonable prices to the producer, in developing demands from and support for agricultural services in general;
- narrow revenue base of the country, hence its limited capacity to pay for the services it needs;

- substantial willingness on the part of several agencies to help in providing funds for some of the activities included in this project proposal.
- vi The proposed project would aim to increase the effectiveness of the research service by a small increase in professional staff to increase the range of subjects which could be covered, by the removal of responsibility for non-research activities (quarantine, plant propagation, farm and station management) from the research staff, by giving greater attention to program formulation to ensure objectivity and cooperative working, and by providing improved physical resources, and equipment. The facilities necessary to increase work of an adaptive nature at different locations, and to work on systems of production, would receive emphasis. In extension, the main thrust would be in the improvement of staff competence by intensive and regular in-service training at a national center. Additional opportunities for farmer training would be made available by an extension of the network of farmer training centers. The marketing component of development would be assisted initially through market surveys; other agencies are already involved in considerations of physical and transport needs.
- vii The main components to be financed by the project would include:
- Agricultural Research: Construction of additional laboratory, office, library and housing accommodation at the research headquarters at Dodo Creek, permitting two additional research officers and support staff to live and work there. Construction of the first small adaptive research stations in the provinces -- at Dala (Malaita)⁽¹⁾ -- to facilitate locational testing of new methods and materials and to provide focal points for interaction between the research and extension services. (Each of these units would be adjacent to a farm unit run by the extension service, and two of them would have farmer training centers nearby.) Essential capital equipment, including a desktop microcomputer, vehicles, provisions for training, salaries of additional staff, travel allowances, and operating and maintenance costs of buildings, equipment, and vehicles at Dodo Creek and at Dala.
 - Extension and Training: Construction of a National Agricultural Training Centre, together with dormitories, houses and other ancillary buildings; full equipment for these buildings, transport and farm equipment; provision is made for the salaries of the staff, for training, travel and allowances, and for consultant services for preparation of courses and curricula. The site for this unit has not been decided. It should be at Tenaru or Dodo Creek, but there are
- (1) The stations needed at Gizo (Western Province) and at Nendo (Santa Cruz group in Temotu Province would be developed in a second-phase project).

non-technical difficulties in using these sites. One new farmer training center on Choiseul and the relocation of a second from Barakoma to Gizo, the buildings, houses, dormitories and ancillary works, together with farm equipment, transport (canoes), and classroom equipment are provided. Staff costs of an incremental nature, travel, and subsistence are included.

- Agricultural Information Unit: The construction of a small (air conditioned) office unit to house the essential equipment and to provide working space for two persons; provision of the necessary communications, photographic and drawing equipment, and transport for out-of-center activities. Staff costs of one professional information management officer and two supporting staff (one a trainee for the professional post) would be provided along with the operating costs of the unit for the project period.
 - Project Implementation: The cost of a project development officer to assist the local project manager, additional support staff, transport, and office equipment (available office space should be adequate).
- viii Attention is drawn in a supplement, Annex 9, to the need for market surveys on a limited number of crops, a survey of coconut areas prior to the preparation of a rehabilitation project, and a review of the Land Use Development Section to identify future needs and direction of work as essential and urgent items for speeding up agricultural development. These items are not included in the project proposals or costings.
- ix Costs of the project, which would be phased over five years, are estimated at US\$6.00 million, which would rise to US\$9.44 million with the inclusion of physical and price contingencies.
- x The organizational proposals made for the project, to which the government has not yet signified agreement, involve the appointment of a local officer to be project manager in the office of the undersecretary for agriculture in the Ministry of Home Affairs and National Development. The project manager would be assisted by an expatriate project development officer and parts of the work would be delegated to the chief research officer, the chief field officer and the senior field officer (education and training). These arrangements have been proposed so that the project can be managed within the present organizational framework of the division, while providing an in-service training component to several senior members of staff of the division.
- xi Likely benefits from the project cannot readily be quantified since the project does not aim to remove all the constraints to increased production. The incremental recurrent cost at the end of the

project would be less than SI\$2 per capita or the equivalent of the produce of one hectare of coffee or cocoa per extension worker. It is difficult to relate the cost to the output of basic foodstuffs because of the limited cash market trade in these items, but the development of the extra area of cash crops indicated per extension worker would seem to be a modest target.

- xii A number of major issues will require thorough examination by the Government of the Solomon Islands and the Asian Development Bank during appraisal. These relate to the definition of responsibilities between central and provincial governments, the paucity of nationals with the necessary qualification to staff the research services, and the capacity of the country to meet the costs of the modest increase in agricultural services proposed both during the project period and afterwards. These costs cannot be considered in isolation from those of other equally important projects and the capacity of the country to meet the costs of development projects in a period of static and low commodity prices gives cause for concern. While the project contains all of the essential components as identified, the development of additional Farmer Training Centres and adaptive research stations has been deferred. The possibility of obtaining funds from non-project sources for these items should be examined.
- xiii Any major reduction in costs would require a re-appraisal of the form that the research and extension services should take. It is felt that direct grant funding, particularly of the research component, should be sought before drastic revision of the project proposals is undertaken.

Agricultural Research, Extension and Support Facilities Project

I. INTRODUCTION

- 1.1 The economy of the Solomon Islands depends almost entirely on the exploitation of renewable resources in agriculture, forestry and fishing. The Government of the Solomon Islands has set major development targets for these industries and has recognized that effective research, extension and other services are needed to support these projected developments. These services must operate within the chosen pattern of government, in which there is substantial devolution of authority to the provincial governments but within which methods of working have not been fully determined.
- 1.2 The Government of Solomon Islands requested the Asian Development Bank to provide technical assistance in the preparation of an Agricultural Research, Extension, and Support Facilities Project. An ADB Mission visited the Solomon Islands in September 1979 to review the government's plans and proposals in these fields, make field inspections of some suggested locations for the proposed facilities, and discuss the scope and terms of reference for a feasibility study. There were delays in the processing of this request and the Technical Assistance agreement was signed at the end of April 1982. The terms of reference (in Annex 1) were established for the preparation of the project, and it was agreed that the International Service for National Agricultural Research (ISNAR) should be engaged for this work. An ISNAR staff member visited ADB and the Solomon Islands in June 1982 to discuss arrangements. The contract between ADB and ISNAR was signed at the end of June 1982.
- 1.3 In the meantime, a regional study of Agricultural Research Facilities and Requirements in the South Pacific, which was completed under ADB technical assistance in June 1981⁽¹⁾, examined alternative ways of strengthening agricultural research in the South Pacific Developing Member Countries. The study recommended a two-pronged approach wherein selected activities could be strengthened through regional programs, while other activities could be carried out at the national level, with emphasis on regional networks to encourage sharing of information and materials among countries. More specifically, strengthening national agricultural research, which can be assisted by a regional support team, was recommended. The technical assistance to the Government of Solomon Islands for the formulation of a project to strengthen its national agricultural research and support facilities is consistent with the above recommendation.

(1) South Pacific Agricultural Research Study, Solomon Islands.
Consultants Report to the Asian Development Bank, June 1981.

- 1.4 The field work in connection with project preparation was carried out from August 31 to September 30, 1982 by a team of five persons supplemented by one additional person for a part of the period (1). Members of the team visited the main islands, research and training units, and had discussions with central and provincial government officers at headquarters and in field locations.
- 1.5 The main text of the report contains the findings of the Preparation Mission and these are supported by the respective detailed technical annexes. These findings were reviewed by both government and ADR staff before the mission left the Solomon Islands. It was necessary to make considerable changes, however, at the report preparation stage to keep the project costs within the range indicated by the Asian Development Bank. These relate to the phasing of the proposed project components rather than in major changes in content.

(1) F. Haworth (ISNAR, research administration, team leader); C. W. Brookson (tree crops agronomist, consultant); D. J. Griffith (extension and rural development consultant); E. P. Riezebos, (development economist, consultant); W. M. Steele (field crops agronomist and experiment station design, consultant); and K. R. Kern (ISNAR, communications specialist).

II. BACKGROUND

Introduction

- 2.01 Recent reviews (1), (2), (3) of the agriculture sector and of agricultural research in the Solomon Islands provide much of the background information required for the development of the rationale for the project proposals made in this report. The economy of the country is based on agriculture (including forestry, fisheries and livestock). These primary industries contributed about 70% of gross development produce (GDP), almost all exports, 30% of formal employment and a direct livelihood for about 90% of the total population in 1980. Although the volume of copra exports was maintained at about the same level as in 1978 and 1979, its percentage contribution to export earnings was reduced both by low world prices for copra and by increased export volumes and values of fish products, timber, and palm products. Although still the major crop export, it could well be overtaken by palm products in the foreseeable future. The broadening base of exports could have important implications for the development of the agricultural support services and affect the intensity of interest in them at different levels within the government.

Natural resource base

- 2.02 The Solomon Islands are contained in an area between 155° to 170° E and 5° to 12° S, excluding those islands in the northeast of the area that belong to Papua New Guinea (see Map 1). Six large islands, Choiseul, New Georgia, Santa Isabel, Guadalcanal, Malaita, and Makira account for most of the country's land area of about 27,500 sq. km. A major survey of the land resources was completed in 1976⁽⁴⁾ and 54 "agricultural opportunity areas" covering about 338,000 hectares were identified.
- 2.03 Topography: the position of the larger islands at the edge of two tectonic plates has resulted in active folding, faulting, and volcanism; a variety of rock types of various ages has resulted: metamorphic, sedimentary, and volcanic. Thus, the larger islands consist of a core of steep mountains or hill country composed of

(1) Solomon Islands Inter-Island Shipping, Problems and Potentials. A Reconnaissance Mission Report, ADB June 1981 (circulation restricted)

(2) The Solomon Islands. An Introductory Economic Report. IBRD, Washington D. C. 1979

(3) South Pacific Agricultural Research Study: Country Report, Solomon Islands. ADB, July 1981

(4) Land Resources of the Solomon Islands. Vol. 1 (of 8) Introduction and Recommendations. Land Resources Division, Ministry of Overseas Development, London 1976.

dissected volcanic, metamorphic, or sedimentary materials with few areas of plain other than in northern Guadalcanal. Elsewhere settlement and agriculture is on bayhead flats and lower hill slopes except on Malaita, where population pressure has forced settlement of the interior.

- 2.04 The smaller islands, which lie to the east of the main chain, have components comparable to atolls, raised atolls, or volcanic islands. Such islands either have soils of limited fertility or of low fertility which can be improved only through large additions of nutrients. Within the main chain, some of the major coconut plantations, such as on the Russell Islands, are located on raised coral limestone with soils partly derived from volcanic ash.
- 2.05 Climate: Mean monthly temperatures at sea level are relatively uniform. The mean January maxima at coastal stations are rarely above 32°C and the minima rarely below 29°C; the corresponding figures for July would be 29°C and 23°C, respectively.

Seasonal and diurnal variations at sea level and at low elevation are small and present no constraint to the majority of tropical crops. In the interior of Malaita, some altitude effects would be expected and, were the interior of Guadalcanal to be developed, a considerable altitude zonation of temperature would be found with some heights just below 3,000 m.

- 2.06 The whole of the Solomon Islands, with the possible exception of the eastern Santa Cruz group and minor atolls further east, are in the humid zone. Rainfall is never less than 2,000 mm annually, and can rise to over 4,500 mm in the eastern Solomon Islands. Except for periods of abnormal drought on atolls or raised coral islets, there is little expectation of water stress in most tropical plants. This must be qualified by the orographic and rain-shadow effects occurring in the larger islands due to the topography, and it is reported that seasonal water deficits can occur in the northern or western parts of several of the Solomon Islands. Precise agrometeorological information for these specific areas is limited to few sites. In the higher rainfall areas, cloud cover can limit insolation and give rise to high humidities. Production of certain crops would be reduced under these conditions and some may even become uneconomic to plant because of the difficulty of controlling diseases.
- 2.07 Cyclonic storms occur with a frequency of one per year in the Solomon Islands. While the effect of such storms is relatively limited, their impact on both tree and annual crops is reported to be severe. Considerable interruption of copra production and research work occurred on the Russell Islands after a storm in 1974; the last storm on the Guadalcanal plain was in 1972, prior to recent commercial plantations of both oil palm and cocoa.
- 2.08 Climatic and soil conditions would appear to be such that a wide range of crops may be grown. Some crops, however, need a marked dry season to induce flowering (e.g., mango and cashew nuts) or for ripening (seed crops) and the lack of precise agrometeorological and soils data for specific areas points to the need for detailed studies of these parameters to provide a sound base for further agricultural developments.

Population

- 2.09 Most of the population, estimated at 233,000 on 30 June 1981⁽¹⁾, live in small widely dispersed settlements along the coasts of the islands. Although the average density over the whole country is less than 10 per sq. km. this figure does not give a useful indication of the distribution and the consequences of this in terms of demand for land for subsistence food production. The Land Resources survey (loc. cit) report contains a map showing the distribution of population on the estimated 10% of the land surface which appears suitable for agricultural development. This shows major differences between the main islands with some parts of Malaita, Guadalcanal, and the South Georgia group having relatively high population densities. Since an estimated 60% of the people live in localities with fewer than 100 inhabitants and more than 80% in localities with fewer than 200 (Honiara, the main town, has about 18,000 inhabitants), the provision of improved services of any kind to such a large number of small units is both difficult and costly even in those areas where overall population densities are high.
- 2.10 The population is increasing at about 3.4% per year. Projections of the population in 1991 and 2001 are given in the 1981 Statistical Yearbook. Figures calculated on the basis of varying assumptions concerning birth and mortality rates show that agriculture will need to support about an additional 150,000 persons by 1991 and a further 146,000 by 2001, that is, the population is projected to double in less than 20 years. While the average density would still be low, such an increase would place severe pressure on land in a number of the main food producing areas. Under the present systems of land tenure, the movement of people from the dense to the sparsely populated areas is severely restricted, thus preventing the natural response to seek new areas when pressure on existing land becomes severe.

System of Government

- 2.11 The parliamentary system of government at the national level has been modified substantially since independence in 1978 to give more responsibility and authority to the provincial administrations. The Provincial Government Act of 1981 (Annex 2) confirmed the establishment of seven Provincial Assemblies (Western, Isabel, Central, Guadalcanal, Malaita, Makira, and Temotu); these assemblies are elected by general franchise. For each province there is a provincial executive headed by a premier elected by secret ballot by the elected members of the Provincial Assembly. The other members of the provincial executive are appointed by the provincial minister (vide infra) on the recommendation of the premier.
- 2.12 At national level, the Minister for Home Affairs and National Development is also in charge of provincial affairs through five provincial ministers, each of whom has a permanent secretary (see Annex 3). They are all based in Honiara.

(1) Solomon Islands. 1981. Statistical Year Book. Bulletin 32/81

- 2.13 It is projected that the transfer of functions from the national government will be made through devolution orders on specific items for specific provinces. The wide range of subjects for which responsibility may be transferred is reproduced in Annex 3. It appears that once responsibility for a subject has been transferred, the central government will have little, if any, control over the future development in that subject. This is particularly important in agriculture since, by passing responsibility for agricultural development to the provinces, the central government may be unable to promote the developments on which its revenue and the country's foreign exchange earnings depend. No devolution orders have yet been issued, so there may still be time to reconsider how the objectives of both central and provincial governments can best be met.
- 2.14 Those services and functions which depend on skilled and highly trained technical staff, with adequate support from headquarters for their efficient implementation, are of serious concern within the context of this project. The country is itself small and can afford only relatively modest numbers of people in research and extension. These people need to be well trained and to have career prospects within a framework which encourages continuous upgrading of their skills. To fragment such a service by making the provinces responsible for extension (which is professionally as demanding as research) would not seem to be in the best interests of the country, provinces, or farmers. It has been accepted that the research service should remain under central government control.
- 2.15 Of equal concern is the integrity of budgets provided for specific purposes by the national government to a provincial executive over which it appears to have relative weak control and few reserve powers. The weakness of these reserve powers is also reflected in the difficulty being experienced by the national government in the acquisition of land for national institutions, since all land, except that in Honiara, is in effect under the control of provincial executives. Since land acquisition and ownership is a highly emotive subject in the Solomon Islands, serious difficulties are to be anticipated in the acquisition of sites for any buildings which may be proposed in this project where Government does not directly own the land.
- 2.16 Decentralization has posed severe problems in several additional areas. First, there is a lack of trained administrative staff to take over provincial responsibilities; second, there is a lack of effective procedures to coordinate central and provincial policies, and third, the provinces have so far had no independent sources of revenue to implement purely provincial policies. The situation is fluid and evolving; it is hoped that the proposed project may help towards the resolution of some of these difficulties, which are well recognized by the government officers but for which as yet no clear solutions have been proposed.

Land Tenure

- 2.17 The existence of ample unused land suitable for agricultural production is indicated in the Land Resources Survey published in 1976. The survey identified 54 areas totalling about 338,000 ha -- much of which is unused -- which have significant potential for cash cropping.
- 2.18 The amounts of land held under the two different forms of land tenure are shown in Annex 4. Given that the only land readily available for the expansion of managed (private or commercial) plantation agriculture is alienated land under government or private (Solomon Islanders) control, the total is about 300,000 ha, of which only a part is suitable for agricultural development.
- 2.19 Communal development activities on customary land would, if expanded, give access to much larger areas for the production of cash crops, but developments in this direction seem likely to be slow.
- 2.20 The subsistence food requirements (except rice) can be met from production on customary land, but to do so without the use of expensive purchased inputs (mainly fertilizer) would require a change in community attitudes to land use and to the movement of people from one area to another. In many parts of the Solomon Islands, areas suitable for agricultural development are relatively short of labor while, at the same time, opportunities for employment in the agricultural sector are not evenly distributed throughout the country. This implies that, for balanced development, movement of people from deficient areas to areas of opportunity will be required. So that for increases in output to take place from the both plantation and subsistence sectors, new attitudes to land and to labor movement need to be developed as it becomes more urgent from a national viewpoint to ensure fuller use of the country's land resources. The present general unwillingness either to move to other areas or to permit the settlement of 'alien' groups on hereditary but unsettled land will need to change perhaps by the greater acceptance of the concept of "the right of use" as opposed to "ownership". At the same time the new forms of communal land management, in which staff of the Land Use and Development Section of the Agriculture Division are heavily involved, need to be fully developed to enable users of customary land to take advantage of those modern agricultural techniques that can raise their output and incomes.

The Agriculture Sector

- 2.21 There are two main production systems in the Solomon Islands, the large scale joint venture commercial activities (rice, copra, palm oil, timber, and fish) and the smallholder sector, which is subsistence oriented and derives most of its cash income from the sale of copra. The communal farming sector, which is developing slowly but unevenly under the stimulus of government encouragement and technical support from the Land Use and Development Section of the Division of Agriculture, represents a potential third large production system. Since production from these communal estates

will become increasingly important to the central government as a source of foreign exchange, the activities of the Land Use and Development Section are of critical importance.

- 2.22 The economy of the Solomon Islands has developed steadily during the past 10 years but the rapid increase in population during that period (3.4% per year) has limited the improvement in per capita incomes to only 4.3% annually for the period 1970-81 (1) (Table 1); the rise in incomes began, however, from 1975 onwards, so that for the period 1975-80 the annual rate of increase was almost 8.0% .

Table 1: Growth in Incomes, 1970-80

Year	Gross Domestic Product at Current Market Prices (SI\$ million)	Consumer Price Index	Real Incomes at Market Prices (SI\$ million)	Population ('000)	Real per Capita Incomes (SI\$)
1970	28.6	100.0	28.6	163.1	175
1971	30.5	104.3	29.3	168.2	174
1972	31.6	111.6	28.4	173.5	163
1973	35.6	115.1	31.0	178.9	173
1974	50.9	136.8	37.2	184.4	202
1975	49.4	150.6	32.8	190.2	173
1976	59.0	157.1	37.5	199.9	188
1977	69.5	170.3	40.8	206.0	198
1978	84.7	181.2	46.7	214.0	218
1979	112.7	206.1	54.7	221.3	247
1980	119.1	232.1	51.3	228.8	224
1981	141.6	269.9	52.5	236.6	222

The country's growth has been based on its varied and plentiful natural resources, which are now beginning to be developed effectively . While production of agricultural, forestry, and fishery products for export has provided the momentum for growth, food production for domestic consumption has also accounted for a significant proportion of increased output.

The major fluctuations in 1979 and 1980 demonstrate the dependence of the country's growth performance on external factors.

- 2.23 The sustained growth and the increasing diversity of exports are significant developments. Exports as a proportion of the GDP grew

(1) The Solomon Islands Statistical Yearbook 1981

from 21% in 1960 to 29% in 1971 and to 51% in 1980⁽¹⁾, but with a sharp fall in 1981 because of the weakness of world commodity prices. Whereas copra accounted for about 90% of exports in 1960-65, it was surpassed by fish products and timber at 38.7% and 28.3% respectively in 1981, when the contribution of copra was 14.2%, followed closely by a rapidly rising palm oil contribution which reached 13.9% in that year (Table 2). Since the smallholder sector sells only one of these items (copra), it has not been benefitted (except in 1978-9) to the same extent as the national economy as a whole from the rise in the total receipts from exports.

Table 2: Growth and Structure of Exports, 1960-81

(Percentages)

	1960	1965	1971	1973	1976	1978	1979	1981
Copra	87.2	93.3	43.2	31.9	18.9	26.2	16.6	14.2
Fish	-	-	14.0	18.3	38.6	25.4	38.5	38.7
Timber	3.3	4.1	37.1	43.1	32.5	24.9	26.5	28.3
Palm products	-	-	-	-	(6.2)	(5.1)	11.7	13.9
Cocoa beans	-	0.4	0.5	0.6	1.0	2.0	1.1	1.6
Rice	-	-	0.7	2.7	2.5	1.6
Others	9.5	2.2	4.5	6.1	2.7	1.9	3.1	1.8
Total	<u>100.0</u>							
Total Domestic Exports (SI\$ million)	3.59	4.76	8.85	8.83	19.24	30.1	60.2	56.8
Domestic Exports as % of GDP	20.7	22.1	28.9	24.8	24.0	37.4	51.3	40.1

2.24 There are major provincial variations in cash incomes of rural households. The wide gap in the development of the cash economy between the Western Province (the richest) and Malaita (the poorest) was evident in 1974⁽²⁾ (Table 3), average cash income per household in the Western Province was nearly four times that in Malaita. That Malaita is the most populous province and the Western Province the next most populous gives added significance to their differences in cash income.

(1) The Solomon Islands Statistical Yearbook. 1981 and earlier years.

(2) Agricultural Statistics Survey 1974-75. Published February 1978.

Table 3: Provincial Variations in Cash Income of Rural Households - 1974

	(SI\$)				
	Central	Eastern	Malaita	Western	Solomon Islands
Average income from employment per household	92.85	84.27	61.91	121.91	86.92
Average income from cash crops per household	73.40	32.16	13.99	165.27	66.76
Average cash income per household	166.25	116.23	75.90	287.18	153.68
	----- (Percentage of Total Households) -----				
Households reporting cash income	85.4	94.8	75.0	99.0	85.8
Households growing coconuts	58.4	84.7	54.0	82.0	65.2

The differences in the opportunities for earning cash can be largely explained by the variations in the land availability per household for cash crop production and the distribution of foreign investments in plantation agriculture. Copra continues to be the major source of income of rural households from cash crops, although the importance of smallholder cocoa, cattle, food crops, and spices is increasing. Plantation agriculture, fishing and forestry have been concentrated in three provinces: Western (timber and fish), Guadalcanal (copra, timber, palm oil, and rice) and Central (copra and fish). Favorable land/population ratios, as well as the importance of employment generation in estate agriculture, make the Western, Guadalcanal and Central Provinces the most commercialized parts of the country. Santa Isabel, with the lowest population density and the highest proportion of households engaged in coconut growing, follows closely. In the relative development of the cash economy, Makira/Ulawa and the Eastern Province fall between Santa Isabel and Malaita. Malaita has the lowest ratio of household participation in coconuts, reflecting incipient population pressure in the country's most densely populated province.

Subsistence Agriculture

- 2.25 Subsistence food production, in which about 90% of households are engaged, consists mainly of root crops with some vegetables. These foods are the staple diet, and production is based on a system of shifting cultivation. The system is satisfactory provided that an adequate recovery period is allowed between successive cropping periods; it does not require the use of purchased inputs to maintain

productivity. In some areas population pressure has caused a reduction in the length of the recovery period and, if additional inputs are not used, this will lead to a progressive decline in productivity and soil degradation. This potential destruction of agricultural land can be avoided by either dispersing the population to other areas or by increasing productivity per unit area by the use of fertilizers and other fertility improving materials. While there is considerable scope for increasing yields of traditional crops by the use of improved varieties and fertilizers, it should be remembered that no satisfactory system of permanent arable (non-tree crop) cultivation has yet been devised for high rainfall areas (2000 mm per annum) anywhere in the world. If, in addition to maintaining self-sufficiency in staple foodstuffs, the smallholder sector is to be encouraged to produce marketable surpluses to increase cash incomes, a substantial research and extension effort will be needed to devise acceptable resource protecting systems.

Commercial Agriculture

- 2.26 The main components of the commercial sector are fish and fish products, timber, copra, palm oil and kernels, rice, beef and small but increasing quantities of cocoa beans. With the exception of beef and rice, all these products are exported. There are some imports of rice to augment locally produced supplies.
- 2.27 Although fisheries and forestry are not included as main subjects in the project under consideration, the substantial contribution which fish products and timber make to export earnings should be recognized so as to place the earnings from plantation crops in perspective. While it would appear that the fishery resources are substantial and output could be increased, there seems to be some doubt as to long term market demand for increased quantities of skipjack tuna, which is the main product. Some increase in local consumption may be anticipated as the population increases. Timber exports have increased steadily, and there is a substantial program to expand production to the sustainable annual yield; a sizeable replanting program is in progress. The ability of the country to sustain timber exports will depend to a large extent on satisfactory agreements being reached between the logging companies, the government, and the customary land owners. As extraction intensifies, land disputes may be expected to increase and present problems to the government in its effort to expand export earnings to pay for planned developments.
- 2.28 Coconuts: copra has been the main crop export for many years and the volume has been maintained at around 25,000 tons per year without showing marked trends during the past 20 years, except during the period of exceptionally high prices in 1978-79(1). Generally the output from plantations does not fluctuate markedly in response to short term changes in market prices, but there is evidence that the smallholder sector, which accounts for about two-thirds of copra production, reacts quickly and positively to short term changes in price. Production rises sharply with increasing prices and declines

(1) Solomon Islands. Statistical Yearbook 1981. Table 6.8, p 77.

just as quickly when prices fall. Thus in the subsistence sector there is a strong value system, even if the whole of the economy of the sector is not monetized in the normal sense. The government has encouraged the expansion of the crop by the provision of subsidies (up to 1978) and about 13,000 ha were planted or replanted, the likely contribution of these areas to exports in the 1980s is difficult to assess. While the extra production which may be expected from the estates sector can be predicted with reasonable confidence, that from the smallholder sector (including communal projects) cannot. The rapid increase in output from the smallholder sector when prices of copra are high strongly suggests that at average price levels an appreciable part of the crop produced is not harvested. There are already disturbing reports that, following the suspension of the subsidy scheme in 1978, the rate of replanting has declined sharply and the use of fertilizers on the areas planted earlier has stopped. This raises the question of how the contribution of the smallholder sector to copra exports can best be maintained or increased; to this there appears to be no simple answer which in itself indicates a need for critical research in this area.

- 2.29 As part of its efforts to promote the large scale development of agriculture through joint venture arrangements with foreign participants, the Government has recently entered into an agreement with Levers Plantations Ltd., the largest single producer of copra and cocoa in the Solomon Islands, to expand its operations. Under the agreement, the company, which has extensive unused land, is expected to plant and replant some 5,680 ha of coconuts with high-yielding hybrid varieties and to plant 1,200 ha of cocoa over the next 10 years. The government's funding will enable it to acquire 40% ownership of the company and to finance the required working capital.
- 2.30 The Copra Board, established in 1953, is charged with the responsibility for regulating and controlling the marketing and export of copra in order to assist the development of the coconut and copra industry and to benefit copra producers. The board is empowered, among other things, to be the sole buyer and exporter of copra and to control and fix prices paid to producers for their copra. The board is required to purchase all locally produced copra which has been graded as suitable for export by inspectors. The Copra Board has moderated fluctuations in producer prices, while avoiding excessive operating surpluses or deficits. Copra production has generally responded positively and substantially in the smallholder sector only to the significant price changes offered by the Board during the 1970's. The Government has indicated recently that the responsibilities and functions of the Copra Board should be reviewed to make it more responsive to national needs and possibly to develop it into a commodities board.
- 2.31 The Solomon Islands Coconut Industry Workshop⁽¹⁾, held in December 1981, discussed a wide range of issues concerning the future development of the industry. A significant finding was that "A

(1) The Solomon Islands Coconut Industry Workshop, Tambea. Proceedings in 2 Vols. Honiara Jan. 1982.

development strategy for the coconut industry must recognize that different types of producers have different objectives and hence react to different incentives. It is recommended that efforts be made to identify clearly these objectives and the constraints under which producers operate." To this might be added that producer objectives and government objectives might not always coincide. It may be presumed that the government would wish to generate increased revenue from exports, but most smallholders would be interested in the coconut for food and to sell for cash in competition with other crops and livestock. An alternative strategy not discussed at the workshop might be to develop the export component mainly on a plantation basis (private or communal) in competition with other crops such as oil palm and to consider different ways, including coconut production, in which the cash needs of the smallholders could be met. The lack of information as to how best to proceed is indicative of the need for intensive research on producer motivation as well as on the more usual technical aspects of production.

- 2.32 Oil Palm: As a result of successful trial plantings conducted during 1965-70, the Commonwealth Development Corporation (CDC) set up the Solomon Islands Plantations Limited (SIPL) in 1971 to be jointly owned by CDC, government and local landowners to develop an oil palm plantation on Guadalcanal. Production began in 1976 and, by 1980, had risen to 13,800 tons of oil and 2,300 tons of kernels from 3,335 ha; palm products became one of the four major exports. Some expansion is possible at the present plantation, but a larger opportunity exists on government land on Kolombangara following the completion of timber extraction. Successful participation by smallholders in oil palm production may best be achieved through a nucleus estate arrangement under which the plantation would provide technical advice on cultivation practices and facilities for the processing and marketing of palm oil and kernels. Since SIPL is willing to assume the role of a nucleus estate, the government has envisaged the development of 1,250 ha in this way, but local farmers have so far not shown interest in growing the crop although Malaitans would develop the land if they were allowed to.
- 2.33 Rice: Brewers Solomon Associates Ltd. (BSAL), until recently jointly owned by a U.S. company and the government, but now wholly owned by the government while retaining an external management component, is the sole producer of rice. The crop is fully mechanized and uses the 'rice garden' technique whereby a proportion of the total area is sown every two weeks. By using short duration (115 days) varieties an average of 2.7 to 2.8 crops are grown each year. The original plan was to develop about 2,000 ha under full water control (drainage and irrigation) and to produce about 11,000 tons of rice per annum. The problems of rice growing in the humid tropics and of any mechanized operation of the scale envisaged were not taken fully into account when the project was designed, and serious losses have been sustained. Recently, however, the area under cultivation has been reduced to 1,000 ha, management has been tightened up, varieties resistant to brown plant hopper have been introduced (in cooperation with the International Rice Research Institute), and prospects seem favorable for the economic production of enough rice to meet 90% of national requirements. After a period of consolidation there seems to be no reason why national self-sufficiency cannot be maintained by gradually increasing the

area under cultivation to meet the demand from a rapidly increasing population. The cost of production, however, seems likely to remain above the landed cost of rice produced in Australia, primarily because of the difficulties of growing rice in a relatively unfavorable environment.

- 2.34 Cocoa: A development scheme introduced in 1958 led to widespread plantings, but inadequate attention was paid to varietal suitability, choice of soils, processing, and marketing of the produce. Interest has been revived and the earlier problems have been largely overcome. Production was estimated at about 350 tons in 1980 (128 tons in 1970) and increases in production can be expected to continue as new plantings come into bearing. Plantations, of which Levers Plantations Ltd. is the largest and is expanding production, account for about 65% of total production. The successful production of Amelanado cocoa as in intercrop in tall coconuts has been demonstrated, and plantings are increasing. To encourage the expansion of production and the use of improved materials and methods, the government has been providing subsidies for new plantings and the construction of processing facilities. There are plans for planting about 800 ha on communal farms involving smallholders and for feasibility studies for other large-scale projects of about 2,000 ha. Although the disease control measures needed to ensure good levels of production are sometimes of critical importance, cocoa could prove to be an attractive cash crop for smallholders in selected areas where climatic constraints are not too severe and especially where communal processing facilities could be provided.
- 2.35 Cattle: Before about 1970 cattle were kept mostly on coconut plantations to control weeds and other undergrowth in coconut areas. Since then, interest in the raising of cattle, especially by smallholders, has been increasing as a result of government efforts to promote self-sufficiency in beef and to enable farmers to diversify production and increase their incomes. Measures taken to increase the national herd during 1971-74 included the importation of cattle for distribution and the development of pastures⁽¹⁾. Subsidies and credit were also made available to farmers for cattle purchases and pasture establishment. The development program for cattle has been expanded considerably in recent years. In addition to the continued implementation of the above measures, holding grounds for cattle and a central processing complex in Honiara, involving a slaughterhouse with chilling and cooling facilities, have been established, and the extension services and training facilities have been strengthened. Under the Bank-assisted project and bilateral assistance through the United Kingdom, Australia and New Zealand, the government aims to increase the national herd to 50,000 head with sufficient animals available for slaughter to meet domestic needs. Smallholder production through the development of cattle grazing in forest lands in the reafforestation program is being encouraged. These policies have already resulted in a substantial increase in the national herd from about 8,800 animals in 1967 to 25,000 in 1978, after which there was a decline to about

(1) Asian Development Bank - Beef Cattle Development Project in Solomon Islands, December 1976.

22,000 in 1980. The beef produced has eliminated the need to import frozen beef. The major part of the increase has been accounted for by smallholders, who increased their share of the national herd from about 8% to a maximum of 39% in 1977, with a subsequent fall to around 29% in 1980. A recent review of the cattle industry has proposed that all production activities should be vested in the Cattle Development Authority, leaving only regulatory, control and research functions within the Agriculture Division. Attention was also drawn to the relatively modest contribution made by livestock to the cash incomes of smallholders, compared with the income derived from pigs and poultry.

- 2.36 Other Livestock: Although most rural households raise some pigs, they are mainly for feasts and other social commitments. Production of pigs and poultry has been insufficient to meet domestic consumer demand, and there has been continuing reliance on imports to satisfy this demand. The lack of locally produced animal feed required for the production of pigs and poultry has discouraged any significant expansion, since the cost of imported feeds is high. There appears to have been little effort so far to produce animal feeds locally, although there are a number of reasonable possibilities for doing so.

Development Policy and Plans

- 2.37 The overall policy of the government was set out in general terms in the short paper, National Economic Development Policy, published in December 1981. This states "the emphasis in national economic development will be to channel resources into investment for economic growth and future incomes with particular emphasis on production, diversification of crops, markets and products and increased local industries and manufacturing." Thus, particular emphasis will be on:

- increased production.
- improved productivity and reduced waste
- agricultural and market diversification
- greater participation of Solomon Islanders in development
- development of new centers of economic activity
- import substituting in food
- increased domestic processing and manufacturing for exports.

Special attention will be given to the full and efficient utilization of the country's human and natural resources -- land, forestry, fisheries, minerals and agriculture including livestock. Increased investment is urgently required in agriculture, livestock -- particularly poultry, piggery, forestry including agro-forestry, fisheries including non-tuna fisheries, prawn culture, lobsters, mining and mineral processing and manufacturing industries. In all these sectors government recognises the need for foreign capital, know how, technology, access to markets alongside and in partnership with the Solomon Island manpower, capital, and resources. Foreign investment on a long term basis for a fair reward will be strongly encouraged.

The optimum utilization of Solomon Islands manpower resources must be ensured through the choice of appropriate technology, a high degree of participation in management, and specific training schemes in all enterprises aimed at optimizing productivity and progressive Solomonization.

The Government of Solomon Islands is interested in taking due care of the use of natural resources through careful planning and regulation, avoiding over-exploitation, and ensuring that the long term interests of the Solomon Islanders and genuine investors are protected.

The government strongly favors the operation of an open, liberalized, competitive free-market economy with minimum government intervention, restrictions, subsidies, and controls. Government intervention will be to ensure that commercial development takes place as rapidly as possible and along the guidelines of national development aims stated here. Specifically, the government will take appropriate legal and administrative steps to achieve the objectives set out in this document.

- 2.38 In the agricultural sector there are two main production objectives:
- maintenance of self-sufficiency in basic foodstuffs, together with diversification of cropping to improve the nutritional balance of the diet and to reduce food imports;
 - increased export earnings from traditional and new products to provide the base for further economic development of the country as a whole.

The means by which these objectives may be approached are set out in the Programme of Action 1981-84⁽¹⁾, published by the government in November 1981 (extracts are given in Annex 5). This paper does not, however, include much detail as to how the general policies may be put into effect. A more detailed Development Plan for the period 1981-85 had been prepared in draft for the previous administration and, as stated in the Plan of Action of the present government, the technical background is valid and may be used, even though the plan itself was not accepted and was not published. It is important that clear operational guidelines should be derived since the scale and nature of the agricultural support services which will be needed depends on the relative emphasis given to the smallholder, communal, and estates sectors.

- 2.39 It would seem that the policy of the government is to promote a balance among these sectors in order to derive the maximum benefit for the country and the people. The main operational question is how to increase the surplus (above subsistence needs) in the smallholder and communal sectors, since it is only this surplus -- whether of produce or of labor -- which contributes to national wealth creation. In the estates sector, the main question is how to expand the cultivated area rapidly enough to generate the level of exports needed to maintain the present level of services to a rapidly increasing population and to finance the government's development plans.
- 2.40 Those parts of the draft Development Plan which remain relevant to the government's Plan of Action and longer term plans are considered in more detail in the appropriate annexes to this report.

(1) Programme of Action 1981-84. Government of the Solomon Islands, November 1981.

Agricultural research, extension, and support services

2.41 Prior to the reorganization effected by the present government, responsibility for agriculture was in a full ministry. The expressed intention of the government is for the main responsibility for agricultural development to be exercised by the respective Provincial Assemblies so that for the present, the national responsibility for agriculture rests in the Agriculture Division of the Ministry of Home Affairs and National Development. The Division of Agriculture in this ministry is headed by an undersecretary who reports through the permanent secretary (national development) to the minister. There is provision for a permanent secretary (home affairs) but the post was vacant in September 1982 at the time the team was in the field. The permanent secretary (ND) has a range of responsibilities in addition to agriculture to which he can devote less than one half of his time. The undersecretary has full charge of the division, which is divided into three main sections, Research, Extension, and Veterinary and Livestock, each of which has a chief officer in charge. The chief field officer (extension) has responsibility for all seconded staff in the provinces and is assisted in this by a principal field officer (post vacant). In addition he has responsibility for the Land Use Development, Quarantine, and Education and Training Sections.

2.42 There are thus four main support services within this division:

- research
- extension and training
- quarantine
- land use development

It should be noted that there is a Ministry of Land, Energy and Natural Resources, which has responsibility for land use policy, surveys, and forestry among others. A number of statutory authorities, which have responsibilities for the promotion of agricultural development, also provide services of various kinds. The main authorities are the Cattle Development Authority (CDA), the Development Bank of the Solomon Islands (DBSI), the Copra Board, and some cooperatives. Staff of Levers Solomons Ltd. (LSL) and of Solomon Islands Plantations Ltd. (SIPL) provide support as required on coconuts and oil palm respectively, but on an informal basis.

2.43 Research: Until recently agricultural research activities of the Agriculture Division have been centered on Dala research station on Malaita (now closed) and Dodo Creek research station on Guadalcanal. The main estates -- LSL (coconuts), SIPL (oil palm), and Brewers Solomon Associates Ltd. (rice) -- have made substantial research contributions on individual crops. Research has of necessity been confined to few sites and few crops, of which yam, taro, and sweet potato of the foodcrops and coconuts and cocoa of the trecrops have received most attention. Recent research on pasture development has been undertaken largely in the CDA. The total complement of staff in the research section is 28, but the number of fully trained research officers (variable 7 to 10) is small and most are expatriates. The research section budget in 1981 was about SI\$0.5m, almost equally divided between capital and recurrent expenditure, but a substantial part of the capital equipment and expatriate staff salary costs have been met from technical cooperation funding.

2.44 Despite its small size and the constraints imposed by shortage of funds and the paucity of experimental sites, the research section has recorded several major achievements:

- introduction of coconut hybrids of higher yield potential than varieties previously available (joint work with LSI);
- identification of suitable varieties, soils, and agronomic practices to provide a firm basis for the cocoa industry;
- selection and development of high yielding, disease resistant varieties of sweet potato and yams, with consequential reduction in the severity of pest and disease problems on root crops;
- the selection of acceptable varieties of other crops (chillies and turmeric) with potential to assist in the efforts in crop diversification;
- development of pastures and evaluation of their fertilizer requirements and productivity in different parts of the country; and
- progress towards the control of Amblyopelta on coconuts and Nilaparvata on rice by using biological rather than chemical methods.

2.45 It is recognized, however, that there is a need for adaptive trials in different parts of the country under a range of environmental conditions and a start has been made on the establishment of controlled sites (sub-stations) in several provinces at which these trials can be done. It is accepted that, within the staffing levels realistically possible in the Solomon Islands, these small sub-stations should not be regarded as provincial research stations. The small size of the clientele in any one province and for results of a specific crop render this unrealistic on economic grounds. The need for research support is known, the question is how it can be provided within the resources that can be made available. Testing sites have been established in East Fataleka (Malaita), Tenaru (Guadalcanal), are under consideration at Dala (Malaita) and on Santa Cruz (Eastern Islands) and suggested for Gizo Island (Western Province).

2.46 Although there is ample evidence from many countries of high returns to investment in agricultural research, it is often seen as costly and time-consuming. The research section has recognized that:

- research should relate directly to problems of major economic or social importance;
- the results of research should be adapted to the actual farming situation and be applicable within the constraints of that situation;
- there should be a market for any increased output which results from the application of new technology or the opening of new areas of production.

It has developed a research program to expand on the general policies, in the technical sense, so that development programs may be expedited. There seems, however, to be a need for some additional consideration on how far studies of the farm situation may lead to a clearer definition of problems and opportunities.

This would involve farmers, extensionists, and research workers and might help to develop multi-disciplinary activities in research to augment the mono-disciplinary work already in progress.

- 2.47 There are valuable links with international and regional research projects, but these cannot replace national research efforts. With effective communications, however, the existence of these external research organizations and of the results which they produce can markedly influence the nature of the research work needed in any individual country and hence the type of persons most needed within the research system. This point is discussed in detail in paragraphs 3.09 and 3.10.
- 2.48 There are several readily identifiable constraints to the development of an effective and economical research service. Perhaps the most important is that, until recently, there has been no clearly defined agricultural development policy from which an agreed research policy and program could be derived and support for its implementation could be sought. It is recognized that there are difficulties with respect to domestic and donor funding, to the recruitment, training, and retention of qualified local staff, and to ensuring continuity of employment of expatriate staff. Furthermore, the restricted number of locations at which research has been possible has weakened, to some extent, the case that can be made for the use of these research results in the country as a whole. The purpose of this project is to address these and other problems.
- 2.49 Extension and Training: The essential role of extension services as the link between farmers and the range of support services needed to speed up agricultural development is particularly important when farmers are taking up new crops and new activities. As a result of the increasing interest in cash crops and in livestock, the demands from smallholders for technical and managerial advice are increasing, and extension workers are also being called upon to assist in the administration of subsidies and other development schemes and to help the DBSI in the provision of loans to farmers.
- 2.50 The current ratio of extension staff to rural householders is about 1 to 250. Superficially this is a favorable ratio compared with many developing countries. However, not all the staff are properly trained to meet the demands on them, and the rural population is so scattered that full and effective coverage is not possible. At present there are about 70 field assistants and 70 extension assistants. Most of the field assistants have been trained in overseas institutions and have received a certificate, a diploma, or a degree. The extension assistants, however, have received only primary school education or minimal secondary education, and their extension knowledge has been provided through in-service training. Because of the need to spread their efforts over a broad range of activities, their knowledge of each particular aspect is shallow. To help to improve the position a new cadre of "demonstrators" is being developed; these staff have completed five years of secondary education and are being given specific training in one agricultural discipline.
- 2.51 The transfer of control of the extension service to the provinces has also created new demands and complicated the training and

movement of staff. Staff of the Agriculture Division must be sufficiently numerous and of adequate experience to be able to undertake a coordinating role and to supply provincial extension services with the back-up needed for these to function effectively. When fully trained senior staff are not available, the effectiveness of subordinate staff is considerably reduced.

- 2.52 For the extension staff to be able to respond to the many different types of requests which they receive, it is clear that they need good information support services and means by which their knowledge can be broadened and brought up-to-date. The post of information officer in the then-Ministry of Agriculture was abolished some years ago, and formal in-service training facilities have not been developed. Proposals have been made, however, for the setting-up of an agricultural information service and a national agricultural training center. This center would provide both pre-service and in-service training for extension staff and practical and other training for certain groups of farmers. The four existing farmer training centers in the provinces (at Dala, Kaonasughu, Mbarakoma and Dolo) would also be used for some aspects of training and marketing programs.
- 2.53 Quarantine: At present this section also covers plant protection advice to farmers and produce inspection (quality); these would not normally be included in a quarantine unit. The country is fortunate in being free from many of the pests and diseases which are endemic in some of the other countries of the South Pacific. Quarantine staff have the responsibility for maintaining this situation through the standard precautionary measures which are becoming more difficult to enforce because of the dispersed nature of the Solomon Islands, the increase in import and export ports, and the increased flow of people and goods from other countries into the Solomon Islands. Apart from the protection of the Solomon Islands from unwanted introductions, there is the wider and often difficult question of how to import safely plant material, animals or potentially beneficial insects for the benefit of the country. The research service has been fully involved in work with the quarantine unit, particularly in the introduction of insects both to control pests and for other beneficial purposes -- of which the pollination of oil palms is the latest example. The movement of plant materials in connection with breeding programs, whether between islands in the country or from outside countries, is a major problem area. To do this safely for vegetatively propagated crops (especially) is difficult and requires specific pre-entry and post-entry facilities. It seems probable that some aspects of this problem could be handled by existing national and international facilities.
- 2.54 Land Use Development: The main work of this section is in support of the development of communal farms. The land tenure system is outlined in paragraphs 2.17 to 2.20, and development of cooperative farming enterprises on communal lands is indicated as a major opportunity for increasing output by bringing estates practices and the benefits of scale to the smallholder sector. An outline of the methods used so far has been described recently⁽¹⁾, and there is evidence of the success of the approach. Two groups, Guguha on

(1) Alafua Agric. Bull. 1981 Vol 6. No. 4 pp. 14-18.

Holokana Plantation, Santa Ysabel, and Tiaro-Savulei on Variana Plantation, Guadalcanal, have either paid off their loans or have enough money to do so. Others have had successful years and are progressing satisfactorily towards repayment of their loans. Although some are barely maintaining viability, there have been no failures so far out of the 29 communal farms that are being developed. The continued success of this pioneering approach depends on the determination and will of the members to be part of a profitable plantation industry and on the extension and other support services to ensure that they have the means to continue profitable production. The situation is complicated in some areas where the desire to repossess ancestral lands is greater than the desire to bring them into full production.

- 2.55 Credit, input supplies: The establishment of the Development Bank of the Solomon Islands (DBSI) (1) in 1978 has already greatly improved the availability of development finance for all sectors, including agriculture. The further expansion in its operations envisaged by the DBSI over the next few years will require substantial injections of capital. Also, the DBSI would require strengthening of its technical staff to prepare and appraise loan applications from farmers and fishermen to cope with anticipated demands.
- 2.56 Increased agricultural production will be possible only if necessary inputs such as improved planting materials and fertilizers are supplied to farmers. In addition, these inputs can only generate an income if transport and marketing facilities exist for getting the finished product to a point at which it can be sold. The dispersed nature of the islands and of settlement within the islands, together with the limited capacity of the nation's economy at its present stage of development, make it impossible to provide all areas with such facilities at the present time and poses a constraint to greater agricultural activity.
- 2.57 The cooperative system has played an important role in the marketing, commercial and business activities of Solomon Islanders. Established in 1957, the system is a two-tier structure which in 1977 comprised 192 primary societies with about 16,000 members and 5 secondary societies. Although most rural societies are engaged in the marketing of smallholder produce, the bulk of the business involves the retailing of household goods. Aside from the lack of experienced operators, the further development of cooperatives has been constrained by inadequate rural infrastructure (roads and wharves) and the poor recovery of credit sales.
- 2.58 Together with the development of rural cooperatives, efforts were made to establish Rural Trading and Marketing Centres (RTMC's) to expand marketing services in the rural areas. A program for the establishment of 20-30 RTMCs was initiated in 1976, with financial assistance from the Ministry of Trade in the form of grants for the

(1) The ADB's technical assistance to DBSI includes: Agricultural and Industrial Loans Board - May 1974 and March 1976 and Development Bank of the Solomon Islands, April 1979. And loans to DBSI, April 1979 and December 1980.

construction of physical facilities, such as storage sheds and copra driers, and interest-free loans for working capital. There were many constraints which hampered the development of these centers and they have now ceased to function. Unfortunately, the constraints remain: these include a lack of trained and experienced personnel, local disputes regarding the ownership of land for these centers, inadequate rural infrastructure, and unreliable coastal and inter-island shipping. The constraints could seriously affect the implementation of some of the components in the current project proposal.

Finance and Funding

- 2.59 Expenditure on agriculture: Estimates of recurrent expenditure from Government funds on agriculture and the allocations for research and for extension and training are given in tables in the text. These amounts do not cover all expenditures on these subjects, since substantial amounts of assistance in the form of staff costs, capital equipment and some funding of recurrent costs have been received from several external sources.

Estimates of recurrent expenditure on agriculture from government funds (SI\$000)

	1978	1979	1980	1981
Emoluments established staff	626	689	800	866
Wages non-established staff	181	183	198	243
Travel, transport, hire of vehicles	126	162	232	245
Other recurrent expenditure	423	373	408	325
Total gross recurrent expenditure	1,356	1,407	1,638	1,679
Recurrent revenue (mainly sales and rents)	207	322	310	455
Total net recurrent expenditure	1,149	1,085	1,328	1,224 (a)
Overall gov't recurrent expenditure	17,181	22,225	27,348	34,667

- (a) The estimated GDP for the smallholder sector was about SI\$51.0 million in 1981. Data were collected for the IMF review shortly to be published.

Source: Government of Solomon Islands Annual Accounts

Budget allocation for recurrent expenditure on
Agricultural Research (SI\$000)

	1981	1982	1983
Salaries established staff	120.0	135.0	152.0
Wages non-established staff	64.0	50.0	60.0
Travel	13.4	13.4	18.4
Field expenses	12.0	12.0	11.3
Laboratory supplies	7.0	7.0	9.0
Vehicle hire from PWD	69.0	60.8	47.4
Losses on cocoa production	10.5	15.0	15.5
Other recurrent expenditure	<u>3.0</u>	<u>3.0</u>	<u>5.9</u>
Total	298.9	296.2	319.5

Budget allocation for recurrent expenditure on
Extension and Training (SI\$000)

	1979	1980	1981
Salaries established staff central govt.	n.a.	n.a.	365.0
Wages non-established staff	27.0	30.0	31.0
Travel	7.8	21.0	21.0
Vehicle hire from PWD	5.2	1.0	1.2
Other recurrent expenditure	<u>12.4</u>	<u>11.9</u>	<u>11.0</u>
Total			<u>429.2</u>

The net recurrent costs were about 2.4% of the estimated GDP for the smallholder sector and about 3.0% of the total recurrent expenditure of the government. The latter figure appears to be low when the importance of the sector to the national economy is taken into account.

Educational Services

2.60 Level of literacy: The low educational development of the population is a serious constraint to development and one difficult to remove because of the rapid increase in population over the past years, which has resulted in almost a half of the population being under 15 years of age. The adult literacy rate of about 10% is very low by international standards. This has implications for the extension and communications services.

2.61 Structure: The government took over responsibility for primary education in 1974-75, but responsibility for general secondary education is shared between government (one) and various churches (five). Other secondary schools or provincial high schools have a vocational bias, but all teach English and mathematics. Only one

secondary school provides sixth form teaching, and the annual output of students is about 60. The position will be improved slightly in 1983, when a second school will establish a sixth form that will concentrate on the sciences and agriculture. At the tertiary level, the Honiara Technical Institute provides basic courses in technical and commercial subjects (120 students annually) while the Teachers College trains teachers for both primary and secondary schools. A substantial part of tertiary education takes place abroad.

While a major IBRD-financed project is in progress to improve facilities in the primary sector (including training of teachers), the secondary and tertiary sectors are as yet receiving little extra support.

- 2.62 Agricultural education: Professional posts in the Agriculture Division must be filled by qualified persons, whether in research, extension, quarantine, livestock, or others. Because of the relatively small number of these posts and of the rapidly increasing scope and complexity of the subject matter to be covered, a high level of training is needed. Regular opportunity for refresher training is highly desirable.

Most of the training at certificate and diploma levels is carried out at colleges in Papua New Guinea, after a pre-service year in the division, while graduate training is undertaken at the University of the South Pacific or further afield. Specialized training in research and in veterinary medicine relies on courses in the metropolitan universities. The essential nature of a high level of professional training cannot be over-emphasized.

- 2.63 In-service training: On-going training needs are constantly under review, and advantage is taken of suitable overseas opportunities. One major problem is that there are few local staff in senior positions in the division, a situation which can be improved only slowly, and extra in-service training of short term expatriate staff is of limited value to the Solomon Islands. For the intermediate levels of staff, continuous improvement of skills is being attempted through training courses in specific subjects. Teaching resources are, however, limited and may need to be augmented from external sources.

- 2.64 Farmer training: There are four farmer training centers, each manned by two training officers. These centers provide training for farmers in the seven provinces, either by bringing farmers to the centers or by running courses in the villages. Courses are restricted to two weeks in length to avoid undue interruption of the farmers' work. All courses are intensely practical and address specific needs, those in villages are centered on specific projects where this is possible. The training officers are supported as needed by specialist officers from the division as a whole, and the extension staff are fully involved both in choosing the farmers and in following up the training when the farmers return to their villages. Since the production of food crops is largely the responsibility of women, strenuous efforts are being made to find effective ways of helping them to learn improved techniques. Some

women are being recruited for certificate training, and it is planned that they will become actively involved in specific extension activities once they have gained adequate experience. Some 69 farmer training courses were held during 1981.

- 2.65 Projected developments: Farmer training has become the major component of the agricultural education and training program of the division. It is planned to develop more advanced forms of instruction than those which can be offered at the four existing centers. A proposal has been made for the establishment of a national agricultural training center to provide pre- and in-service training for staff and to offer courses to advanced farmers. It has been suggested that a commercially oriented farm should be developed to provide the training ground for training in practical skills. Problems of site and land acquisition will need to be resolved.

Major Constraints in National Development

- 2.66 Manpower: The single most important constraint to maintaining the present rate of development, and in addition launching a program of coordinated rural development, is likely to be a shortage of trained and experienced manpower. The public service is at present seriously short of staff, with the prospect of a worsening rather than improving situation in the next few years. The shortage is acute in the provinces, where there is an increased work load as a result of devolution. Given the shortage of experienced administrative staff, much more effective use will have to be made of the staff who are at present available in the Public Service. The private sector is also short of trained and experienced manpower and has been recruiting from the Public Service, thereby aggravating an already difficult position. Since it is becoming increasingly difficult to recruit and retain expatriates with appropriate skills, experience and attitudes, the position must be regarded as serious in the extreme.
- 2.67 Finance: The Solomon Islands Government is likely to face steep increases in recurrent expenditure financing for several reasons, which will be another constraint to rapid development:
- the population is growing at a rate of 3.4% a year -- the provision of services, in particular education, has not been keeping pace with this rate of growth;
 - recurrent expenditure on maintenance of buildings, equipment, and above all, on roads will have to increase at a much faster rate than in previous years; and
 - the programs required to implement a policy of coordinated rural development all involve high recurrent costs, these include training program for new staff, expanded extension services, and community development work.

The restricted revenue base of both central and provincial governments highlights the severity of the likely constraint and the need to seek alleviation of it. From discussions with the

revenue authorities, it appears that the possibilities are limited for increasing revenue from taxes and duties -- which at present cover nearly one half (44% in 1981) of total government revenue. Income tax collection capacity appears to have reached the limits imposed by the level of development and administrative capacity; a further general rise in import duties may have adverse effects on prices and competitiveness of exports, as will a rise in the duties on most exports. There appears to be some room (SI\$2-3 million) for further increases in revenue from duties on logging and fisheries, but it is difficult to assess what scope there is for a further rise in revenue from sources other than taxes and duties; i.e., proceeds from joint ventures (25% in 1981), internal and external borrowing (12%), and external grants (18%).

- 2.68 Construction capacity: Another constraint to development, which may severely undermine the absorptive capacity for development funds, will be lack of construction capacity. A major increase in construction work is envisaged, viz: Honiara and Noro Ports; Lungga dam construction; National Parliament; regional fisheries headquarters; new telephone exchange, and others. The main bottlenecks in the construction industry are the acute shortages of experienced supervisors, engineers, draftsmen, architects, and skilled craftsmen.

III. RATIONALE

General Considerations

- 3.01 Traditional agricultural systems are basically stable, of low cost and of minimum risk. While they are not static, they have evolved slowly by trial and error over often thousands of years. They are inherently of low productivity on a labor or land (including fallows) unit basis, and output can seldom be increased without removing some of the constraints under which the systems are being operated. If there are ample supplies of unused land, as in some parts of the Solomon Islands, total output can be increased to meet the needs of the increasing population merely by increasing the area cultivated. Under this system the output per head remains fairly constant and little salable surplus is likely to be produced. Where there is a shortage of cultivable land, as in some parts of Malaita, and fallow periods are too short to allow natural regeneration of soil fertility to take place, yields per unit area are already falling. Additional inputs of knowledge, materials and labour will be needed to stop the decline, increase yields and thus supply the food needed for the increased population which caused the pressure on the land in the first instance. Thus to increase agricultural output and especially to produce marketable surpluses (which alone contribute to the generation of national wealth), the rate of introduction of new components into traditional systems must be increased, new systems of production must be devised and tested, and the already strong plantation sector must be expanded.
- 3.02 The government has set out its general economic policy and a short-term action program in two documents published in late 1982 (1) (2). These documents are qualitative and exhortive in approach and need further interpretation in quantitative terms to allow production targets to be set and the necessary support services to be designed⁽³⁾. To maintain export earnings per capita at current levels and to attain and maintain selfsufficiency in food supplies, total production will need to be doubled in about 18 to 20 years. A growth rate in both export commodities and food crops of about 5.0% per year will be needed for even modest general improvements in the country.
- (1) Programme of Action 1981-84. Government of the Solomon Islands. Honiara. November 1981.
- (2) National Economic Development Policy. Government of the Solomon Islands, Honiara. December 1981.
- (3) The government would appear to have been poorly advised on the technical feasibility of some of the items in this Programme of Action.

- 3.03 The government's policy stresses both the subsistence-smallholder sector and large-scale developments of various kinds on alienated and on customary land⁽¹⁾. Each of these modes of production has its own specific requirements of services, but there are general features common to all of them. Among these are:
- output channels, including marketing, transport, and storage and appropriate pricing policies;
 - knowledge of the natural and human resource base;
 - detailed agronomic and economic information on how to produce each of the salable commodities within sustainable farming systems;
 - effective means of bringing all available information to bear on the planning of agricultural development in general and to the production of individual items in particular.
- 3.04 The generation of the knowledge and information base -- whether on marketing, production opportunities, systems of production, and inputs needed -- is the responsibility of the research services. The scope indicated here is wider than that usually associated with the term "agricultural research" but emphasizes the large number of components which must fit together before increased production can take place.
- 3.05 Detailed assessment of the farm situation and the transfer of the information (and materials) needed to promote increased output is the main function of the extension services in the conventional research-extension-farmer system. In a small country with modest resources the extension officers in contact with the farmers will need to work closely with their colleagues in the research services on many facets of their work so that the producers can derive the maximum benefit from the services that are available.
- 3.06 To develop effective methods of information management covering the flow of knowledge from outside the country (a large world pool of knowledge is available for review and interpretation in relation to the needs of the country), within all the components involved in the agricultural industry and its support services, and outwards to the producers and to the world at large, is the responsibility of an agricultural information service. This is of special importance in the Solomon Islands where the agricultural population is widely dispersed and physical communications are poor.

(1) Livestock production (and its research and extension need) is not considered in detail in this project proposal. (See Annex 13, paragraph 19.)

- 3.07 A range of input supplies may be needed to remove one or more constraints to permit the increases in output to be obtained. In general, however, supplies of improved planting materials, soil amendents including fertilizers, plant protective materials, equipment (sprayers etc.), and the necessary credit to buy these items may be regarded as a minimum list of essential input supplies. Some physical infrastructure is needed and the points of distribution must be within range of the farmers, having regard to distance, terrain, and availability of transport. In this context, the rural services centers being considered under a separate technical assistance project (ADB) may have a useful role although past experiences in the Solomon Islands suggest caution in this area.
- 3.08 All of these essential services require well trained and qualified people to run them, adequate facilities of buildings, equipment and transport, and dependable funding for operational expenses and replacement of capital items. These items are considered in detail in the supporting annexes, but three major items need to be mentioned. First, the potential supply of graduates in science and in agriculture is small, so that localization of technical posts in research and some senior posts in extension can only take place slowly. Second, the country has limited resources so that the research and extension service must inevitably be rather small. The consequence of this is that the staff must be well trained and adaptable, since the range and complexity of the problems to be faced is no less than in a large country with large resources. Third, while capital resources can often be obtained from external agencies, the recurrent costs of research and extension have usually to be met from local sources. This is discussed in detail in paragraph 6.09; these costs have been kept to a minimum in this project preparation.

Research (Annex 6)

- 3.09 The national research effort should be viewed as a component in a wider international framework within which there is already a substantial total research effort in the tropical areas and on tropical crops. The implications of this are that there should be within that service the capacity to review the world situation and to interpret the knowledge and the materials available in the light of the conditions prevailing in the Solomon Islands. This calls for experience both of the conditions within the Solomon Islands and interpretation of the likely transferability of information and materials from outside. This capacity is likely to be found only in fairly senior and experienced people. The range of subject matter specialities needed is wide so that a modest sized group of experienced persons seems essential for this interpretive job to be done satisfactorily.
- 3.10 So far as the work which needs to be done within the Solomon Islands itself, the problems are in individual disciplines; but the production problem is one where all the disciplinary research activities must combine to provide a practical solution to practical production problems. So that in addition to having a

sufficient degree of experience within the research group, the group itself must be large enough for there to be interaction between specialists in various disciplines in order to bring their collective knowledge to bear on practical problems. Groups of less than six to eight persons are seldom large enough for this interaction to take place satisfactorily.

- 3.11 With such a small group, it is important that the energies of the persons concerned are devoted to their research task and not dissipated on a range of peripheral activities such as managing farms, managing production, organizing labor, inspecting produce, producing and distributing plant materials, and so on. The task must include interaction with the extension service, both in an investigational and training capacity.
- 3.12 Since the country comprises widely separated islands, the research task is rendered more difficult. It is to some extent fortunate, however, that the variations from one island to another in terms of agricultural potential, i.e. the interaction of soils and climate, are not great, except for the Guadalcanal plains area which must be excluded from this comment. Nevertheless, it is important that the research group should have facilities available in different places at which experimentation can be carried out and at which local testing and adaptation of practices already established elsewhere can be verified. The minimum requirement is for sites in leeward and windward situations, and recognition should also be given to the concentration of most of the population into three provinces (out of seven).
- 3.13 The proposals made in the project components are designed to ensure a small well-qualified staff capable of
- interacting with regional and international research organizations;
 - interpreting the world information base in the light of the requirements of the Solomon Islands;
 - carrying out adaptive research at a number of locations within the country so as to make the information readily available to the extension service and to the farmers.
- 3.14 The improvements in the organization and working method of the research group, in the nature and disposition of the new members of staff proposed, along with the development of the research sites and equipment requirements are discussed in more detail in Annex 6. One major feature is a proposal for improving the method by which research programs are formulated, involving the extension service, the farmers, and the planning wing of government in deciding on the priorities to be addressed, while leaving the details of how to do the work entirely to research. In this way, it is hoped that the research service would, first, be afforded greater recognition by policy makers and be in a position, therefore, to attract continuing funding and, second, the work of the research section would be seen to be closely allied with national and farmer objectives.

Extension and Training (Annex 7)

- 3.15 The changed nature of the work which the extension services are being called upon to do is emphasized in Annex 7. Traditionally the extension services have been target-oriented and have promoted the development of individual cash crops, usually by a combination of grants and subsidies. Often these have taken the form of subsidized or free planting materials and/or fertilizers, and some conditions have been imposed upon their use. Similarly, within the Land Use Development Project the emphasis has been on individual crops and individual commodities. With the changing emphasis of government policy towards promoting the well-being of the smallholder sector, both in the production of cash crops and of food crops, much greater attention needs to be paid to the communities or the individual farmer's actions as a whole, and an understanding of this is essential for the promotion of the production objectives. Many of the present staff of the extension service have been trained within the system which over-emphasized the target approach, and it will not be easy for them to change and to develop a new focus, viewing the farming system as a whole but within which specific components can be stressed at any particular time. In addition, the recent moves towards the devolution of responsibility for the extension service towards the provinces has led to a feeling of insecurity within the extension services and this, together with the changed emphasis of their work, is making very substantial demands upon them.
- 3.16 For this reason, the major emphasis in the extension component of this project is towards the training of the staff of the extension services and to the training of specialist and general farmers. It is important that this training should have a double focus: that of improving the skills and knowledge of the officers throughout the extension service and also of promoting a focus of their activities towards the viewing of the farm situation as a whole and adapting their recommendations and advice within the framework of a farm or community situation.
- 3.17 To promote the objectives of substantial training of the extension staff, the proposal which has been made by the central government for the establishment of a national agricultural training institute is supported: proposals are made for its location, for its staffing, and for the necessary buildings and equipment to allow it to function effectively. At the same time, there is an identified need for additional training at the farmer level and in a greater number of centers than have so far been established. There are four farmer training centers, and the scheme for the development of these has been supported by the Overseas Development Administration of the United Kingdom government, and this support continues. The project proposes to establish one new center in an area not currently served (except at a distance by the existing FTCs) and to move one of the existing FTCs to a more favorable location⁽¹⁾.

(1) More new FTCs are needed than can be financed under this project.

This should ensure that the good work which is already being done in the FTCs can be extended to cover a greater number of farmers and at less inconvenience to the farmers since they will have to travel for shorter distances in order to get to the training centers. It should be understood that the farmers have many duties and obligations outside their actual farming activities, and it is difficult for them to be absent from their communities for long periods. It is important, therefore, to bring the training to the farmers rather than to bring the farmers long distances to the training centers; this is already done by many of the courses being given in village situations but working bases are important. Training in villages will assume even greater importance when female teachers become available to teach the women who cannot normally attend courses at the FTCs.

Agricultural Information Service (Annex 8)

3.18 The Agricultural Information Service, which existed more than a decade ago and proved to be an effective means of distribution of information and promotional literature to the extension services and to farmers, was disbanded in the mid 1970s. There has developed since that time a growing sense that this service was disbanded prematurely and ought to be reconstituted. The mission examined the evidence for these assertions and found there to be some substantial justification for them. From the provinces, farmers, and the media, both newspapers and radio, there was a request that more information should be made available at more frequent intervals and in many different forms to meet the numerous situations which exist in the Solomon Islands. The situation was considered by a consultant from the Commonwealth Scientific Industrial Research Organization in Australia in 1977, and the report recommended the establishment of an agricultural information service. The present mission supports this report in its essentials and proposals are being put forward for the development of a service which would:

- take full note of the world situation and the world information base to support the research service;
- promote the two-way interchange of information between the farming community through the extension services to research and in the reverse direction;
- promote the interaction between the overall agricultural services and planning authorities in government to ensure the government is kept fully informed of the technological bases which could be used for the formulation of their agricultural development plans.

While it is not the role of the agricultural services to endeavor to influence government policy, they have an obligation to present the technical information in clear and concise forms, and in the past there has been a serious omission in this connection.

3.19 The service would not be large, but it would serve the whole country in the sense that it would have links to external sources of information and materials and to all parties concerned with

agricultural production and rural development within the country itself. It would have a major input into the training services, both in the NATI and in the FTCs and would be expected also to interact with the teacher training college and other educational establishments within the country to keep them informed of the latest technological developments and other items which may be of interest and use to them in their teaching activities. It would be located in Honiara at divisional headquarters.

- 3.20 By the strengthened training facilities for extension workers and for farmers, and by the provision of an effective Agricultural Information Service to provide many of the materials needed for the training process, it is believed that the efficiency and the morale of the extension services would be substantially increased.

Input Supplies, Marketing, and Credit (Annex 9)

- 3.21 Information and knowledge alone are not enough to promote agricultural development. Many commodities may be grown in the Solomon Islands, but the farmer is interested only in what he can either eat or sell. It is important, therefore, that there should be clear and well established market channels through which he can dispose of produce which is surplus to his own daily requirements. So far, this aspect of production has been seriously neglected, with the exception of the marketing of copra through the Copra Board. This board intends in the near future to increase the number of its buying points and to make it easier for farmers in the distant areas to obtain reasonable prices and reasonable transport facilities for their copra -- and if the Copra Board is developed into a commodities board, this contribution could be made to other crops such as cocoa and chillies in addition. The need for detailed assessments of markets for alternative crops, particularly some of those mentioned in the government's Programme of Action, would seem to be urgent. A proposal is made for a market survey to be carried out on a restricted number of crops but, because of the urgency, it is proposed that separate funds should be sought for these purposes (see Annex 13).
- 3.22 Many of the crops which are proposed under the diversification program have much more precise requirements of soil, climate, and critical management than has the coconut. To this extent, education will be important for both the extension staff and the farmers in how to grow these crops, what inputs are needed and how to use them. While this can be catered for in the training component of the project, the supply of materials -- notably small quantities of fertilizer for the cocoa replanting program -- should be handled in a different way. The quantities required are small in total, and it seems unlikely that commercial distributors would be particularly interested in handling these small quantities initially. It is to be expected, of course, that the quantities used will increase with time, but the initial problems of distributing small quantities of fertilizer in the widely dispersed islands are considerable. It is felt, therefore, that the government should interpret its expressed wishes to subsidize the use of fertilizer, by undertaking the distribution of the modest quantities required at cost, i.e. the farmers would be required to

make a payment for the fertilizers used, but the government would stand the cost of distribution from Honiara to the point of use. This would permit the Development Bank of the Solomon Islands (DBSI) to insist on the use of fertilizers on area replanted using loans which it has provided and thus there would be a greater chance of the production from those areas being such as to enable the farmers to meet their repayment obligations. There would also be a need to investigate ways in which this distributive function could eventually be handled over to the private sector (Annex 9, paragraph 17).

- 3.23 The DBSI appears to have adequate resources available to it for the current demands for agricultural credit. It has a good record of lending and a reasonable record of repayment of its loans. It is taking steps to improve its efficiency both in the monitoring of loan requests and in the provision of advice to farmers so that they can manage their affairs more effectively. There are additional developments of private estates in crops other than coconuts, and there is development of cocoa underplanted with coconuts. These could well lead to greater demands on the credit sources. The DBSI feels that it would be able to meet reasonable requirements for the near future, even though its resources need to be replenished fairly soon. No action is proposed under the project.
- 3.24 In connection with the planned rehabilitation of the coconut industry, which is assuming urgent proportions since many areas of the country have coconut groves which are low in productivity, it is important that the survey of the coconut areas in the country should be undertaken at the earliest opportunity. This was recommended by the Coconut Workshop held at Tambea in 1981, so far there has been no action other than a pilot survey manned by the Statistical Office of the Solomon Islands government. The government has inadequate resources to meet the costs of the full survey, and because of its urgency it has been included as a separate item at the end of this project submission (Annex 13). The reason for this is that if there is to be a mission to consider the rehabilitation of the coconut industry, then it is extremely important that the members should have an adequate base line from which to begin their assessment. At the present time, if a survey were to be one of the first recommendations of the feasibility study, then action to start on the rehabilitation of the coconut industry would be delayed by at least two years. It would be an unnecessary and unfortunate delay if this survey could not be mounted quickly, particularly as there is a possibility of obtaining funds of this kind from other sources. However, so that it is not omitted from consideration by the government and by the Asian Development Bank, it is included in this project proposal, but as a separate and distinct item; it is not included in the total project costs.

General Synopsis

- 3.25 The various components of this project have been designed to be complementary to each other, but the rate of development may vary from item to item. In this regard, since the problems of

devolution of authority to the provinces have the greatest impact upon the extension services and on the training of the extension staff, some consideration might be given to regarding the project proposals in a number of phases. There would appear to be few difficulties in the way of implementing the research component of the project, although a number of issues have to be settled. It would be undesirable for the development of the research service to be delayed because of difficulties in implementing the extension part of the project, so it would not be unreasonable to suggest that if the difficulties of the location of the National Agricultural Training Institute and the acquisition of land for the farmer training centers and for the houses for the extension workers were to be considerable, that the research component could be started in advance of the others. This would make project implementation difficult, but there is a sound basis for this course of action, and it ought not to be overlooked as a possibility if substantial difficulties are encountered.

- 3.26 Not all of the components identified during the mission can be funded with the resources available in this project. The costings of these items on a unit basis are given in Annex 10, Table 12. In view of past support from major donors for research, it seems reasonable to approach them for possible assistance in funding this component.

IV. THE PROJECT

General features

- 4.01 The project is intended to strengthen the agricultural services so that they will be in a better position to support the national and provincial agricultural development programs. This improvement will be achieved by:
- strengthening the research service by a modest increase in its size and by improving the methods of planning, programming and implementation of the work at an increased number of operational sites throughout the country;
 - the establishment of a National Agricultural Training Institute for the in-service training of extension staff on a regular basis first, to improve the capacity of the staff to handle a work program that has a different emphasis from that to which they have become accustomed and, second, to give them a new sense of purpose and to improve the morale of the service as a whole;
 - the construction of one new Farmer Training Centre and the relocation of a second to a more accessible site;
 - the construction of houses for 30 field assistants to improve their efficiency, job satisfaction, and status in the communities which they serve;
 - the re-establishment of the Agricultural Information Unit within the Division of Agriculture;
 - supporting the essential developments in marketing and input supplies which are not being handled by other agencies. Some of the items recognized are proposed for support outside the main framework of the project.
- 4.02 Attention is drawn to the need to augment the headquarters staff of the Division of Agriculture to handle the increased work load but this is not the subject of specific proposals and no expenditure is involved.
- 4.03 The project would be implemented over five years at an estimated cost (without price contingencies) of SI\$6.3 million.

Detailed features

- 4.04 The following components would be financed by the project.

Research Service (Annex 6)

4.05 Civil Works:

- land survey and development at Tenaru (the main field station near Dodo Creek) and at one adaptive research station at Dala;

- additional office, laboratory, library, and airconditioned space for equipment (including a microcomputer) at the research headquarters at Dodo Creek;
- four new houses at Dodo Creek, three for principal research staff and one for the farm manager;
- office, laboratory, and ancillary buildings and works at the Dala adaptive research center;
- housing for the farm manager (1), visiting scientist (1), field assistants and permanent laborers (7) at the Dala adaptive station.

These facilities would add substantially to the capacity of the research service to carry out trials at different locations throughout the country from a strengthened base at Dodo Creek.

4.06 Equipment and Vehicles: Additional equipment would be provided:

- to establish a radio network between Dodo Creek and the adaptive research center;
- to facilitate the taking of agrometeorological records at three sites;
- to increase substantially the capacity of the service to process records by the provision of a desktop microcomputer and its ancillary equipment;
- three tractors with trailers and implements and miscellaneous farm machinery and tools for the headquarters and the sub-station;
- one 3-ton truck for general transport of goods, two 4-wheel-drive long wheelbase vehicle for off-road transport, mainly to support survey team of various kinds, five 4-wheel drive pickups for general use, and two 16-seat mini-buses for transport of personnel, including daily travel from Honiara (to reduce the need for extra houses at Dodo Creek).

4.07 Technical assistance to provide overseas training (other than for certificate, diploma, graduate, or postgraduate degrees) (1) for scientific and technical support staff, for short term consultancies, and to enable scientists to attend scientific meetings outside the Solomon Islands.

4.08 Incremental operating costs associated with the increased work load and extra staff and equipment at Dodo Creek and at Dala will be borne by the project during the disbursement period. These would include:

- the salaries of incremental professional (2 posts) and technical and support staff (20 posts) as follows:

(1) Ample scholarships are already available for these courses.

- one agricultural economist and one additional agronomist (establishment posts) at Dodo Creek;
- five senior technical assistants with defined responsibilities in genetic resources management, post-entry quarantine, laboratory services, data processing, and management of Dodo Creek station and farm;
- one manager for the Dala adaptive research center;
- five laboratory assistants, six field assistants, three clerical support staff;
- allowances, principally for travel and subsistence, for all staff to be provided under the project together with any increased costs of existing staff occasioned by their working away from Dodo Creek or Dala and elsewhere;
- costs of operating and maintaining all additional vehicles and equipment to be provided by the project;
- incremental costs of office and laboratory operations;
- maintenance costs of all the additional houses and buildings.

Extension and Training (Annex 7)

4.09 There are three main sites at which development of facilities would be financed:

- at Tenaru or Dala for the National Agricultural Training Institute;
- site on Choiseul for the new Farmer Training Centre;
- a site at Gizo to which the existing FTC at Barakoma would be transferred when the lease for the existing site expires in 1985.

In addition the cost of providing 30 houses for field assistants in various provinces would be met.

Equipment would be provided to equip all the new buildings and farm areas, and the incremental costs of staff and operation and maintenance of the units would be paid.

4.10 The National Agricultural Training Institute. This would be developed at Tenaru or Dala. If at Dala, it would be on land currently used by the FTC. There would be only nominal land costs either at Dala or at Tenaru.

- buildings: offices, classrooms, library, and stores would be built in one block, dormitories (4 units of 6 to maintain maximum flexibility of use as between male and female students), a mess block, workshop area, covered parking and working area, and five houses for the teaching staff (including one for visiting teachers) would also be provided.

- equipment, vehicles, and furniture: the farm equipment and vehicles to be provided take into account the existing equipment at the FTC, which would be available for use by the NATI. One tractor and trailer, one 3-ton truck, two 4-wheel-drive pickups, and six motorcycles would be purchased from project funds. A standby generator, an essential item at Dala, would be made available if this site is used. Office equipment and teaching materials, along with the fittings and furniture for all the buildings (offices, classrooms, dormitories, messrooms, houses, and workshop), would be provided.
 - incremental operating costs would be paid by the project during the disbursement period, four main items:
 - incremental salaries of four professional staff (principal, deputy-principal⁽¹⁾, two teachers (one female) and four field and classroom support staff;
 - allowances for travel and subsistence of the staff to be provided under the project⁽²⁾
 - costs of operation of the NATI, including the operating costs of equipment and vehicles provided and the maintenance of these and all buildings developed as part of the project;
 - technical assistance to provide overseas training of the deputy-principal and some extension officers, mainly through short courses and visits, and a consultancy on curriculum development which would provide for a continuing association between the consultant and NATI for the life of the project⁽³⁾.
- 4.11 Farmer Training Centres: The costs of building one new FTC and of moving a second to a new site are included in the project.
- buildings: at each site provision is made for the survey of 20 ha of land and for the establishment of 16 ha of perennial crops and pasture with adequate all-weather access roads. The buildings consist of a block containing the lecture rooms, office and store, a dormitory, a messblock, and seven houses (three for teachers and four for support staff). A workshop, implement shed, and garage, along with a copra dryer and a cocoa fermentary, complete the main buildings. Some ancillary buildings are associated with equipment for fuel and water supplies and electricity generation.

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- (1) The deputy-principal will be the principal-designate on completion of a satisfactory period of training.
 - (2) Trainees' subsistence and travel costs would not be paid from project funds.
 - (3) An association with a regional organization may be envisaged.

- the equipment to be provided at each site is essentially for the operation of the farming and training activities; it includes a wheeled-tractor, cultivation and grass cutting equipment, chain saws, minor tools, and vehicle maintenance tools; transport will be provided in the form of 1 motorcycle, 2 fibreglass canoes and 4 outboard engines;
- modest office equipment and teaching materials will be paid for;
- offices, classrooms, dormitory, and houses will be furnished to the appropriate specification (government rules apply).
- incremental operating costs: the incremental personnel costs of two junior professional and four support staff, along with essential travel and subsistence costs, will be paid by the project. The operating costs of the centers, except student subsistence and travel, will be met. These will include operation and maintenance of all equipment and the maintenance of all land, services, and buildings.

4.12 Houses for field assistants: Houses would be built for about one-half of the total number of field assistants in post; 30 houses would be built⁽¹⁾.

4.13 Equipment for field assistants: The cost of supplying every field assistant with a hand-operated knapsack sprayer and small quantities of essential fungicides (to be recommended by the plant protection officer or the plant pathologist) would be met. By charging for the use of this equipment and for the materials, a rolling fund could be established to pay for replenishment of supplies and the maintenance of the equipment.

Agricultural Information Services (Annex 8)

4.14 This new unit has been designed on the basis of using available printing, reproduction, and communication facilities as much as possible. The following items would be financed under the project:

- buildings: one general office and one airconditioned office for equipment and the work of the unit would be built at the headquarters of the Division of Agriculture in Honiara; this would have the usual complement of office furniture and equipment;
- equipment: special equipment would be provided for
 - ensuring rapid access to external sources of information, a small desktop computer and word processor which can be serviced in Honiara is proposed;

(1) It is considered that all of the field assistants should be adequately housed, but that the cost would be high in relation to the total project costs. If funds can be provided for 60 houses, this will have the mission's support.

- preparation of informational materials of all kinds, but not their printing except for short runs of special items; this includes photographic equipment, drafting equipment, a photocopying machine, and other accessories;
- basic reference materials to support those already available at the research station at Dodo Creek (reasonably good already), at the provincial offices (poor to none existent at present), and to provide an adequate information base for the NATI and the FTCs, would be paid for;
- incremental operating costs: the incremental salary costs of the agricultural information officer(1), two senior information assistants, and one office support staff would be paid for the duration of the project; the cost of operating the service would be met, including the maintenance of equipment, publication costs, line charges for access to information networks, shipping and mailing, and travel and subsistence within the country.
- technical assistance: provision is made for one person to be trained to degree standard in agricultural information at a metropolitan university and for a consultant to advise on a short term recurring basis on the development of the service.

Inputs, Marketing, Credit (see Annex 9 and Annex 13)

- 4.15 Although these items are recognized to be of critical importance to agricultural development, few areas were found where additional resources could usefully be used.

Three items merit urgent support: coconut survey; review of the Land Use Development Section; marketing survey of present and potentially new commodities. Cost estimates are given in Annex 13.

Phasing of the Project

- 4.16 Implementation of the project would be phased over five years. It is difficult to give precise timings for the different components, because of the unusually large number of independent imponderables which need to be settled before project components can be developed.
- 4.17 While some initial preparations for various components of the project can be started by the chief field officer, chief research officer, and the senior field officer (education and training), it is imperative that the project manager be selected and appointed with duties to commence when project implementation is scheduled to begin.

(1) In this section as a whole the costs of expatriate staff are considered as staff rather than technical assistance costs to give a better picture of the relative costs of the various components.

- 4.18 Work on the construction of the additional facilities at Dodo Creek and at Tenaru can begin as soon as the plans have been prepared and contracts have been awarded, so the developments at these two sites are phased on the practical assessment of the likely rate of progress. The incremental staff can be accommodated (apart from housing) temporarily in existing buildings so that recruitment can proceed in an orderly way. It is expected that all the new staff would have enough facilities to work effectively from the end of Year 1 of the project, so provisions have been made for local staff recruitment to begin in Year 1 and for 7 manyears of expatriate costs.
- 4.19 At the adaptive research stations, some land tenure problems are still to be resolved so that the phasing given in the tables must be regarded as provisional. The effect of any delays would be on the starting of the development at a particular site.
- 4.20 The extension and training components are difficult to schedule because of continuing uncertainties about the availability of sites. In phasing these components, it has been assumed that the main land tenure problems will have been resolved before implementation of the project begins. On this basis, the NATI is given priority and the FTCs will follow, with starts being made on one in Year 2, and one in Year 3. The deputy-principal for the NATI should be recruited as soon as possible (and the principal in Year 2.) to work with the senior field officer (education and training) to plan the curriculum and training schedules for staff.
- 4.21 The building of houses for the field assistants is phased at six per year, but this could be altered if sites were made available more easily than is at present anticipated. The houses are needed urgently, any speeding up of the building schedule would be an advantage.
- 4.22 There would appear to be no reason why the main construction of the offices for the Agricultural Information Service should be delayed by site problems. Development of this component should begin as soon as the officer in charge has taken up his duties. The equipment needed is readily available so provision has been made to purchase this as soon as the offices are ready for occupation and senior staff are in post (end of Year 1).

Project Costs

- 4.23 Project costs are summarized in a table following and presented in more detail in Annex 10. Total baseline costs (1982 prices) of the project are estimated at SI\$6.30 million, (US\$6.00 million) exclusive of any duties or taxes (at present none would be levied). With the inclusion of physical contingencies, the cost would rise to US\$6.48 million.
- 4.24 Price contingencies have been applied on local costs at 15% for 1983, 13% for 1984, and 12% per year thereafter and on external costs at 9% in 1983, 7% in 1984, and 6% thereafter. Because of the differences between these rates, project costs can only be

realistically quoted as local costs in Solomon Islands dollars plus foreign exchange costs in US dollars; to apply a fixed exchange rate gives a false view of the costs. The overall current cost (including price contingencies) would be the sum of local costs of SI\$5.11 million and foreign exchange costs of US\$4.83 million. Calculated at September 1982 exchange rates, this would be equivalent to US\$9.44 million; the foreign exchange cost amounts to 48.6%.

- 4.25 Incremental operating costs in Year 5 and subsequently are estimated at SI\$582,600 per year at 1982 prices. This excludes the foreign exchange component of the two established research posts, the principal of NATI, and the project development officer at expatriate rates. The incremental operating cost is about 50% of the total funds currently committed to agriculture in the national budget on revenue account. This would represent an increment equivalent to 1.2% of the GDP attributable to the smallholder sector (SI\$ 51 million in 1982).

Financial Arrangements

- 4.26 The office of the undersecretary for agriculture would have the responsibility for project implementation. Funds would, however, be drawn from central treasury and arrangements -- agreed with the Asian Development Bank -- would be made to ensure that all project funds would be available when required. The project manager would have the day-to-day responsibility of ensuring the correct use of all funds and for keeping appropriate records. It seems likely that he would need the assistance of a divisional accountant for this work. In order to provide the project manager with sufficient liquidity to meet forecast expenditure, a project fund, equivalent to about four months of project disbursement would be established and maintained by the government. Funds derived from the Asian Development Bank would be handled according to its established procedures.

Summary of Project Costs

Item	SI\$(000) Local	US\$(000) External	US\$ Total (1)	F.E. % Total
<u>Agricultural Research</u>				
-civil works	388.6	122.9	492.1	25.0
- equipment and vehicles	33.8	308.3	340.4	90.6
- staff costs	264.5	503.5	754.8	66.7
- other operating costs	<u>226.6</u>	<u>257.5</u>	<u>472.7</u>	<u>55.5</u>
Total research	913.5	1,192.2	2,060.0	57.9
<u>Agricultural Extension</u>				
Civil works: FTCs	400.0	128.8	508.8	-
NATI	205.5	110.7	305.9	-
AIU	6.0	6.8	12.5	-
FA housing	<u>270.0</u>	<u>85.5</u>	<u>342.0</u>	-
Sub-total	881.5	331.8	1,169.2	30.1
- equipment and vehicles: FTCs	41.0	145.7	184.7	-
NATI	25.5	82.5	106.7	-
AIU	-	62.1	59.0	-
FA housing	<u>67.5</u>	<u>106.9</u>	<u>171.0</u>	-
Sub-total	134.0	397.2	521.4	76.2
- staff costs: FTCs	153.8	-	146.1	-
NATI	184.5	351.5	526.8	-
AIU	<u>123.7</u>	<u>342.0</u>	<u>459.5</u>	-
Sub-total	462.0	693.5	1,132.4	61.2
- other operating costs: FTCs	114.5	93.9	203.6	-
NATI	179.0	101.2	271.2	-
AIU	24.0	120.3	143.1	-
FA housing	<u>16.3</u>	<u>15.5</u>	<u>31.0</u>	-
Sub-total	333.8	330.9	648.9	51.0
Total extension	1,811.3	1,753.4	3,471.9	51.1
Project Office	164.0	311.3	467.1	66.6

			US\$ million	
<u>BASE COST ESTIMATE</u>	2,888.8	3,258.9	6.00	54.3
Physical contingencies	236.0	246.0	0.47	-
Total with physical cont.	3,124.8	3,504.9	6.47	-
Price cont. (see para 4.24)	<u>1,980.0</u>	<u>1,080.0</u>	<u>2.96</u>	-
TOTAL PROJECT COST	5,105.0	plus 4,584.9	9.43	48.6

V. ORGANIZATION AND MANAGEMENT

- 5.01 The undersecretary for agriculture, acting on the authority of the Minister for Home Affairs and National Development, would appoint a project manager directly responsible for the development of the project in all its aspects and who would be responsible to the Asian Development Bank on behalf of the government. While the project falls conveniently into five sections -- Research, the National Agricultural Training Institute, District Training Centres, Staff Housing, and the Agricultural Information Service -- the project manager would have responsibility for the project implementation as a whole and would act on behalf of the undersecretary. The post would require a person with wide administrative experience and thorough knowledge of tropical agriculture, particularly of the situation in the Solomon Islands. Ideally, the post would be filled by a person from the Solomon Islands, but the few persons of senior rank available within the Division of Agriculture make this difficult indeed. The project manager would be supported by an experienced project development officer provided by the project. A project coordinating committee would be established under the chairmanship of the permanent secretary (ND in MHAND), comprised of the undersecretary for agriculture, representatives of the Ministry for External Trade, Development Bank of the Solomon Islands, Copra Board, Ministry of Finance, the joint enterprises by invitation, and the project manager (with the project development officer), who would be secretary to the committee. It would meet twice a year to review the progress of the project and to assist the project manager in ensuring its smooth development.
- 5.02 The chief research officer would be in charge of all the components of the research part of the project, as indicated in Annex 6, paragraphs 70 to 73. The post of senior field officer (education and training) which is due to be phased out by the supporting agency during 1983, should be retained; this person should be put in charge of all training within the extension service, under the general supervision of the chief field officer. This would include overall responsibility for the development of the National Agricultural Training Institute and of the District Training Centres which are to be developed as part of the project. However, the principal of the National Agricultural Training Institute would retain responsibility for operations at the site of the institute and for the development of the curricula, in conjunction with the senior field officer (education and training). The development of the physical facilities at the institute and at the district centers would be more appropriately handled by the project manager himself, as this would likely involve considerable negotiations with the provincial governments concerning the siting of buildings and the rights to use land on which these buildings would be situated. Similar considerations apply to the provision of houses for the field assistants in various parts of the seven provinces; this again should remain the responsibility of the Project Manager. Some of the administrative responsibilities regarding the Agricultural Information Service could well be delegated through

the chief field officer to the head of that service, who would initially have to be recruited from overseas. That head would be given a deputy, who would be essentially a trainee and absent from post for some time during at least the first three years of the project period.

5.03 Notwithstanding the possibilities of delegating operational responsibility to a number of units within the total project, the project manager would be responsible for the overall development of the project items as set out in this preparation document. Among other things he would be responsible

- for ensuring that the plans for all buildings would be drawn up according to government regulations, for negotiations for the sites of those buildings, for the letting of contracts in accordance with government regulations, and such other conditions as the Asian Development Bank might impose;
- for the handling of equipment purchases in the same way by requiring assistant project managers to prepare detailed indents and descriptions of all items, and obtaining these from the most appropriate sources -- having regard to service facilities available in the Solomon Islands -- again according to government purchasing regulations and to the satisfaction of the Asian Development Bank;
- ensuring the timely recruitment of staff as required by the project conditions.

To do this it would be necessary for detailed job descriptions to be provided to the Public Service Commission so that appropriately qualified candidates could be located. Where overseas candidates or appointees would be involved, the Asian Development Bank would also require to be satisfied that the candidates meet the requirements of the particular posts for which they are to be appointed.

5.04 The project manager would be the chief budget officer for the project and would be responsible for all project funds, whether from the Asian Development Bank or from the government, and for the operation of the necessary bank and imprest accounts. For accounting purposes, he would be required himself to keep separate accounts for all monies disbursed from project sources, keeping these records apart from any other expenditures for which he might have responsibility. He would require any persons to whom authority was delegated for the disbursement of funds within their own components to keep separate accounts along lines which he would indicate and which then could be consolidated into the project accounts for submission both to government and to the Asian Development Bank. He would be responsible for maintaining adequate inventories of all equipment supplied by the project, for recording their location, and for providing recommendations as to their disposition at the end of the project period.

5.05 The project manager would be responsible for requiring the officer in charge of each of the project components to submit at regular

intervals (not less than twice a year) detailed progress reports of the implementation of the project components and of the impact of these components on the various aspects of the agricultural services. These would serve as a basis for monitoring by the Project Coordinating Committee and would be in addition to any specific financial monitoring requirements imposed by the Asian Development Bank at appraisal.

- 5.06 The senior field officer (education and training), who currently has responsibility for pre-service and in-service training of extension and research staff, would advise the project manager in these areas in connection with training provisions made in the project. He would continue his present role in support of FTCs.
- 5.07 The implementation proposals indicate a number of joint committees which need to be set up in order to ensure that the provincial executives are seen and feel to be involved in the project operations. It would be a responsibility of the project manager to ensure that such meetings as are called for in the organization and management of the project are convened and appropriate minutes are kept and circulated. In addition he would have responsibility for ensuring that the organization and management of each of the components is carried out according to the methods specified in each of the annexes to this project paper.
- 5.08 So far as the Agricultural Information Unit is concerned, the project manager would have responsibility for ensuring that the purposes for which this service is being established were being met; to that extent he could ask the head of the service to undertake consumer surveys to establish whether the service was being received and what impact it might be having.

VI ISSUES

Specific issues which have arisen during the course of the project preparation are described in each of the relevant annexes dealing with research (Annex 6), extension and training (Annex 7), information and communications (Annex 8), and inputs, marketing, and credit (Annex 9). Additional and related items are summarized in this chapter.

- 6.01. The size (and the experience and qualifications) of the staff at headquarters in the Agriculture Division of the Ministry of Home Affairs and National Development appears to be much too small for the work load and for the wide range of duties which have to be carried out. Specifically, the newly appointed undersecretary would appear to need the support of experienced technical officers, particularly in the areas of planning within the division and also in the monitoring and evaluation of ongoing programs. At the present he is supported by a chief field officer and a senior officer (training). The posts of principal field officer (extension) and principal field officer in the Land Use Development section are both vacant, and the post of the training officer is scheduled to be phased out next year when ODA support for this post is withdrawn. There appears to be no qualified local person being trained to take over this important role. For the division to function effectively it is important that the vacancies at senior level should be filled as soon as possible and that the undersecretary be given some additional support of a counseling nature to assist him with the difficult tasks which his division has to undertake, particularly in the area of extension where the problems associated with the devolution of authority are serious and have yet to be resolved.
- 6.02 The shortage of senior and experienced staff presents an even more serious problem because of the additional demands which the project will make. The post of project manager ideally requires a senior local person with sound and extensive technical and administrative experience, but it is not likely that such a person can be found.
- 6.03 For the office of the undersecretary to take on the management of the project as is proposed, it will be necessary for an additional officer to be appointed to the post of project manager and for the current vacancy of principal field officer (extension) to be filled. The project manager would be assisted by an expatriate project development officer, appointed by ADB by agreement with the government. For the post of agricultural information officer, it seems most unlikely that a local person could be found with the requisite training and experience. In that event, it would be necessary to employ an expatriate officer. The same considerations apply to the post of the principal of the proposed National Agricultural Training Institute. In the research service two additional established posts are being requested, and these posts would be filled by expatriate officers. In total, therefore, it seems likely that there would need to be a recruitment of five expatriate officers to ensure effective operation of the project. This would be costly, and it could well be that donor governments could be approached to supply at least some of the supplementary

salaries needed for these posts (paragraph 3.26). In particular, the Government of the United Kingdom might be prepared to continue its support for the research service. It has been proposed that the post of the senior field officer (education and training) should be phased out from the United Kingdom's support during next year, but it has recently been indicated that this proposal would be reconsidered if there were a strong case for its retention. The mission believes that the case is strong and has been made in these project papers.

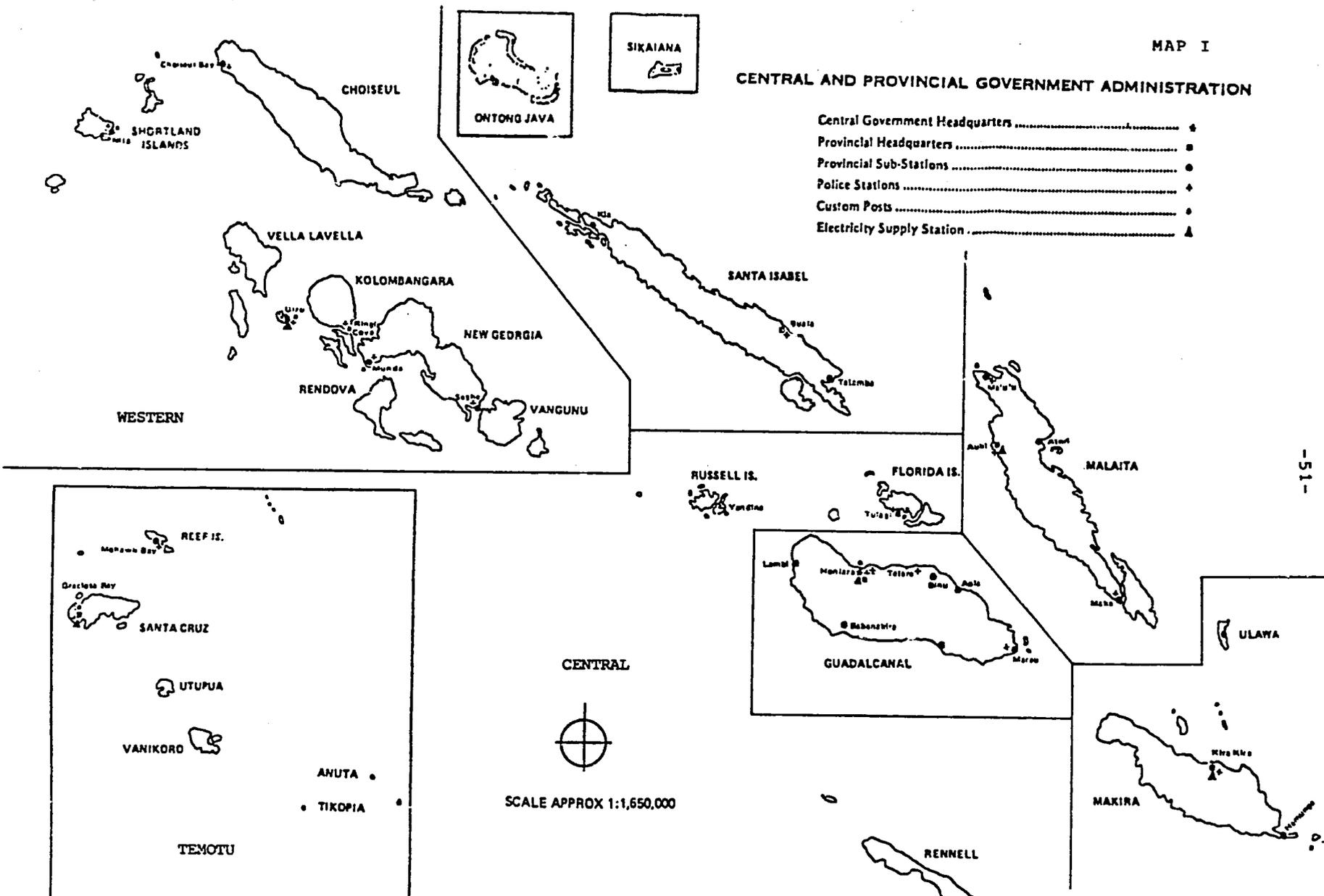
- 6.04. The major issue in the research field is the government policy with regard to the engagement of expatriate staff. This is a most delicate political issue, but it cannot be too strongly emphasized that experienced research persons are needed; it is difficult to see how the appropriately qualified staff can be attracted and retained with the present terms of service which are offered. In particular, a two-year tenure of office for a research worker is inadequate to attract experienced people and for those persons to become acquainted with the problems, to bring their experience and skills to bear on them, and to produce results of value to the Solomon Islands government and people. It would be much more appropriate for this period of tenure for research staff to be substantially increased, with the proviso that leave is to be taken during the year in which it is earned, so that staff are not absent from their duties for any extended period of time.
- 6.05. A second important and related issue is the small number of persons entering into courses for training for degrees in agriculture and in science and who seem likely to be available for recruitment into the research service. This means that, for the foreseeable future, the research service will be have to be staffed by expatriate officers. It is important, therefore, that these officers should be chosen carefully and that they should have the security of tenure which has already been mentioned. Of equal importance is that they should take an active role in the training of such local staff who are available at the graduate level so as to give them the long period of in-service training which is normally considered to be necessary for research staff before they can work independently.
- 6.06. In extension, the problems caused by the devolution of power to the provinces present a most difficult situation. It is recognized that staff at all levels in the extension services require to have regular and thorough in-service training so that they can be brought up to the standard of knowledge necessary to promote agricultural development in the country. The question is how this should be done, and there has been a proposal that this should be incorporated within a National Agricultural Training Institute (NATI). However, this can be effective only if the person in charge of training, acting under the authority of the undersecretary for agriculture, can arrange training courses and be sure that the persons nominated to attend these courses will be released regularly and without question. Under the present arrangements, this authority is not vested in the undersecretary but in the provincial governments, and the undersecretary is in a

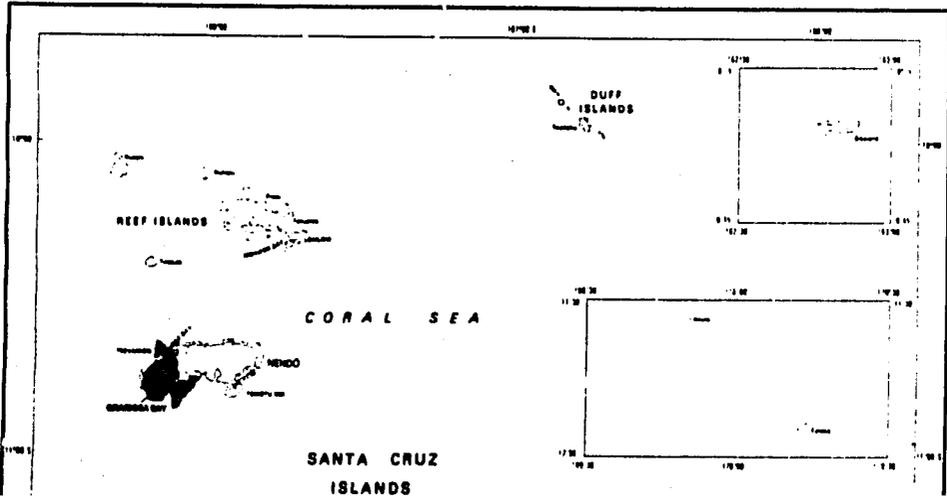
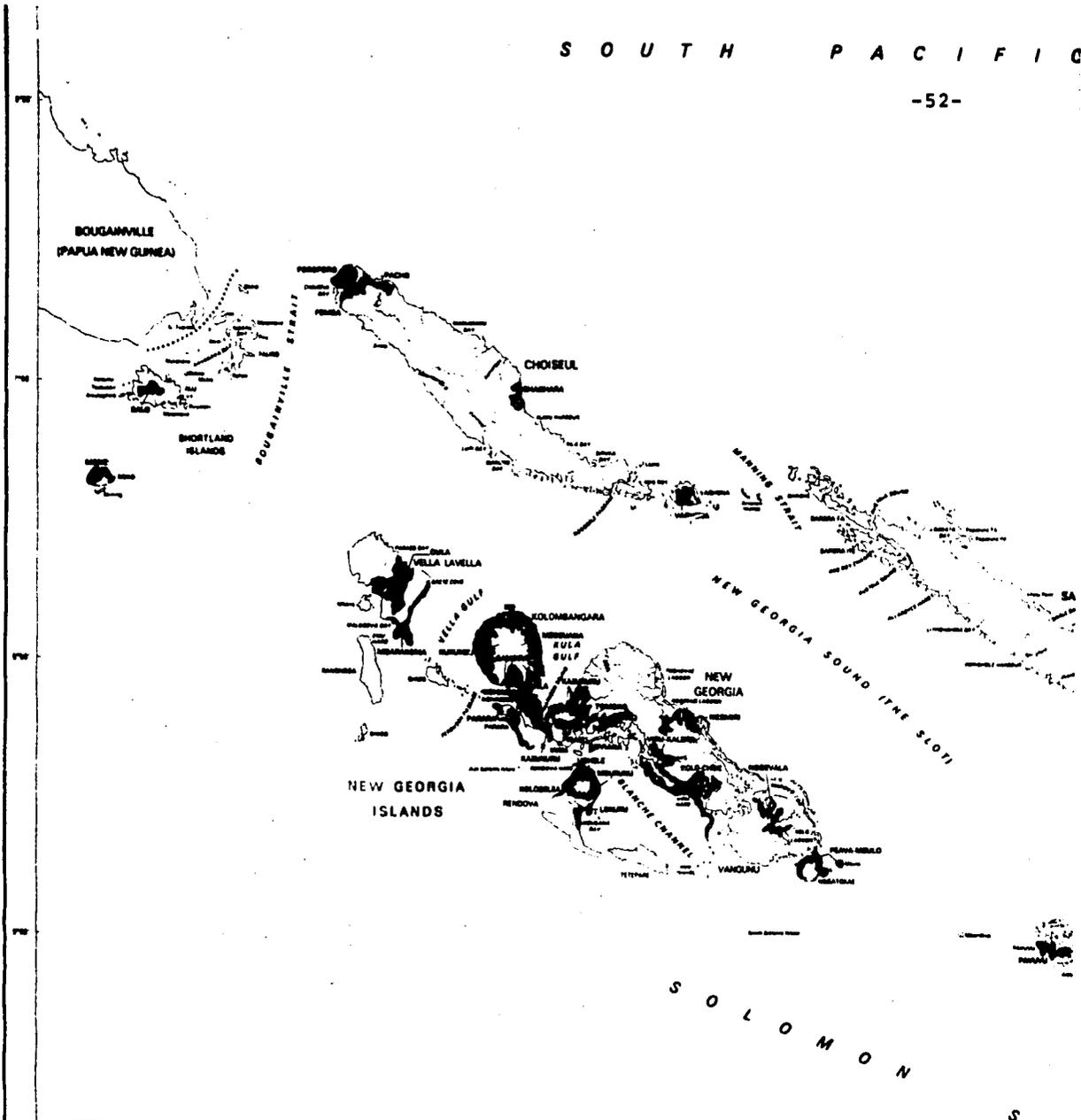
weak position with regard to the provincial governments in this connection. It seems unrealistic to propose considerable expenditure on a NATI until there is a degree of certainty that the persons whom the institute is designed to serve will be released for the courses which are being prepared for them.

- 6.07. The proposal in the project to locate the NATI at Tenaru rather than at Dala raises a major issue which must be resolved. Whether or not the NATI eventually becomes a part of an Institute of Higher Education is of secondary concern.
- 6.08. The question of the sites for buildings gives rise for serious concern, since many of these buildings would need to be sited in the provinces on land which is not owned or controlled by the central government. This would mean that -- for example in the case of a house or office for a field assistant -- the provincial government would need to locate the site which more than likely would be on customary land. The problems of acquiring sites on customary land are well known, and this must be regarded as a major issue to be resolved before large scale buildings within the project concept can be contemplated. It will be necessary to establish clear title to any land on which funds are to be spent from the project or on which buildings are to be sited. Each site must be dealt with as one entity.
- 6.09. The question of the government's capacity to meet the recurrent expenditures both during the project period and after the project support has been withdrawn merits serious consideration. Assurances should be sought that government will support the components developed during the project by the provision of adequate funding for recurrent costs. Since some of the items identified may be deferred until a second-phase project, it is important to ensure continuity of recurrent funding.

CENTRAL AND PROVINCIAL GOVERNMENT ADMINISTRATION

- Central Government Headquarters ◆
- Provincial Headquarters ●
- Provincial Sub-Station ○
- Police Stations †
- Custom Posts ⊙
- Electricity Supply Station ▲





NO.	NAME	CLASSIFICATION	REMARKS
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SOLOMON ISLANDS
Agricultural Research, Extension and Support
Facilities Project

SCHEDULE B

Description of the Technical Assistance
and Terms of Reference

Objective

1. The objective of the Technical Assistance is to formulate a development project to improve agricultural research and extension services, and increase high-yielding inputs for agricultural development. To this end, a team of experts in the fields of agricultural research administration, agronomy, agricultural extension, agricultural economics and experimental station management will assess the agricultural research, extension, training and support facilities required, and will make recommendations. The evaluations to be undertaken and the recommendations to be made will include, but not necessarily be limited to, the following.

General Terms of Reference

2. (a) Assist the Government in examining agricultural development prospects in Solomon Islands and evaluate the performance of the agricultural sector in recent years.
- (b) Determine the constraints to the achievement of agricultural development in Solomon Islands and make recommendations on overcoming the problems encountered.

Detailed Terms of Reference

3. (a) **Agricultural Research:**
 - (i) based on reviews of existing documentation, discussions and field visits, make recommendations regarding the agricultural research needs of Solomon Islands to serve immediate and future development programs; such research needs should relate to both smallholder and large-scale sectors;
 - (ii) study the agricultural research program and performance, and assess its relevance and adequacy in meeting the stated goals of agricultural development, and identify the constraints, including manpower, limiting the research effort and make suitable proposals to overcome these problems;

- (iii) examine the experimental station, laboratory and other facilities available for research work and make recommendations regarding their suitability and additional facilities required at Dodo Creek and other locations;
 - (iv) assess the need for the development of additional research substations and field stations in selected agroclimatic zones and areas of economic potential to meet the needs of an expanded research program, if recommended, and make recommendations regarding the civil works, infrastructure and land development, laboratory equipment, farm machinery, transport and other facilities required for these new stations;
 - (v) make recommendations regarding the organization and management of the research facilities proposed, in particular, the control and supervision of the facilities provided to the provinces which will ensure effective coordination between the central and provincial governments;
 - (vi) determine the capital, operational and maintenance costs of the upgrading and expansion of research facilities including land development and staff training proposed, composed of local and foreign costs, covering an initial period of five years and considering appropriate phasing;
 - (vii) assess recurrent costs and manpower implications for the proposed facilities for Solomon Islands after the initial five year period; and
 - (viii) assess potential benefits to Solomon Islands and cost effectiveness of the proposed facilities.
- (b) Agricultural Extension:
- (i) examine the organization of the agricultural extension services and program of the Ministry of Home Affairs and National Development and of the District Training Centers, evaluate their performance, and make recommendations on improving the organizational structure and programs of the agricultural extension services, including coordination of research activities;
 - (ii) review existing Government and nongovernment farmer training programs and assess requirements to make their role in agricultural developments more effective;
 - (iii) make an assessment of the manpower needs and proposals for training to improve the effectiveness of the extension and farmer training services;

- (iv) examine the curricula, organization and management of existing pre-service and in-service training programs of the agricultural extension services and make recommendations on the types of training programs which should be carried out and provide general guidelines on curricula; this should also cover overseas training;
 - (v) consider the need for the desirability of setting up a National Agricultural Training Institute which would also cater for national and international workshops and training programs, and assess the possible relationships of this Institute with the District Training Centers and the pre-service and in-service training programs now in operation and the various farmer training programs;
 - (vi) make recommendations for the National Agricultural Training Institute, if it is deemed necessary, on the (a) location and layout required, (b) demonstration farm, (c) civil works including dormitory facilities, (d) equipment including farm machinery and transport, and (e) other requirements for strengthening the extension services;
 - (vii) make recommendations on the required staff, both expatriate and local, for the Training Institute and farm, along with proposals for a fellowship program for the training of key local extension staff;
 - (viii) determine the capital, operational and maintenance costs of the recommended facilities proposed, composed of local and foreign costs, to cover an initial five-year period;
 - (ix) assess the ability of the Government to meet recurrent costs and provide manpower after the initial five-year period; and
 - (x) assess potential benefits to Solomon Islands and cost effectiveness of the proposed extension facilities.
- (c) Agricultural Information and Communication Services:
- (i) assess Solomon Islands' needs in agricultural information and communication;
 - (ii) determine the scope and structure of the agricultural information and communication services, including related agencies and taking into account Government objectives on devolving power to provinces;
 - (iii) determine physical requirements, staffing and training programs;
 - (iv) determine capital, operational and maintenance costs (local and foreign costs) for an initial five-year period;

- (v) determine the costs to be borne by the Government following the initial five-year period, and manpower requirements;
 - (vi) indicate alternative strategies; and
 - (vii) assess potential benefits to Solomon Islands and cost effectiveness of the proposed information and communications service.
- (d) Support Facilities:
- (i) examine the available agricultural support facilities including credit, input supply, marketing and any other appropriate components and identify constraints, and formulate plans to improve the support facilities; and
 - (ii) estimate costs of this component, including necessary infrastructure for input supplies and marketing, and provision of necessary credit to farmers for input supply and equipment.
- (e) Project Costs:
- Prepare estimates of investment and operation and maintenance costs required for the components of the Project and the Project as a whole, composed of local and foreign costs, including adequate allowances for price escalation and physical contingencies.

Consultants Findings

4. The tentative findings of the Consultants shall be discussed with Solomon Islands Government prior to their departure.

SOLOMON ISLANDS
Agricultural Research, Extension and Support
Facilities Project

The Provincial Government Act - No. 7 of 1981

SCHEDULE 4
(Section 28(3))

LEGISLATIVE MATTERS

Trade and Industry

1. (1) Local licensing of professions, trades and businesses, Local marketing.
- (2) The Licence Act, the Co-operative Societies Act and the Weights and Measures Act 1973 are not included.

Cultural and Environmental Matters

2. (1) Local crafts. Historical remains. Protection of wild creatures.
- (2) The Wild Birds Protection Act, except section 14 (bird sanctuaries), and the Protection of Wrecks and War Relics Act 1980 are not included.

Transport

3. (1) Coastal and lagoon shipping. Provision, maintenance and improvement of harbours, roads and bridges.
- (2) The Shipping Act, the Ports Act and the Light Dues and Harbours Act, except section 5, are not included.

Finance

4. Raising revenue by:

- (a) head tax;
- (b) property tax;
- (c) fees for services performed or licences issued by or on behalf of the Provincial Executive (other than services performed or licences issued by them as agent of another); and
- (d) such other means as may be approved for the purposes of this paragraph by the Minister by order.

Agriculture and Fishing

5. (1) Animal husbandry. Management of agricultural land. Grants, loans and subsidies in respect of agricultural production. Protection, improvement and maintenance of fresh-water and reef fisheries.
- (2) The Cocoa Act, the Copra Act, the Fisheries Act 1972 and the Cattle Development Authority Act 1977 are not included.

Land and Land Use

6. (1) Codification and amendment of existing customary law about land. Registration of customary rights in respect of land including customary fishing rights. Physical planning except within a local planning area (within the meaning of the Town and Country Planning Act 1979) or an area to which Part IV of that Act has been applied (development areas).
- (2) The Land and Titles Act, except sections 219 to 221 (customary land), and the Town and Country Planning Act 1979 are not included.

Local Matters

7. Fire services and fire protection. Waste disposal and cleansing services. Rest houses, eating houses and similar places. Public conveniences. Vagrancy. Public nuisances. Cemeteries. Parks and recreation grounds. Markets. Keeping of domestic animals.

Local Government

Housing

Rivers and Water

10. Control and use of river waters. Pollution of water. Provision of water supplies.

Liquor

NOTE References in this Schedule to any enactment include a reference to any order, rules or regulations made under it.

SCHEDULE 5
Section 28(4)

STATUTORY FUNCTIONS

PART I

FUNCTIONS THAT MAY BE TRANSFERRED

Cultural and Environmental Matters

The Wild Birds Protection
Act

The functions given to the Minister under
section 14 (Sanctuaries).

Transport

The Roads Act

The functions given to the Minister under
sections 3, 5, 27 and 29(b) to (f) and (so
far as relating to those paragraphs) (g)
of that Act.

The Light Dues and
Harbours Act

The functions given to the Chief Marine
Officer under section 5 of that Act
(obstructions in harbours).

Agriculture and Fishing

The Cocoa Act

The functions given to the Under
Secretary/Agriculture (or the Director of
Agriculture) under that Act.

The functions given to the Minister under
section 14(2) (e) (fees and charges).

The Copra Act

The functions given to the Under
Secretary/Agriculture (or the Director of
Agriculture) or the Clerk to a Provincial
Assembly under that Act.

The functions given to the Minister under
section 15(1) (m) (fees).

The Trespass and Branding
Act

The functions given to the Minister or the
Under Secretary/Agriculture under that Act.

Land and Land Use

The Land and Titles Act

The functions given to the Minister under
Division 2 of Part V of that Act
(compulsory acquisition of land) in
relation to land required for the purposes
of devolved functions.

Rivers and Water

The Water Supply Act

The functions given to the Minister, the Chief Executive Engineer (or the Director) or the Chief Accountant under that Act.

The River Waters Act

The functions given to the Minister under that Act.

Forestry

The Forests and Timber Act

The functions given to the Minister under section 5(3)(b) and Part IIA of that Act (approved timber agreements affecting customary land).

The functions given to the Minister under Part III (licensing of mills).

The functions given to the Minister under Part VI (control of forests to conserve water resources).

The functions given to the Minister under section 33 (regulations) so far as relating to Parts IIA, III and VI.

Public Holidays

Liquor

PART II

CONCURRENT FUNCTIONS

The functions included in Part I in respect of the following Acts:

The Roads Act
The Traffic Act
The Public Holidays Act

SCHEDULE 6

Section 35(5)

PROVINCIAL SERVICES

Trade and Industry

Employment. Co-operatives. Local trades and industries.

Cultural and Environmental Matters

Museums, libraries, local languages, arts and crafts, sports and other cultural and recreative activities. Historical remains. Conservation of the environment.

Transport

Shipping and harbours. Road transport. Aerodromes.

Agriculture and Fishing

Agriculture. Fishing.

Health

Medical services. Public Health.

Local Matters

Matters included in paragraph 7 of Schedule 4. Welfare and other social services.

Housing

Housing.

Information

Newspapers and other information services. Statistics.

Forestry

Forestry.

Education

Kindergartens, primary schools, provincial secondary schools and community education.

Electricity

Supply of electricity outside supply areas (within the meaning of the Electricity Act).

Tourism

Tourism.

SCHEDULE 7

Section 36(4)

MATTERS TO BE INCLUDED IN FINANCIAL
MANAGEMENT ORDINANCE

The form of the annual estimates.

The method of authorising and making issues from the Provincial Fund.

The management and reallocation of funds within the amounts appropriated.

The provision of funds in advance of appropriation.

The use of bank accounts and the investment of monies forming part of the Provincial Fund.

The making of advances.

The acceptance of deposits.

The creation and control of special funds.

The appointment and responsibilities of staff charged with accounting tasks.

The making of rules and regulations relating to financial management and to the procurement, safekeeping, accounting for and disposal of stores.

SCHEDULE 8

Sections 28(5) and 45(1)

PART I

AMENDMENTS TO BE BROUGHT INTO FORCE BY
DEVOLUTION ORDER

Transport

1. At the end of section 5 of the Ports Act (power to appoint ports) insert:

"(3) No order may be made under this section without the consent of the Provincial Executive for the province in which the place concerned is situated".
2. (1) In section 2 of the Roads Act, at the end of the definition of "Director" insert "and includes, in relation to any area of a province, any person to whom the Provincial Executive has assigned the functions conferred by this Act on the Director."

(2) Section 4 of that Act (power to vest control of roads in local authority) is repealed.

(3) In section 5 of that Act (power to close roads, etc.), after "Government" insert "or, as the case may be, the Provincial Executive".

(4) In section 16(1) of that Act, leave out "at Honiara".

(5) In section 28(1) of that Act (no liability for condition of road), after "Government" insert "or a Provincial Executive" and for "either" substitute "any of them".

Agriculture and Fishing

3. In section 2 of the Fisheries Act 1972, in the definition of "authorised officer", after "vessel" insert "any provincial government officer declared by the Provincial Executive to be an authorised officer for the purposes of this Act".

Land and Land Use

4. In section 13 of the Town and Country Planning Act 1979 (orders controlling development), in subsection (2), omit "either" and, in paragraph (b), for "or" substitute "and".
5. (1) In section 74 of the Land and Titles Act (effect of declaration that land is required for public purpose) after "Government" insert "or, in the case of a declaration by a Provincial Executive, for and on behalf of the Provincial Executive".

- (2) In section 77 of that Act (alteration of register) after "Government" in paragraphs (a) and (b) insert "or, as the case may be, the Provincial Executive".
- (3) In section 81 of that Act (temporary occupation of land) for "benefit of the people of Solomon Islands" substitute "public benefit".
- (4) At the end of Part V of that Act insert:

"Expenses
incurred by
Commissioner on
behalf of
Provincial
Executive.

84A. Any expenses incurred by the Commissioner under this Part in respect of land acquired, or occupied and used, for devolved functions (within the meaning of the Provincial Government Act 1980) shall be charged on the Provincial Fund".

SOLOMON ISLANDS
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APPENDIX C

DIVISION OF MINISTERIAL RESPONSIBILITY

PRIME MINISTER

Co-ordination of Ministers
Economic Development Co-ordination
Public Service
Local and Foreign Investment
Information
Defence and National Security
Physical Planning

HOME AFFAIRS AND NATIONAL DEVELOPMENT

Provincial Government
Liquor
Citizenship
Elections
Co-ordinating Provincial Ministers
Housing
Ecclesiastical Affairs
Natural Disaster and Emergencies
Agriculture
Births, Marriages and Deaths Registration
Tourism
Business Advisory Service and Training
Museums
Co-operative Development
Internal Marketing
Weights and Measures
Resettlement
Rural Credits
Public Holidays

Statutory Authorities

Copra Board
Housing Authority
Cattle Development Authority
Tourist Authority

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FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Foreign Affairs
Regional Organizations
External Marketing and Negotiation
Public Relations

POLICE AND JUSTICE

Police and Prisons
Bomb Disposal
Law
Registrar General's Department)
Attorney General's Chambers) For general policy
Judicial Department) and answerability
Director of Public Prosecutions) to Parliament
Public Solicitor's Office
Immigration
Fire Service

FINANCE

Accounts
Agents and Agencies
Banking, Currency and Exchange Control
Boards of Survey
Central Tender Board
Customs and Excise
Financial Planning
Estimates and Supplementary Provision
Statistics
Stock Verification, Stores and Supplies
Taxation
Write-off
Credits and Investment
Audit
Overseas Loans
Printing and Publication
Import and Export Licensing

Statutory Authorities

Monetary Authority
Shareholding Agency
Development Bank
National Provident Fund

LAND, ENERGY AND NATURAL RESOURCES

Lands
Land Use Policy
Surveys
Environment and Conservation
Geology

Fisheries and Forestry
Mining
Energy Development

HEALTH AND MEDICAL SERVICES

Medical Services
Referral Hospitals
Public Health

EDUCATION AND TRAINING

Curriculum Development (Primary, Secondary and Tertiary)
Training (Professional, Technical and General)
Primary, Secondary and Tertiary Education
Local and Overseas Training
Archives and Libraries
Scientific and General Research
Arts and Crafts

TRANSPORT, COMMUNICATION AND GOVERNMENT UTILITIES

Public Works
Government Construction
Electricity
Airfields
Meteorology
Post and Telecommunication
Motor Traffic
Civil Aviation
Ports
Marine
Shipping Policy
Overseas Shipping
Maritime Convention Law
Roads and Bridges
Water Supply

Statutory Authorities

Electricity Authority
Broadcasting Corporation
Ports Authority

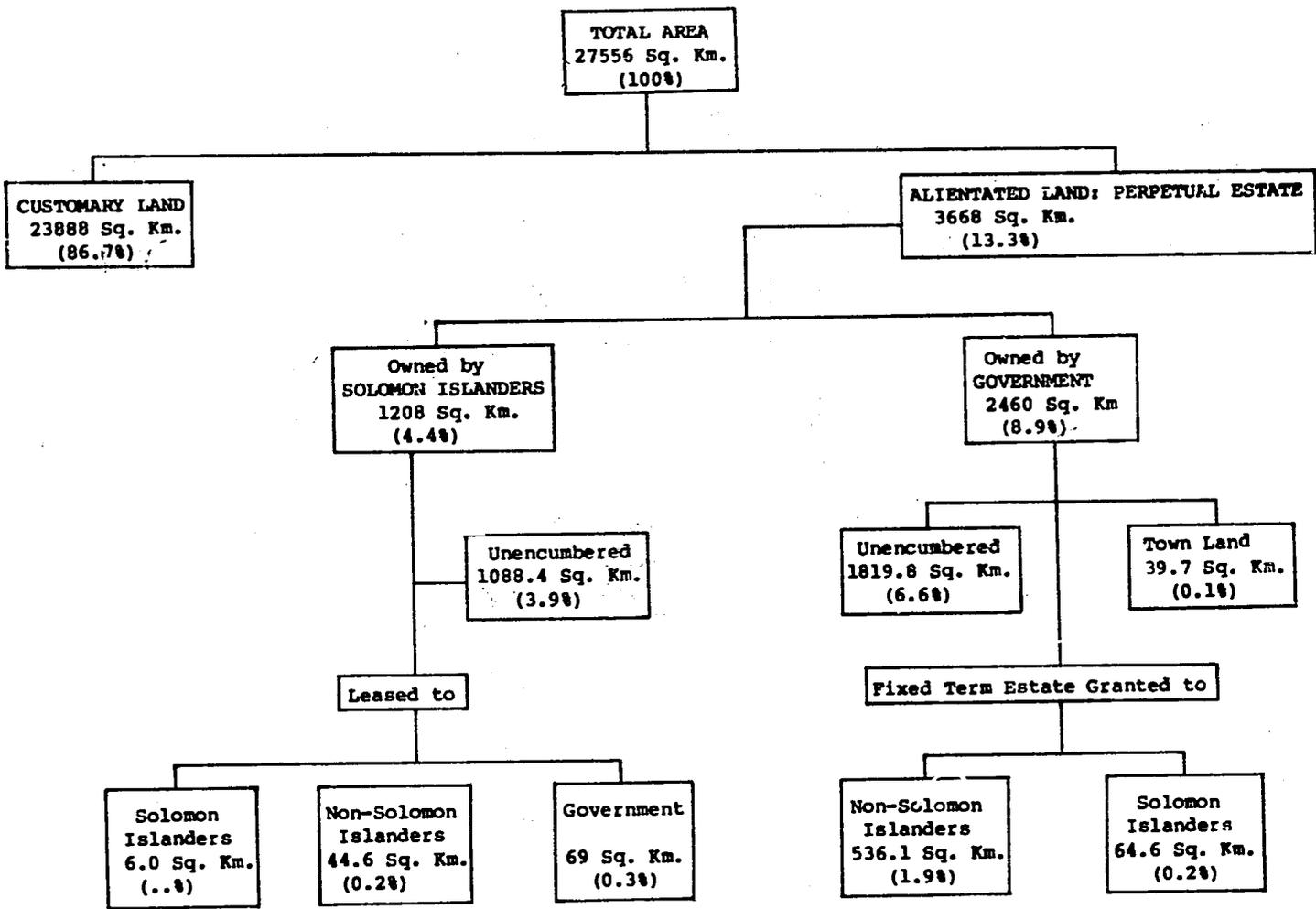
EMPLOYMENT, YOUTH AND SOCIAL DEVELOPMENT

Trade Training
Industrial Relations
Conditions of Employment
Employment Services
Social Development and Welfare
Probation and Rehabilitation

Sports
Youth
Films

PROVINCIAL AFFAIRS (FIVE MINISTRIES: WESTERN, MALAITA, GUADALCANAL,
CENTRAL ISLANDS AND ISABEL, MAKULA AND TEMOTU)

Provincial and Economic Development Planning
Local Companies
Provincial Housing Policy
Liquor Licensing
Business Advisory Service and Training
Commerce, Industry and Manufacturing
Co-operative Development
Internal Marketing
Weights and Measures
Agriculture, Animal Husbandry and Veterinary Services
Town and Country Planning
Resettlement
Rural Credits
Small Scale Fisheries and Milling
Roads, Bridges and Internal Airfields
Water Supply
Provincial Ports
Urban and Rural Clinics
Public Health
Primary Education
Customary Land Matters



SOLOMON ISLANDS
 Agricultural Research, Extension and Support Facilities Project
 Distribution of Land Holdings

SOLOMON ISLANDS

**Agricultural, Research, Extension and Support
Facilities Project**

PROGRAMME OF ACTION

PHASE 1 October 1981 - March 1982

A. ECONOMIC AND FINANCIAL POLICIES (Analysis and Review)

1. The policies and guidelines on the following subjects are required to be formulated and drawn during this period (Stage One).
 - (a) foreign investment and commercial development;
 - (b) monetary and fiscal;
 - (c) credit institutions and banking system;
 - (d) National Provident Fund investment;
 - (e) aid (both grants and loans) from bilateral and multi-lateral bodies;
 - (f) local investment.
2. Feasibility studies will be undertaken so as to ensure.
 - (a) increased and diversified production;
 - (b) product and market diversification;
 - (c) increased local industries and manufacturing;
 - (d) increased and improved export volumes and qualities of our various commodities;
 - (e) wider scope of import substitution;
 - (f) Foreign Investment policy and commercial development guidelines to be pursued vigorously.
3. To encourage an open, liberalised free competitive enterprise economy with minimum government intervention, it will be necessary to -
 - (a) increase production of goods and services throughout the economy to enable market prices to become competitive;
 - (b) introduce temporary price control over certain goods and services which are essential but currently limited in supply, or subject to monopoly pricing;
 - (c) review regularly the temporary price control measures so that they do not create adverse effects on supply and production or become anti-market prices.
4. To establish in all Provinces, associations of farmers, fishermen, and small businessmen to do the following:
 - (a) represent and promote the well-being of their members;
 - (b) act as official channels through which the rural farmers, fishermen and small businessmen activities will be co-ordinated

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- and promoted;
 - (c) share costs in activities where they would not be viable if undertaken individually;
 - (d) bring to the notice of Provincial and National Government common problem areas affecting their development programmes.
5. To upgrade and promote Provincial Business Advisory and Agriculture Extension Sections to facilitate in -
- (a) record keepings; simple book-keeping
minute taking; correspondence; recording and filing of information;
 - (b) market availability, market pricing, quality controls and knowledge of better seeds, animals and fish stock;
 - (c) technology (knowledge); particularly the use of intermediate technologies that are suitable for the area and its people; to facilitate for rapid movements of goods and services;
 - (e) advice on credit availability, terms and conditions.
 - (f) assistance in project formulation prior to submission to the DBSI or any of the three commercial banks for consideration;
 - (g) follow-up of advice given to ensure that it is being carried out effectively and to ensure that project applications submitted to DBSI and the commercial bank are dealt with promptly;
 - (h) advice on livestock feed and crop fertilizers and their use;
 - (i) advice on training and re-training facilities aimed at improving the farmers, fishermen and businessmen's skills and expertise.
6. To discuss with DBSI and commercial banks the development of new areas for investment in the Provinces. Such discussions will be extended to require the banks, where feasible, to open up branches and where this is not feasible to appoint commission agents to act on their behalf.
7. To formulate and legislate on an instrument to handle government shares in joint ventures incorporating provincial governments, statutory bodies, companies and individual shares. This is to be done by replacing the present GSA with a National Corporation. NIC functions may also include the development of business.
8. To begin the work required to convert SIMA into the Central Bank and establish regulations and policy guidelines aimed at ensuring that the commercial Banks fulfill their role in developing the Solomon Islands.

THE IMPLEMENTATION PROGRAMME: 30 MONTH PROGRAMME⁽¹⁾

ECONOMIC ACTIVITIES SUB-SECTORS	PRESENT STATUS	SHORT TERM PLAN (1 MCNTH - 6 MONTHS) =6	MEDIUM TERM PLAN (6 MONTHS - 15 MONTHS) =9	LONG TERM PLAN (15 MONTHS - 30 MONTHS = 15	REMARKS
AGRICULTURE: SUBSISTENCE	Neglected, allowed to go on in its own way, pace and pattern.	Identify crops like taro, kumara, vegetables, fruits etc. for development. Ext. officers be encouraged to get to people. Research/disease problems to be attended to.	Organize inter-island trade in food crops. Organise rural market. Announce prices over SIBC. Adjust tariffs to protect local food growers. Tax imports of item to locally grown coming in canned /juices.	Establish through private sector processing plants in growing areas to process local food. Get a CFTC Home Economics experts to encourage home processing of fruits to jams etc.	
COCONUT	CB-Copra for exports. Grading at Honiara, Noro, Yandina. Exports from three ports.	See mobilisation report submitted-graders to eight provinces, information to growers, quality improvement. Speedy payments.	Copra milling in West with private sector (CB joint stockholding) coconut oil industry diversifying markets, producer credit improved market cashflow.	Encourage CB-Private sector weaving and stitching copra bag growing countries in South Pacific. Encourage replanting, underplanting scheme, etc.	

(1) See footnote to para 3.02 for comment on this programme.

ECONOMIC ACTIVITIES SUB-SECTORS	PRESENT STATUS	SHORT TERM PLAN (1 MONTH - 6 MONTHS) =6	MEDIUM TERM PLAN (6 MONTHS - 15 MONTHS) =9	LONG TERM PLAN (15 MONTHS - 30 MONTHS = 15	REMARKS
COCOA	Smallholder crop. Few large growers like SIPL, Pacific Agronomics, Levers.	Encourage more large- scale investments with small contract farming.	Improve quality, quantities and make industry competitive.	Encourage private sector cocoa powder, butter, liquor processing for export manufacture of choco- late using peanuts, nalinuts, local copra, etc. local copra etc.	
RICE	Brewer Solomons large scale.	Assist to help them to help themselves, cost reduction etc. permit imports of inputs, machinery free of duty.	Encourage est. rice dist. depots in each province. Export incentives to export packeted rice. Encourage rice flour packeting.	Encourage use of rice bran for making rice bran oil for soap/ exports. Set up provender plant using rice bran, coconut poonac, corn for corn for pig/poultry foods.	
SPICES TURMERIC GINGER CARDAMON CHILLIES	Small scale scattered.	Encourage quality improvement through new cultivation, better processing, organising shipping and marketing. Quantity and quality to improve. Allow sporadic quality exports. Encourage spice grinding for exports.	Any spice grown or imported for grinding for exports should be protected.	Expansion based on careful market analysis.	

ECONOMIC ACTIVITIES SUB-SECTORS	PRESENT STATUS	SHORT TERM PLAN (1 MONTH - 6 MONTHS) =6	MEDIUM TERM PLAN (6 MONTHS - 15 MONTHS) =9	LONG TERM PLAN (15 MONTHS - 30 MONTHS = 15	REMARKS
OIL PALM	SIPL does this exports Palm oil/ kernels.	Encourage large scale expansion in the West.	Encourage veg. oil to local market to reduce exports.	Encourage export of kernel oil fatty acids etc.	
NEW CROPS SPICES BEVERAGES KERNELS	Nil 30A Coffee Nil	Approve projects to grow new spices, beverages and edible kernels for processing and exports. Clove, Cardamon, Nutmeg, Cassia, Pepper, Pimento, Sena, Cashew, Coffee.	Improve quality, quantity.	Encourage local processing packeting for exports.	
EDIBLE NUTS CASHEW NALINUTS	Only Nalinuts scattered.	No nalinut trees be cut. Introduce nalinuts, cashew into refore- station programme.	Approve large scale plantations of cashew, macadamia nuts processing/canning of nalinuts.	Local processing and canning for export.	
COARSE GRAINS AND PULSES BEANS, PULSES ETC.	Scattered unorganized growing.	Encourage large scale cultivation of corn, beans, pulses, oil seeds.	Use in local food provrader, to improve nutrition.	Reduce imports.	

ECONOMIC ACTIVITIES SUB-SECTORS	PRESENT STATUS	SHORT TERM PLAN (1 MONTH - 6 MONTHS) =6	MEDIUM TERM PLAN (6 MONTHS - 15 MONTHS) =9	LONG TERM PLAN (15 MONTHS - 30 MONTHS = 15	REMARKS
FORESTRY	Logging done. Logs exported small scale timber millers-problems (SEE CONSULTANTS REPORT)	Implement no logging without Agriculture Policy. (SEE CONSULTANTS REPORT) No felling allowed over 4000' as a conservation measure.	Encourage timber based industry, (SEE FOREIGN INV. POLICY PAPER) Logging Comp. to put in money for Agr. Dev.	Systematic planting of high value tropical forest plants. Timber based industries for exports.	
FISHERIES	Taiyo and NDC at present local fishing not organised.	Invite new fishing companies for each Province with canning and fishing facilities. Tawan, S. Korea, Hong Kong, Malaysia, Sweden, Norway, Netherlands, Philipines, U.K. comp. to be invited.	Est. canning facilities by each collaborator in each Province. Exports of canned fish to target markets directly. Ice plants in each Province. Est. National Fisheries Council to reg. fishing.	Assist small fishermen organise them into fisheries societies, give credit, boats, etc. Help in marketing.	
LIVESTOCK	Cattle Development imports of eggs etc,	Convert CDA to a NLDA to cover poultry, pigs, goats, imports stocks, chicks etc.	Encourage Provincial piggeries, poultry farms, dairy farms. Est. provincial provender plants. Organize marketing with provinces.	Give protection to local industry by high tariff values.	

SOLOMON ISLANDS

Agricultural Research, Extension, and Support

Facilities Project

THE RESEARCH COMPONENT

I. Introduction and Summary

1. The purpose of this study is to review agricultural research in the Solomon Islands and to make recommendations for action which will enable it to continue to give effective support to the government's agricultural development program. The main features of that program are:

- the maintenance of self-sufficiency in the production of food, and
- a wish to expand and diversify the production of export cash crops.

These objectives must be achieved against a background of 3.5% annual population growth. This will lead inevitably to more intensification of crop production on the country's limited agricultural land resources. In the notoriously fragile environment of the wet lowland tropics, this is thus the major issue to be addressed by future research.

2. Agricultural research in the Solomon Islands is conducted by both government and the commercial plantation sector. The commercial sector, historically based upon the production and export of copra, has more recently investigated the husbandry and marketing of other potential cash crops. In joint ventures with the government, it has diversified into the production of oil palm, cocoa, and rice; it imports appropriate technology and conducts its own adaptive research on those crops. Such research should be encouraged and continued in parallel with research in the Division of Agriculture.
3. The present Agricultural Research Section of the Agriculture Division of the Ministry of Home Affairs and National Development is small, with seven research officers and a chief research officer on the establishment. Two of the research officer posts are vacant. The scientists reside and work at the research headquarters at Dodo Creek, some 20 km southeast of Honiara on the Guadalcanal plain. The laboratories are reasonably well equipped for the current work

load and the staff have access to a newly established experiment farm on alluvial montmorillonitic clay at Tenaru, 7 km from Dodo Creek, and to a cocoa plantation at Black Posts, close to Tenaru. There is a farm run by the Veterinary and Livestock Section nearby at Tenanatu, on which some research is done on pastures and on aspects of the management of livestock.

It is notable that the soils and rainfall regimens of the Guadalcanal plain are found nowhere else in the Solomon Islands. Though experiments are done in other island and environments, the research Section is severely limited in its capacity to do multilocation, adaptive research within the country.

4. The current research program is restricted in scope with emphasis on the communal and smallholder sectors, while continuing to provide services (in soil science, pathology, and entomology) to the commercial joint ventures. There is some lack of both focus and adequate team work. Though small, the division's Research Section does work of good scientific quality and has a record of sound achievements within the above limitations. The continuation of current work within the division, and the need to ensure the continuity of the participation of the present cadre of scientists (or others of equal capability) in it have high priority among the recommendations formulated in this study.
5. In reviewing the potential for the diversification of cash crop production, the overriding importance of market research and an marketing policy were immediately apparent. A wide range of new export cash crops can be grown by smallholders; none will succeed without assured markets and a marketing policy which minimizes the initial financial risks to be borne by the producer. To maximize the research impact on the diversification program, only a few new crops are recommended for initial study; chief among them is Robusta coffee (Coffea Canephora).
6. Part II of this annex describes the organization and program of current research in the Solomon Islands. Part III describes the rationale and justification for the project components which are recommended in Part IV. In Part V, the organization and management necessary for implementation of the project are discussed, and some important issues are raised in Part VI.

II. Background and Current Situation

7. The policy for research in the development of agriculture has been set down both generally and in particular in two documents which exist only in draft (as they have not been totally accepted by the government); and in a more recent government "Programme of Action, 1981-84", part of which is reproduced as Annex 5. There is at present no formal process for the discussion and formulation of research objectives or priorities within the Division of Agriculture in relation to the general agricultural development policy statements which have been written. Nevertheless, research programs have been drawn up to enable at least some of these policies to be expanded technically with a view to expediting development programs.

8. The main development policies are expressions of objectives and can be paraphrased by crops, as:

- Coconuts - improvement of planting material and rehabilitation of older plantings;
- Cocoa - identification of 2,000 ha for commercial cocoa and assistance to the communal and smallholder sectors to establish cocoa under coconuts;
- Oil palm - promotion of the development of the existing estate by outgrowers; establishment of a new estate;
- Pasture - improvement of pastures and their use to increase the national herd;
- Other cash crops - investigation of the potential of new crops;
- Food crops - maintenance of self-sufficiency.

Organization of Research Programs

9. Current research by the Division of Agriculture in support of these development objectives is organized by disciplines, across commodities. The disciplines are soil science, horticulture, pathology, and entomology. A plant breeder is associated with the research program on a fixed term appointment financed by the UNDP/FAO, under the South Pacific Commission's Root Crops Program. Pasture research, now ended, has been conducted by an agronomist supported by the University of Queensland/Australian Development Assistance Bureau's Pasture Research Project.

Research Programs: Cash Crops

10. Coconuts: A joint coconut research scheme operated with Lever Pacific Ltd., was absorbed in 1980 by the company's research center at Yandina, Russell Islands, on the foundation of Lever Solomons Ltd., and strengthened by the engagement of the chief research officer of the Division of Agriculture. Current work at Yandina will be considered below. Work on coconuts which remains at the division includes the following:

- i) The biological, chemical, or cultural control of the following pests:
 - the Southern Hemisphere rhinoceros beetle, Scapanes grossepunctatus.
 - the premature nut fall insect, Amblypelta cocophaga.
 - the coconut spathe borer, Axiagastus cambellii.
 - the coconut moth, Tirabatha rufivena.

- the coconut weevil, Pantorhytes biblagiatus.
- the coconut leaf beetle, Brontispa longissima.

Two ways of controlling Scapanes are being investigated: first by the release of the virus Baculovirus oryctes which, in field trials, appears to have decreased the beetle population in the New Georgia group of islands; second, by a combination of hygienic forest clearing methods, which eliminate breeding sites, and by the use of insecticides. Control by insecticides is, however, unlikely to be generally applicable at the present stage of development.

All of the other coconut pests listed appear to be susceptible to biological control, at least in new plantations, by introducing the yellow tree nesting ant Oecophylla smaragdina. Control by this means is not possible in plantations already occupied by antagonistic ants, notably Iridomyrmex cordatus, until these ants have been destroyed.

- ii) Studies of the aetiology and control of Marasmiellus cocophilus causing basal stem rot in seedling coconuts and carried by seednuts. There appear to be good prospects for adequate control of this pathogen, sufficient to permit the inter-island movement of seednuts at an acceptable degree of risk, by fumigation with methyl bromide.
 - iii) Field trials at four locations to compare the performance of Malayan Dwarf x Rennell hybrids with Rennell and Local Tall palms in the presence and absence of currently recommended rates of annual application of potassium and/or phosphorus fertilizers. It is questionable whether the information yielded by trials of this nature justifies their continuance.
 - v) Soil surveys of plantations identified for redevelopment.
11. Cocoa: All of the division's cocoa research is done at Black Posts in the Guadalcanal plains. As well as the investigations detailed below, the Research Section provides a service by distributing seed of Amelonado cocoa from a 6-ha block planted at Black Posts in 1974. In the four years to 1981, sufficient seed was distributed to plant 2,496 ha of cocoa.

The main research projects are:

- i) Investigations on the control of black pod and stem canker Phytophthora palmivora by the evaluation of fungicides; and screening F2 progenies derived from Sabah hybrid parents for susceptibility to these diseases.
- ii) Continuing evaluation of 28 F1 hybrid progenies derived from Sabah clonal parents, and their F2 progenies, planted at Black Posts in 1974. These studies include the observation of growth parameters, precocity and yield. Results to date suggest that the hybrids are more precocious and higher yielding than Amelonado⁽¹⁾ in the seasonally dry environment of the Guadalcanal plains.

- (iii) NPK fertilizer response of Amelonado, with rates of 0, 100 and 200 gm/tree of sulphate of ammonia and muriate of potash, and 0 and 200 gm/tree triple superphosphate. (The rate of 100 gm/tree is equivalent to 112 kg/ha). There have been no statistically significant responses to the fertilizer treatments.

12. Oil palm: There is no current research by the division. A notable past achievement was the successful introduction of the oil palm pollinating weevil, Elaeobius kamerunicus, from West Africa in 1981. There is good evidence that the presence of this insect has eliminated the need for hand pollination within the SIPL plantation on Guadalcanal plain; while this may be confounded with the effect of increasing age of the palms and the associated increase in self-pollination, the evidence is such that SIPL proposes to stop hand pollination in the near future.

13. Pasture (2): The pasture agronomy research program has been concluded and a "Pasture Handbook for the Solomon Islands" has been published. The handbook deals in particular with:

- the selection of suitable sites for pastures
- pasture species
- pasture planting and establishment
- pasture management
- weed control.

14. Other cash crops:

- (i) Rice (3). The Research Section contributed to studies of the control of the brown plant hopper, Nilaparvata lugens, and continues to make available the services of the entomologist, pathologist, and soil scientist to BASL on request.
- (ii) Turmeric and ginger. Past research provided recommendations for the culture of these spices in the Solomon Islands.
- (iii) Cardamom. A single Indian cultivar, Malabar, is being evaluated at an upland site in Guadalcanal Province.
- (iv) Small collections of turmeric, ginger, Capsicum pepper, and nutmeg are maintained by the division, but there is at present no research on these or any other new cash crops.
- (v) A start has been made to build up a collection of the economic trees (not timber species) of the Solomon Islands at Tenaru.

Research Programs: Food Crops

15. Some important features of the smallholder farming system have already been identified and are important to the discussion of food crops research (current and projected). They are:

- (1) Yields of dry cocoa of the order of 1,000 kg. ha appear to be possible.
- (2) The cattle raised are a source of income for farmers.
- (3) Rice is a cash crop to the producer but is a major item of food in the towns.

- the practice of shifting cultivation in secondary forest, where crop cycles of 1 or 2 years were traditionally followed by fallow breaks as long as 20 years. Recently there has been a trend towards a system in which food crop cycles are followed directly by new coconut plantings in order to continue to enjoy the usufruct of customary land;
- a rapid decline in soil fertility during the first cropping cycle, marked especially by a widespread deficiency of potassium on soils overlying uplifted coral limestone, and an anomalous sufficiency of nitrogen through one or more crop cycles;
- no use of fertilizer;
- a relatively recent shift of emphasis among the staple root crops from taro to sweet potato (which now occupies some 65% of the land area devoted to food crops), largely as a consequence of the arrival in 1946⁽¹⁾ of the destructive taro blight pathogen, Phytophthora colocasiae, and its rapid spread throughout the country.

Taro blight has been estimated⁽²⁾ to cause field losses of 40 to 60% of corm yield and storage losses of up to 80% within 5 days after harvest^(3,4).

- the absence of any traditional cereal or grain legume crops within the farming system, presumably because there is too much rain for dry grain production, and the general lack of diversity among food crop species, particularly the dearth of traditional vegetables. Only bush cabbage (Abelmoschus manihot) and the long bean (Vigna unguiculata subspecies sequipedalis) seem to be widely grown in significant amounts.

1) Parham, B.E.V. (1947) Economic Botany notes 3. Disease of taro.. Agric. J. Dept. of Agric., Fiji. 18.

(2) Jackson, G.V.H., Gollifer, D.E., and Newhook, F.J. (1980).

Studies on the taro leaf blight fungus, Phytophthora colocasiae in Solomon Islands; control by fungicides and spacing. Anns. Appl. Biol., 96, 1-10.

(3) Jackson, G.V.H., and Gollifer, D.E. (1975). Storage rots of taro Colocasia esculenta in the British Solomon Islands. Anns. Appl. Biol., 80, 217-230.

(4) Jackson, G.V.H. et al (1979). The use of fungicides and polyethylene bags for control of post-harvest decay in stored taro corms in the Solomon Islands. Workshop on small-scale processing and storage of tropical root crops, pp 39-51. University of Hawaii, Honolulu, U.S.A. June 19-23, 1978.

- the importance of coconuts as a daily item of diet.
16. Food crop research is a major component of the current program of the Research Section of the Division of Agriculture. In general terms it consists of four major activities:-
- the collection, characterization and maintenance of germplasm ; (1)
 - screening germplasm for reaction to pests and pathogens;
 - fertilizer response studies;
 - disease resistance breeding in taro and sweet potato.
17. Taro: Colocasia esculenta (var. esculenta, sensu Purseglove). This program has five main components.

- (i) Germplasm: A total of 187 cultivars, mostly from the island of Malaita, were established at Dala Experiment Station in 1969. They were assessed for yield, susceptibility to taro beetle (Papuana inermis), taro blight (Phytophthora), virus diseases, and storage characteristics. Between 1972 and 1974 an additional 80 cultivars were gathered within the Solomon Islands, and more were received from Fiji, Western Samoa, Vanuatu, Hawaii, and Papua New Guinea.

With the closure of Dala Experiment Station in 1975, most of the taro collection was discarded. Such action was justified on the following grounds:

- the difficulty of maintaining collections in the presence of a lethal virus disease; and
- seed set occurs naturally, or can be induced with gibberellic acid. Viable seed can be preserved.

Taro seed from Solomon Island cultivars has been sent to India and to the International Institute of Tropical Agriculture (IITA), in Nigeria, and is stored at Dodo Creek.

Taro tissue culture techniques have been investigated in an attempt to transfer disease-free germplasm between countries. Virus disease has successfully been eliminated from taro clones by these means. Additionally, long-term maintenance of taro plantlets in culture media is now possible.

- (ii) Taro Blight: Phytophthora colocasiae. None of the germplasm gathered at Dala was immune or highly resistant to taro

(1) Jackson, G.V.H. (1980) Root Crop Genetic Resources of the Solomon Islands. MHAND, Research Section, Internal Report No. 8. Honiara.

blight. Nor has it been possible to obtain reputedly resistant clones (1) from the Central Potato Research Station in Patna, India. Research within the Department has identified an effective fungicide (Ridomil) treatment for the control of taro blight.

- (iii) Virus diseases: When the germplasm collection was screened for resistance to virus diseases, two groups of cultivars were identified. One group consists of a majority of cultivars which are generally high yielding, but susceptible to a lethal virus disease known locally as 'aloma'. Diseased plants are infected with two types of bacilliform particles: a rhabdo virus and a smaller bacilliform particle. The second group of cultivars contains low yielding clones which are resistant to "aloma", but susceptible to a non-lethal disease, locally called "bobone", which is caused by the rhabdo virus alone.
- (iv) Taro beetle: Papuana inermis. None of the germplasm has been found resistant to the taro beetle. Recommendations have been made for control of the pest by cultural methods and the use of insecticides.
- (v) Breeding for taro blight resistance: This program is based upon a single clone of wild C. esculenta var. antiquorum obtained from Bangkok, Thailand. It is immune to taro blight disease. Crosses between this clone and some of the local high yielding cultivars of var. esculenta produced a fertile F1 population. A backcross program with var. esculenta as the recurrent parent is in progress. Its objective is to combine the desirable agronomic and culinary traits of local cultivars with the immunity of the Bangkok clone. There are good prospects for a successful outcome to this work. The availability of an immune or resistant cultivar would have an important economic impact upon subsistence agriculture in the south-Pacific region as a whole.
18. Other aroids: Small collections of Alocasia macrorrhiza, Xanthosoma sagittifolium and X. violaceum are maintained at Dodo Creek.
19. Sweet Potato (Ipomoea batatas): This program has five components:
- (i) Germplasm. The collection and evaluation of Solomon Islands sweet potatoes began in 1967; 59 cultivars had been gathered by 1969. After characterization, documentation, and preliminary yield tests, 25 cultivars were retained and the rest discarded. After the move from Dala to Dodo Creek in 1975 an additional 223 local cultivars were gathered in the search for resistance to witches'-broom disease. Recently seed has been obtained from the root and tuber improvement program of IITA in Nigeria.

(1) Deshmukh, M.J. and Chhibber, K.N. (1960). Field resistance to blight (Phytophthora colocasiae Rac.) in Colocasia antiquorum Schoot. Current Science, 29, 320-321.

It is not possible to maintain large living collections of sweet potato on the Guadalcanal plains because of the high incidence of disease. Only those cultivars less preferred by the sweet potato weevil or least susceptible to witches'-broom are maintained as clones. Seed has been obtained from most of the rest and is stored at Dodo Creek; some has been sent to IITA.

- (ii) Witches'-broom disease. None of the cultivars in the germplasm collection have been found immune or highly resistant to this disease, which is caused by a mycoplasma-like organism. However, six cultivars do show useful resistance. Seed of the immune cultivar PI 344129 has been obtained from the Asian Vegetable Research and Development Center, Taiwan. None of the 82 seedling lines derived from it were immune in the Solomon Islands.
- (iii) The sweet potato weevil (Cylas formicarius). Attempts are being made to develop rapid laboratory methods to screen germplasm collections for resistance to the weevil. Two clones have been identified which combine consistent high yields with low weevil susceptibility.
- (iv) Breeding. Crosses have been made between selected local cultivars and between local and Nigerian material in attempts to improve yield and other agronomic traits, as well as to produce clones resistant to witches'-broom and weevil.
- v) Fertilizer trials. Two trials are in progress, one on the Malu'u, the other on the Tamba'a Land Systems of Malaita Province. The treatments are the presence and absence of recommended rates of application of triple superphosphate and muriate of potash.

A third trial is on a grassland alluvial soil of the Guadalcanal plain to determine if nutrient inputs can maintain yields when such land is continuously cropped and to measure the decline of fertility when no fertilizer is used.

10. Yams (Dioscorea spp): Two main lines are being developed, the collection and evaluation of germplasm and the search for resistance to specific diseases.

- (i) Germplasm of greater yam, (Dioscorea alata). The collection of germplasm of the greater yam began in 1968 and has continued more recently in the search for resistance to anthracnose disease, caused by Colletotrichum gloeosporioides. At present there are more than 100 local cultivars under observation. They are grown at Dala, in Malaita Province, because the heavy clay soils at Tenaru are unsuitable for yams. Elite D. alata cultivars from the Mayaguez Institute of Tropical Agriculture, in Puerto Rico, have been imported under quarantine to the Solomon Islands as part of the anthracnose resistance program.

In a collaborative program with the Glasshouse Crops Research Institute, U.K., shoot-tip culture techniques are being

developed so that virus-indexed, disease-free clones of the greater yam can be obtained for distribution within the Solomon Islands and to other countries.

Dioscorea esculenta. Thirty cultivars collected from Guadalcanal and the Reef and Nggela Islands are maintained on the sandy soils at Dodo Creek. This yam species is thought to have good potential because it yields well and suffers little from pests or pathogens. The collection has not been evaluated.

Other species. Four cultivars of D. bulbifera, 15 of D. nummularia and 2 of D. pentaphylla are maintained at Dala.

- (ii) Anthracnose. The search for resistance to C. gloeosporioides forms a major component of research by the plant pathologist and is well documented⁽¹⁾. Among the extensive collections of local cultivars which have been screened for reaction to the disease, 49 had been selected for further study by 1980. Yield trials to compare the most promising clones are to be grown at Dala. Inoculation tests have shown that cultivar PI 390079 from Mayaguez is immune to Colletotrichum leaf infection.
21. Cassava (Manihot esculenta): This crop appears to be gaining in popularity and may be more widely grown than is commonly supposed. A small research program is being developed.
- (i) Germplasm. Twenty local cultivars have been collected and are maintained at Tenaru. There are no plans to import germplasm from other countries because cassava in the Solomon Islands is remarkably free from serious diseases, notably mosaic virus and bacterial blight.
- (ii) Disease screening. All 20 cultivars are under observation on Choiseul Island, where a mosaic disease is known to occur (not the cassava mosaic of Africa).
- (iii) The yield of 20 cultivars is being assessed at Tenaru.
22. Vegetables and Fruits: These are not major items of food for the main part of the population, but there is a growing demand from the urban areas. Import substitution or replacement possibilities exist.
- (i) Vegetables. The horticulturist imports seed of a small number of vegetables for distribution. A collection of local cultivars of bush cabbage (Abelmoschus manihot) is maintained at Dodo Creek, but there are no germplasm collections, nor any research on a range of other locally grown vegetables.
- (ii) Fruits. A citrus trial with grapefruit, pomello, and lemon on rough lemon and sweet orange root stocks was established at Dala in 1974. It is no longer maintained. There is no other
- (1) Jackson, G.V.H. (1981). Third report (1980-81) on the screening of yam cultivars of Dioscorea alata for resistance to dieback caused by Colletotrichum gloeosporioides. MHAND. Research Section. Internal Report No. 10. Honiara.

research on fruits (previous reference (paragraph 14 item v) has been made to collections of indigenous nuts and breadfruit) nor any facility to produce budded stocks for distribution.

Research Programs: Soils, and Plant Nutrition(1)

23. A soils laboratory has been established at Dodo creek, where a range of basic techniques is available for the analysis of soil, plant, and water samples. The current emphasis in soils and plant nutrition research is on the evaluation of crops on different soil types, and the investigation of nutrient inputs required for optimum growth and production. Soil surveys of coconut plantations for redevelopment, of proposed sites for research sub-stations, and of the Guadalcanal plain are in progress. Other research projects are:

- a peanut and cassava phosphorus rate experiment on three soil types in north Guadalcanal;
- a fertilizer experiment with coconuts on Rennell Island to investigate methods of improving the productivity of land associated with bauxite mining;
- investigation of the nutrient status of important Solomon Island soils in pot trials, using Macroptilium lathyroides as the indicator plant.

A land suitability classification for crops grown by smallholders has been prepared for use by extension staff(1). It is based upon an evaluation of the land systems and soils described in the British Ministry of Overseas Development Land Resources Survey(2).

The soil scientist continues to give advice to the extension services and to the Land Use Development section of the Ministry regarding land use planning and fertilizer requirements. It is important to note that potassium deficiency is widespread throughout the Solomon Islands on all major crops which do not receive potassium fertilizers. The sole exception seems to be crops grown on newly cleared land on the Guadalcanal plain. Even there, the availability of potassium decreases sharply under continuous cropping.

Plant Quarantine

24. The Solomon Islands is fortunate in its relative freedom from plant and animal pests and pathogens. The importance of an effective quarantine service to maintain this desirable status is recognized. Until recently the agricultural quarantine and produce inspection functions of the national quarantine service were carried out by a

(1) Chase, L.D.C. (1981). A preliminary guide to the suitability of land in the Solomon Islands for smallholder crops. MHAND, Research Section. Research Bulletin No. 1.

(2) Hansell, J.R.F., and Wall, J.R.D. (1976) Land Resources of the Solomon Islands. Land Resources Study 18. Land Resources Division, Ministry of Overseas Development, Surrey, England.

section of the Division of Agriculture, which published a handbook as a "Guide to Importers." The development of the service, especially increases in numbers of well trained staff, is now supported by New Zealand aid, and the functions of agricultural quarantine and produce inspection have tended to separate. The Research Section of the Division of Agriculture provides a limited post-entry inspection and testing service for plant materials at Dodo Creek. There are plans to expand this service in the near future.

Farm Development

25. Though not a research activity, the development of the new experiment farm at Tenaru as part of the Dodo Creek complex and of a substation at Onilafa in Malaita Province are major activities which occupy much of the time of the horticulturist.

Research in the Private Sector

26. Work is carried out by three companies which are joint ventures between external capital and government equity. These are Solomon Islands Plantations Limited (SIPL), whose major financing comes from the Commonwealth Development Corporation (CDC, 70%) -- although local customary land owners are also represented (4%); Lever Solomons Limited (LSL), one of the Lever companies in which government secured part of the equity (40%) in 1978; and Brewer Solomons Associates, which was set up as a joint venture with American capital and is now government owned. In addition a private company, Pacific Agronomics does some research work.
27. Solomon Islands Plantations Ltd. cultivates 3,332 ha of oil palms (Elais guianensis). The initial intention of the company was to provide a nucleus estate for outgrowers; because of land tenure problems this object has not been achieved. The estate was established in 1971 after 10 year's observation of trial plantings; the Research Section assisted CDC officials in this pilot period. Establishment and subsequent production averaging 24 t/ha of fresh fruit bunches per year has been made possible by transfer of technology from other CDC operations and by the expertise of a visiting agent. The company maintains two resident agronomists whose main duties are to maintain the nutrient status of the palms. An anomalous situation exists in that apparently low levels of available potassium are not reflected in visual symptoms, nor in the composition of the leaves; furthermore, the average yield of 24 t/ha fresh fruit bunches per hectare is high by any standard. There is active cooperation between the Research Section and SIPL with regard to soil and foliar analyses of major elements (analyses of minor elements are referred elsewhere) and the conduct of fertilizer trials on oil palm.
28. The successful establishment and high yield of oil palms, together with the presence of adequate technology in the country, indicates that further plantings should be considered. Recent studies indicate that areas exist in the Guadalcanal plains suitable for either outgrowers or plantation development, or both; indeed, before considering a replanting program, SIPL would probably need more land. There is some provincial opposition to such further plantings, although the rationale for the objections is not clear. A suitable

area could be found on Kolombangara in Western Province, already studied, which would be of suitable size if some land terracing were undertaken. The use of para rubber (*Hevea brasiliensis*) on this area has been ruled out by reason of possible windbreakage.

29. SIPL also intends to establish 500 ha of cocoa, and to this end the company is importing a range of clones which will permit it to duplicate the successful Sabah hybrid progenies, some of which have already been tested by the Research Section at Black Posts. When production begins from this proposed seedgarden, SIPL is prepared to supply external requirements, a procedure which would relieve the Research Section of one of its service functions.
30. Lever Solomons Ltd. has its main office and laboratories at Yandina in the Russell Islands. The company was formed as a joint venture between the original proprietors, Levers, and the Solomon Island Government in 1979 to rehabilitate existing operations and to develop 6,000 ha of coconuts and 1,250 ha of cocoa. The original owners in 1952 had launched a rehabilitation plan for plantings damaged or overgrown during the Pacific war. To implement this plan, a series of agronomists and plant breeders were retained who worked for the company and the Joint Coconut Research Project of the government until the latter was adsorbed by the joint venture in 1978.
31. In plantings of tall palms, the following findings permitted the establishment of routine husbandry practices:
 - NPK factorial trials, with one exception, showed the existing fertilizer practice to be uneconomic but led to the system of diagnosis of nutrient requirements by foliar analysis;
 - successful weed control, initially by sodium arsenite or 2,4-D, subsequently by grazing by cattle or mechanically using a weed breaker.
 - growing of polybag seedlings up to 12 months in the nursery and use of a planting hole 60 cm x 60 cm x 60 cm;
 - all control palms in all trials were potassium deficient, thus indicating a required nutrient;
 - establishment of new plantings would be most economically undertaken by interplanting and late felling;
 - circle weeding of palms as a routine process offers economic benefits;
 - establishment of underplanted F2 and F3 cocoa progenies was successful;
 - the agronomic requirements and methods of upkeep of such cocoa underplantings were established.
32. Much of the work has been directed, over the last three decades, to collection of genetic material and the production and testing of diallel crosses (where possible). In the short term this has led to the identification of a hybrid, between Rennell Tall as male parent

and Red Malaysian Dwarf as female parent, which is both extremely high yielding and precocious. Other hybrids have been prepared and are being evaluated; three large seedgardens exist. In the long term, other possible crosses (i.e., Niu Leku x Malaysian Red and Yellow Dwarf) await testing. A non-destructive method of growth analysis is being perfected for early identification of outstanding progenies and for discovering suitable cuttings for cloning in Lever facilities in U.K.

33. A degree of commercial risk has been accepted in planting coconut hybrids on a large scale without previous evaluation of their husbandry. Only now have fertilizer trials and fertilizer trials with thinning treatments been established in mature palms. In new plantings the interaction of palm density and fertilizer levels is being studied.
34. The export of hybrid nuts overseas and to other provinces in the Solomon Islands was depressed by an outbreak of Marasmiellus cocophilus in the 1980-81 nursery at Yandina. Inter-island transport of such nuts within the country was forbidden by the government at that time, whereas overseas customers were prepared to accept nuts treated with phenyl mercuric acetate (PMA). Work by the Research Section of MHAND indicates that fumigation with methyl bromide will give even better control of the disease than does FMA and that inter-island trade could begin again at an acceptable level of risk. This is of more than academic interest, since any replanting or new planting on an organized scale would attract external finance only if hybrid palms were used. The seed nuts for this purpose are better produced under strict control by emasculation of the female parents and by assisted pollination using pollen from selected parents. Both the organization and more than adequate stands of male and female parents exist at Yandina; hybrid seed production can be put into operation at short notice. The price of seed nuts delivered to Honiara would be SI\$0.80-1.00 each. Such a price for a hybrid nut is probably less than in any other country and is small, having regard to the precocity of the hybrid palm and its likely high production. The quality of seed nuts produced by such a method would be considerably better than from a seedgarden of dwarfs interplanted with tall pollen parents in a remote area, where lack of qualified staff would prevent day to day supervision of emasculation and thus permit contamination by unknown pollinators and dwarf selfs. It would appear that central production, particularly for organized schemes, would offer a number of major advantages; some degree of nursery checking would be necessary to establish freedom from the Marasmiellus fungus.
35. For individual plantings by small farmers, where the inputs for hybrids are not available or cannot be afforded, it would be better to use an improved tall palm. Recommendations from Yandina indicate Rennell x Local Solomons Tall as the most suitable. Since nut size and meat content are highly heritable, those seed nuts of R x ST composition would show the Rennell nut size and the Solomons Tall number per branch. Some advantage might arise from an interplanted seedgarden in spite of the lack of an adequate pollinating system.
36. Cooperation between LSL and the Research Section of the Division of Agriculture is good, but, while LSL make maximum use of the latter on

pest and disease problems it is not clear if the Research Section is adequately adapting the LSL agronomic findings to plantations, land use cooperatives, and small farmers. Apart from the small but adequate laboratory facilities and the field facilities at Yandina, LSL have access to a considerable pool of technology which might repay fuller exploitation. The present chief research officer of LSL is soon to take over a management post which will include supervision of the in-service training of a local research officer to replace him.

37. Brewer Solomons Associates Ltd. This company, now fully supported by government equity, is located at Matapone on the Guadalcanal plains. Title is reputedly held to some 4,500 ha of land, of which some 2,000 ha have infrastructure for the cultivation of padi rice. This is performed by a wholly mechanized operation: sowing, and spraying for pests and disease control are from the air; land preparation and harvesting are by rotavator and combine respectively, and herbicides and fertilizers are applied in the irrigation water or from the air. A mill and silos are available for grain storage; special facilities are available for seed storage. An agronomist and an entomologist are employed.
38. Cropping rate is 2.7 crops per year and the crops overlap. The area cultivated rose from just over 1,000 ha in 1978 to a maximum of just under 2,000 ha in 1981; the area projected for 1982 is about 1,000 ha. With the system of cropping practiced some difficulty is experienced with brown plant hopper and, to a lesser degree, with the insect pest causing leaf roll. The Research Section of MHAND has assisted in connection with these pests. BSAL also assist in evaluating rice cultivars in standard IRRRI tests. Since no wet rice is cultivated elsewhere in the Solomons, information currently available from the company is not of wider value, although this situation may change in the future. Some doubts arise as to the suitability of Guadalcanal plain soils for such operations and in the lack of a break crop for pest and weed control. A more economic use of areas not presently cultivated would be possible through the planting of oil palm and cocoa, both of which grow exceptionally well on these soils.
39. Pacific Agronomics: This is a private plantation company whose subsidiary company, Pacific Holdings, operates two estates, one northwest, the other southeast of Honiara. The company employs a scientist, expert in weed control, and a professional expatriate manager. It has a small planting of Robusta coffee (Coffea canephora) which is growing well and flowering and fruiting at two years; it has also introduced the Coffea arabica dwarf mutant San Ramon and is proposing to set up a seedgarden from existing nursery material. These are the only sizable amounts of coffee in the Solomon Islands and are a commendable example of local enterprise.
40. Coffee can undoubtedly be cultivated successfully according to present knowledge; it would probably be successful in areas too wet for cocoa. A minimum quota of 1,500 tons annually could be obtained from the International Coffee Organization; it is possible that special arrangements could also be made with Australia. C. canephora could be cultivated in the lowland areas and intercropped with coconuts. Every effort should be made to obtain hybrid arabusta (C. arabica x C. canephora) from the Indian Coffee Board or IRCC in West

Africa. C. arabica cv San Ramon is reported elsewhere to be a mid-elevation coffee (about 300 m in the Solomons) and requiring some skill in management. In view of the potential of coffee as a diversification and small-farmer crop, and to save time in evaluation of cultivars, it is suggested that the Research Section arrange cooperation and finance for trials on areas of C. canephora and C. arabica cv San Ramon on the company's estates. Tests of San Ramon at altitude would also be required.

Constraints Within Current Research:

Current research and the achievements of the Research Section were discussed with the scientists who do the work, and have been summarized earlier in this annex. During the discussions several deficiencies were identified within the present organization and program of the Research Section. They represent the important constraints to the future capability of the Section to implement the expanded program recommended in this project proposal.

In listing the deficiencies identified within the present system, no criticism of the professional staff or of their work is intended.

41. Size. The research section has too few professional and technical support staff for the productive and effective pursuit of major research objectives relevant to the country's agricultural development plan.
42. Direction of Research. Research at Dodo Creek lacks professional leadership. The chief research officer is located 20 km away at ministry headquarters in Honiara. The post, until recently filled, had been vacant for a long time. The officer's administrative work load is such that he is unable to lead and direct his professional colleagues as he should.
43. Planning. There are no formal administrative procedures for long-term or annual research planning, so that current research objectives are not clearly defined. Nor are there well defined priorities of research within or between commodities. Research manpower development is extremely difficult to plan because there are so few suitably qualified secondary school leavers available for graduate and more advanced training. While the objective must be to train local staff for posts in research, this will be a slow process. For many years, expatriates will be needed. Satisfactory conditions of service to provide the essential continuity of effort must be established.
44. Communications. There are no established channels of communication whereby:
 - individuals or agencies outside the Division of Agriculture are able to influence research priorities or program content of the Research Section;
 - research results can be disseminated to clients, namely the extension service and smallholders, commerce, and the general public;
 - government can be informed of research progress and its relevance to agricultural development.

45. Review. There is neither an external nor an internal review process whereby the content and quality of research can be monitored.
46. Adaptive Research. The research section has poor capability for adaptive research. In particular, it lacks adequately equipped and managed experiment stations in the important environments outside Guadalcanal plain.
47. Economics. Research further lacks capability for the economic analysis of current farming systems and any new technology which might be recommended for them. Such capability is essential to ensure that adaptive research is relevant to and will have an impact on local agriculture.
48. Farm Development. To provide facilities for adaptive research in several environments the research section has started to develop substations. The work involved occupies most of the time of one scientist and interferes greatly with his capacity to do research.
49. Meteorology. The Research Section is not adequately equipped to gather agrometeorological data from a range of different sites.
50. Data Management. The Dodo Creek headquarters has no capacity for electronic data storage and retrieval and inadequate capacity for data processing.
51. Genetic Resources. The collection and routine maintenance of genetic resources conflicts with the legitimate research programs of both the pathologist and horticulturist. There is no specially trained support staff for genetic resource management, so that germplasm collections have not been fully characterized and are poorly documented. For most crops not enough genetic diversity has been gathered; this is especially true of crops in which there is research to identify host-plant resistance to insect pests.
52. Vegetables and Fruit Trees. These potentially important crops are insufficiently covered in current research.
53. Post-Entry Quarantine. Well trained technical staff are required to support the post-entry quarantine service, which is already provided, and will be expanded at Dodo Creek.

III. Rationale

54. In general terms the proposals in this project are justified by the need to increase the capability of the national research service to make effective contributions to agricultural development in the Solomon Islands. The project components have been formulated to achieve this objective by endeavoring to remove the constraints identified in the preceding chapter.
55. Features of agriculture in the Solomon Islands which have significantly influenced the formulation of project proposals are:
 - the relatively small population of the country and the restricted taxation base which must impose long-term financial

constraints (from Solomon Islands sources) upon the national agricultural research service, the development of which must necessarily be considered a long term task;

- the small proportion of the total land area suitable for arable farming in the wet lowland, tropical environment, and thus the likely consequences of 3.5% annual population growth on the nation's future ability to maintain self-sufficiency in home grown food;
- the wide dispersal of the population on islands, and thus the need for location-specific adaptive research in food and cash crops, especially to integrate their future production within some form of stable and more intense farming system than is presently used;
- the present adequate capability of the commercial, joint-venture enterprises to conduct their own research, and the perception that, in the foreseeable future, any significant increases in foreign exchange revenue must come from this sector;
- the essential requirement that the small agricultural research service must be directed and financed by central authority to serve agricultural development for which responsibility has been devolved to the provinces.

56. Against this background the project's proposals for agricultural research have been designed to provide a service with the following objectives:

- in general terms, to conduct research, directed from Dodo Creek, which is relevant to food and cash crop production by smallholders and the communal plantation sector;
- more particularly, to conduct adaptive, multi-location, farming systems research⁽¹⁾, including economic analysis so as to identify the constraints to maintaining future self-sufficiency in food production; to devise and test the means of overcoming these constraints; and to integrate food and cash crop production within stable, economically efficient and viable farming systems;
- to collaborate with research in the commercial sector, both to utilize or adapt the products of such research for smallholders and communal plantations, and to provide on request scientific advisory services for the joint ventures.

(1) This will include the role of livestock in the farm economy but the need for and organization of research on livestock are not considered in this report since a major review of the cattle industry has recently been completed and further mission to consider the establishment of a Livestock Development Authority is planned for November 1982. A note on one urgent item is included in Annex 13.

In the pursuit of these objectives, the Research Section must have the capacity to use to the full regional and international research results and materials available from them in the light of the problems and opportunities in the Solomon Islands.

Adaptive Research Centers

57. There is an urgent requirement for the provision of facilities for field experiments in diverse environments in addition to those available at the Dodo Creek complex. The locations selected for such new development are, in order of priority:
- (i) Dala in Malaita Province, which represents the Dala and Fa'o' land systems in a lee situation. Research results from Dala would be widely applicable to other islands. Although there remains a research interest in Dala (from 1975), new land will be required for an adaptive research center.
 - (ii) Gizo, some 45 minutes by road from the provincial capital, representing strongly weathered soils widespread in Western Province.
 - (iii) Nendo Island in Temotu Province is representative of volcanic ash soils and vegetation typical of the New Hebrides, which occur nowhere else in the Solomon Islands.
58. In addition, development has started at Onilafa in Malaita Province. Rather than abandoning this site (inaccessible though it is at present) minor assistance to complete its development would be provided, since it represents a wet and windy weather coast.
59. The locations recommended in this project proposal were selected first by the scientists working at Dodo Creek on the basis of their intimate knowledge of the country and its agriculture. Their choices were studied in detail and accepted during this review, and were based upon a consideration of the following factors:-
- adequate representation of major agricultural soils and climates;
 - population distribution -- about 90% of Solomon Islanders live in the Western, Malaita, and Guadalcanal Provinces;
 - ease of access, bearing in mind that travel and communication are difficult throughout the country;
 - availability of land which, in view of the land tenure system, imposes an important restriction on the choice of sites.
60. With regard to these adaptive research centers, although their desirability is not in question their exact location would be subject to further investigation; most important is the identification of the smallest number of centers to meet adequately the requirements of adaptive research, next an appreciation of the speed of deployment of such centers possible under existing circumstances. Accepting the order of priorities in paragraph 57, it is possible:

- (i) to implement the physical improvements involved in the Dodo Creek complex in the first year of the project, to be completed by Year 3; all subsequent phasing of staff and equipment would follow this;
- (ii) to obtain adequate land at Dala in the first year of the project in order that development can proceed as soon as possible at the end of that year, giving an operative station at the end of Year 3.
- (iii) to obtain firm locations for the proposed stations at Gizo and Nendo in order that their future development would commence in the first year of a succeeding project, together with the further development of Onilafa.

Provincial Farms

61. Under the government policy of devolution of powers to the provinces, the agricultural extension service would become a provincial responsibility. It is expected that the agricultural officer in charge of extension work in each province would establish a provincial farm. The purpose of such provincial farms would be to demonstrate recommended plant and animal husbandry, to provide well controlled seed multiplication and plant nursery facilities, and to train staff and farmers.
62. It is recommended that such farms, where not already established, would be organized jointly for economy and efficiency with the adaptive research centers. Such provincial farms would take advantage of the management techniques offered and the facilities available, against repayment from Provincial budgets. Such joint units could be at Tenaru in the Dodo Creek complex, by acquisition of an extra 20 ha at Dala, and later at Gizo and Nendo; about 50 ha would be required on each of these sites.

IV Project Components

The project would provide the following support to the Research Section of the Agriculture Division of the Ministry of Home Affairs and National Development:

63. Civil works costing SI\$518,000 at the Dodo Creek complex and at one adaptive research center at Dala. (See Annex 10, Table 8a.)
 - (i) at Dodo Creek and Tenaru (SI\$314,500) (see Annex 10, Table 2a)
 - survey and land development at Tenaru;
 - building 120m² new office and laboratory accommodation, including a microcomputer room;
 - building a small extension to the library;
 - building three houses for principal staff and one for the farm manager;
 - (ii) At one adaptive research center (SI\$203,500)
 - survey and land development, 30 ha (see Annex 10, Table 3a);

- building office and laboratory/ accommodation and stores;
- building one house for the farm manager; one guest house for visiting scientists; and 7 houses for field assistants and permanent labor;
- other civil works including machinery sheds, water storage tanks, and the provision of electricity and alternative water supplies.

64. Equipment and vehicles costing \$358,300 for the enlarged research program. (See Annex 10, Tables 2a and 8a)

- (i) farm equipment (SI\$97,200)
 - three tractors with trailers and implements;
 - one 2-wheel cultivator;
 - miscellaneous farm tools, chain saws, etc.
- (ii) office and house furniture and equipment (SI\$66,900)
- (iii) laboratory equipment at/or provided from Dodo Creek (SI\$88,200)
 - one radio network for communication with adaptive research centers;
 - meteorological equipment for two locations;
 - one desktop microcomputer with peripherals.
- (iv) vehicles (SI\$106,000)
 - one 3-ton truck
 - two 4-wheel-drive, long wheel base vehicles
 - five 4-wheel-drive pick-up trucks
 - two 16-seat mini-buses.

65. Additional professional and technical support staff costing SI\$794,500 over five years. (See Annex 10, Tables 2b and 3b.)

- (i) new professional staff, seven man years (SI\$484,300)
 - an agricultural economist to study the economics of present day farming systems and of imported and locally derived new technology and to quantify the constraints to agricultural development.
 - an agronomist with special responsibility for food crops within a farming systems research team. Note that the present horticulturist would become responsible for agronomic research on cash crops (mainly tree crops at present).
 - a parttime call on the services of a development officer who would be assistant to the project manager. His duties would include responsibility for new buildings for both research and extension sections and the rational development of the stations and schools, also training of farm and station managers and the organization and implementation of systems of indenting, accounting for, and procuring stores.
- (ii) new technical and clerical support staff (SI\$310,200)
 - five senior technical assistants (salary level 5) with special responsibility for:
 - (a) genetic resources management
 - (b) post-entry quarantine

- (c) laboratory services
 - (d) data processing (especially for the economist)
 - (e) Dodo Creek farm and station management
- an adaptive research center manager (salary level 4) at Dala.
 - five laboratory assistants (salary level 3 to 4)
 - six field assistants (salary level 3 to 4)
 - three clerical support staff, one a secretary to the CRO (salary level 5), and two clerical assistants at Dodo Creek (salary level 4).
66. Incremental operating costs would be met for the disbursement period.
67. Technical assistance to provide overseas training for scientific and technical support staff, for consultancies, and to enable scientists to attend scientific meetings outside the Solomon Islands. (See Annex 10, Table 3b.)
68. Summaries of the costs and phasing of these project components are to be found in Annex 10, Tables 8a and 8b.

V. Organization and Management

General

69. The objective of this chapter is to set out a system of management which would provide a favorable environment for the pursuit of agricultural research on the lines previously set down, at the same time removing and mitigating some of the constraints noted.

Project Management

70. Under a project manager, who would be responsible to the Asian Development Bank for the conduct and development of the project, the research component would be the responsibility of the chief research officer (CRO) of the Research Section. The CRO would account for and disburse project funds devolving from government through the project manager. He would also be responsible for the necessary progress reports and for any special reports, or for answering queries arising from the project manager on behalf of the Asian Development Bank. He would further be responsible for the timely and adequate deployment of the resources provided by the project according to the phasing indicated; any delay in implementation would be reported to the project manager.
71. The CRO would be responsible for the preparation of indents and orders for equipment and cash through the project manager and would arrange adequate accounting procedures for project funds provided for the Research Section. He would, with the project manager's agreement, open such bank cash and imprest accounts as may be considered necessary. He would retain control of all facilities and equipment provided by project funds and dispose of them at the completion of the project according to the project manager's instructions.

Research Management

72. The chief research officer would be the chief budget officer of the Research Section. In furtherance of this duty he would prepare annually, with the relevant research officers and in consultation with provincial officers in ad hoc committees, a draft research program for the next financial year and for the five subsequent years, together with estimates of expenditure on a similar basis; such programs and estimates to be completed at least two months before submission of estimates. Each research officer would present with his program a written submission justifying the continuance of existing work and the inauguration of new work for inclusion as appendices to the draft research program.
73. The chief research officer would be responsible for the compilation of an annual report, which would contain details of work in hand and completed, together with a brief assessment of the results. The report would be of such a nature that it could be comprehensible to both politicians and extension officers. The report would be available coincidentally with the draft research program.

Research Committee

74. A research committee would meet annually on completion of drafts of the research program, estimates, and annual report. This committee would consist of the chief research officer as chairman, research officers, extension officers from each of the provinces, three representatives from the joint ventures, two from land purchase cooperatives, and two from the private sector. The latter four would be nominated by the Agricultural Division of the Ministry of Home Affairs and National Resources. The members would receive the draft program, estimates, and report for study at least 14 days before the meeting. The committee would consider and discuss the draft program of research and the estimates in the light of requirements arising in their particular fields; agreed alterations would be incorporated in the draft documents, and a committee secretary, who would be appointed by the chairman, would prepare minutes to be circulated for approval so that the discussions and decisions would be on file.

Technical Advisory Committee

75. The program of research and estimates so amended would be finally considered by a technical advisory committee. Such a committee would consist of the Undersecretary for Agriculture as Chairman, a representative of the planning division, the chief extension officer and the chief research officer of the Ministry of Home Affairs and National Development. A representative of the ministry of Finance and of the Copra (or commodities) Board would also be present. A senior scientist from without the country, probably from the Regional Support Service Project (if developed) would be co-opted, or obtained through a consultancy. The committee would receive the agenda and relevant documents concerning research and estimates. Research officers would be available for interview if required. The committee would forward their agreed observations and recommendations on the research program and estimates in a covering letter to the minister which would accompany the program and estimates.

Research Organization

76. As far as is consistent with his duties in the ministry, every effort would be made to encourage the chief research officer to devote as much time as possible to the direction of work at Dodo Creek and the four adaptive research centers. To provide continuity in his absence on duty or otherwise, the chief research officer would appoint a senior officer at Dodo Creek to act on his behalf. Although relevant administrative files are kept in the ministry, a duplicate set would be held at Dodo Creek.
77. Research work has been organized mainly along disciplinary lines and, because of the staff numbers and financial constraints, such an orientation would continue to be necessary. On certain aspects, notably farming systems and diversification of cash crops, a team approach would be necessary. The numbers of scientists and work of such teams would be decided by the chief research officer, who would be responsible for the coordination of all such team activities.

Staff Appointments: Professional

78. Two new professional staff would take post; two would be established, an agronomist and an agricultural economist. The established post of Horticulturist would be regraded to provide a second agronomist. One of the agronomists would be primarily responsible for research with perennial and cash crops, the other with food crops. A major component of both their research programs would be within a farming systems study conducted by a team involving the economist and soil scientist. Its objectives would be to determine the constraints to food and cash crop production within the smallholder sector and Land Use Cooperatives operations; to devise the means of overcoming such constraints, and to integrate both food and cash crops into stable and economically viable farming systems. Special consultancies would be provided to initiate and monitor the progress of such work.
79. The agronomist responsible for research with cash crops would have to pay attention first to formulating the appropriate technology for coconut replanting and for rehabilitation with intercropped cocoa and with annual and short-lived perennial crops. Regarding cash crop diversification, his first priority would be to integrate coffee into the systems devised. Depending on marketing investigations proposed to be carried out separately from the project, he would also investigate the production of cardamoms, tumeric, nutmegs, chillies, and black pepper.
80. The agricultural economist would investigate and participate in the work on farming systems, with particular attention to the economic and social environment of small farmers and Land Use Cooperatives. For this purpose he should have had 10 years experience in similar work in tropical agriculture and experience of team leadership in such work. In addition, he should be able to evaluate the economic possibilities of potential cash crops for diversification. It would be an advantage if he had some knowledge of computer programming, data storage, and retrieval.

81. It would be essential that the chief research officer and his professional staff be relieved of present routine administrative duties and of those expected to arise from the project. For this reason, it would be necessary for the duties of the development officer to be formulated by the project manager with both the chief research and chief extension officers. It is expected that such powers and duties would be subject to annual review.

Staff Appointments: Senior Support Staff

82. Four senior support staff appointments would be made: a laboratory supervisor, a supervisor of genetic resources, a computer operator, and a quarantine technical officer. These appointments would be of diplomats who would receive special additional training.
83. The laboratory supervisor would, after in-service study at a laboratory of the University of the South Pacific (or elsewhere in the region), be attached to the soils unit of the Research Section. He would assist in the general routine of the laboratory work of the Research Section and would prepare the necessary indents for stores and equipment. He would be responsible for routine housekeeping throughout the laboratories and for initial in-service training of laboratory assistants.
84. The supervisor of genetic resources, after an initial study course at the South East Asia Genetic Resources Centre, Bogor, Indonesia, would be responsible to the senior agronomist for the management, preservation, and documentation of all genetic material available to the Research Section. The status of genetic resources would be reported to the annual meetings of the research committee.
85. The computer operator, after an initial short study course on operation and programming in-service at the University of the South Pacific (or elsewhere in the region), would be responsible to the agricultural economist for the proper operation of the computer and for the allocation of duties to the statistical clerks. He would be charged with the entry and retrieval of records and information and with the establishment of new programs or the amendment of old ones.
86. The quarantine technical officer, after an initial course to be provided by the New Zealand Government, would be responsible to the plant pathologist for all post-entry quarantine operations mounted in the facilities to be constructed by the New Zealand Government at Dodo Creek. He would, when instructed, cooperate with the National Quarantine Service.

Technical Assistance

87. Assistance would be provided for fellowships to permit training for initial qualifications below degree level or for post graduate qualifications; for study tours to conferences, short (two weeks) technical courses, for long (six weeks) technical courses, and for the provision of consultants for special purposes.
88. There is need for the upgrading of laboratory and field support staff in the Research Section. Six new or serving staff would be upgraded

by training to certificate level within the region, and six new or existing staff would be trained to diploma level within the region. The selection of staff for such training would be at the discretion of the chief research officer. It would be possible to allocate a portion of these funds for pre-course training if required. Fellowships for postgraduate degrees would only be available to candidates possessing specialized (not general) first degrees, providing adequate background for further specialization.

89. Study tours would include three of six weeks duration for the laboratory supervisor, the computer operator and the supervisor of genetic resources. Seven tours of two weeks each would be available for training of support staff in cocoa budding, preparation of green coffee beans, and similar matters which would arise during the project period. Finally, because of geographical isolation, 10 five-day visits to regional meetings or conferences would be available; these would be mainly for research workers, but support staff would qualify depending on the subjects under discussion.
90. Six consultancy visits of two weeks each would be necessary to launch the farming systems program and to monitor its progress. Three one-month visits of experts in the field of cash crops would be available; in view of the importance of insect pests similar provision would be necessary in the field of entomology. Two consultant visits of one month each would be available for allocation to particular problems which might arise.

Transport

91. The vehicles to be provided are designed to increase staff mobility when doing field work. In addition, the mini-buses are intended to be used as personnel carriers both on duty and between Honiara and Dodo Creek. This is necessary in order to limit the number of houses needed at Dodo Creek and to reduce costs.

Reporting

92. Project reports would be prepared for submission to the project manager in the form required by the Asian Development Bank.

Monitoring

93. It is considered that the annual report and the approved research program and estimates of expenditure, together with the comments of the technical advisory committee and supervision mission Reports by Asian Development Bank Staff, would form an adequate basis for monitoring the progress of the research work and of the project.

VI. Issues

The following issues require to be settled between the Government of the Solomon Islands and the Asian Development Bank during the appraisal of this project.

94. Professional Manpower. A basic requirement for effective agricultural research is that it should be conducted by trained and experienced specialist scientists. Few Solomon Islanders with these

essential qualifications are presently available, nor is there any prospect that they will become available in significant numbers within the project period. Three things follow:

- first, vacant professional posts in the Research Section will have to be filled from outside the country; some provision needs to be made for supernumerary-type posts, so that when local staff can be recruited they can receive in-service training for several years before taking over the work;
 - second, every effort must be made to utilize the postgraduate fellowships which would be made available by technical assistance in this project;
 - efforts need to be made nationally to increase the output of the secondary school system, especially of potential candidates for training in science and agriculture.
95. Taro Breeding: It is essential that the taro blight breeding program be continued, since there is a high probability that it will be successful. However, there is no proposal to include a breeder in this project because one is provided by the UNDP/FAO Regional Root Crops Project. The government and the Asian Development Bank should ensure the continuation of support from the UNDP/FAO Project or provide alternative support for this most important work.
96. Planting Material: The demand is likely to increase for improved planting material of coconut and cocoa. The joint venture enterprises are the best future source of such material because they have the essential technical competence, standards of management, and sunk costs to ensure the quality and genetic integrity of improved seed. The Research Section should not undertake to duplicate this service. On the other hand, it is envisaged that the provincial extension services would grow improved seed in managed nurseries for subsequent distribution to growers.
97. Cash Crops: There can be no diversification of cash crop production without assured markets for their produce. It is therefore essential that appropriate market research takes place concurrently with agronomic research and the development of such crops.

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

THE EXTENSION COMPONENT

I. Introduction and Summary

1. The following aspects of the extension and training support services are considered:
 - the structure and functioning of the agricultural extension service;
 - the organization of training and staff recruitment under the following headings
 - pre-service selection,
 - certificate and diploma candidates,
 - degree candidates,
 - in-service training,
 - district training centers and farmer training,
 - manpower requirements and educational provisions in the Solomon Islands.
 - the case for setting up a National Agricultural Training Institute (NATI).
2. An efficient and well-trained agricultural extension service is necessary if the agricultural potential of the country is to be realized. In the Solomon Islands extension work can only be carried out in the face of considerable difficulties. These include communications between and within the islands, with populations which are small and scattered. Standards of literacy and numeracy are generally low on account of the limited educational provisions that have been available at village level. The demands made on the extension service are perhaps more daunting, therefore, than in most other developing countries. The situation is worsened by the fact that a substantial proportion of the staff are not adequately trained to carry out the tasks expected of them.
3. If the Solomon Island farmer is to take advantage of technological development it will require from him considerable changes in attitude and the acquiring of a range of practical and managerial skills. In addition to the assistance that the extension service can offer, there will be a need for an improved farmer training provision. Given current limitations on staffing, the four District Training Centres have already made an important contribution.

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II. Background

Introduction

4. The extension service is one of the four main support services which constitute the Agricultural Division of the Ministry of Home Affairs and National Development (MHAND). It has two main parts, the provincial extension services and the education and training section (E & T). The other services include research, quarantine, and land use development.

It has an important role as the facilitator of planned change within the farming community. The more farmers are encouraged to diversify into unfamiliar enterprises and husbandry practices, the greater is the demand on the service's competence and effectiveness.

5. There are other institutions directly involved in the task of rural development in the Solomon Islands which are dependent on the activities of extension and of the E & T sections for their functioning. These include in particular the Cattle Development Authority, the Development Bank of the Solomon Islands, and the Land Use Cooperatives.
6. Historical perspective. When the Solomon Islands achieved full independence in 1978 the government inherited an extension service which had been fashioned to achieve certain specific objectives:
 - changing the focus on agriculture. From agriculture being a peripheral concern, it was to become the most important department within the secretariat, reflecting the importance of agricultural production to the country's financial viability.
 - finding a suitable range of enterprises for aid support to farmers through the allocation of subsidies, grants, and loans to encourage the development of a cash economy.

The Solomon Islander had been primarily a subsistence farmer. His need for cash had been episodic and not chronic. Money for head tax, school fees, bride price, etc. could be met by making a little copra and selling it. The coconut enterprise totally suited both his requirements and the communal culture within which he existed. The secretariat agricultural policy concentrated on a series of additional enterprises -- disastrously in the beginning in the introduction of cocoa, but later more successfully in coconut planting and replanting programs. These were followed by a major attempt to introduce cattle production for the smallholders and a second and potentially successful cocoa enterprise. Agricultural development policy had become target-oriented, and pressure within

the extension service was concerned with the disposal of the funds which had been allocated for the purpose. The use of subsidies and grants had been instrumental as the motivators for change and the farmers had responded. Much of the planning had given inadequate attention to a supportive infrastructure or to the need for the farmers to acquire more disciplined attitudes towards management of the enterprises which were introduced. Whereas development had been based initially on an entrepreneurial model with individual farmers taking the economic risks, concessions were eventually made to the communal nature of Solomon Island society. In 1974 block developments were experimented with where farmers could organize themselves into integrated groups for the purpose of securing loans or other development aid. This collaborative action has had important consequences for present policy.

7. Options in the design of extension service. Before commenting more specifically on the functioning of the present extension service it is relevant to see where it fits in the general typology of such services. These fall into two broad categories. First, there are those which emphasize the educational role of extension. However one may define "educational," the concern is with the transfer of knowledge from research or elsewhere to the producer. Outstanding examples of such services would include the U. S. Cooperative Extension Service and the currently fashionable Training and Visit System espoused by the World Bank. The main concern in this type of service is to prevent the dissipation of the energies and commitment of the extension agent by his being involved in a plethora of activities (such as credit, inputs, loan administration, etc.) that have nothing to do with knowledge transfer. The Training and Visit System provides a clear example. The extension agent services a preselected group of farmers. The knowledge transfer operation is limited to a series of "impact points" which relate to crop production at the relevant stage of development. Such a simplified system makes a back-up program for adaptive research and training easy to arrange and administer.
8. Such systems of extension also have their inherent disadvantages. Not least is that agricultural development depends on the maintenance and functioning of an economic infrastructure as well as on an educational component since the farmer has to manage risks, economic and otherwise. Confidence in risk-taking is seldom a function of information alone. By concentrating solely on the education-information requirement of decision-making such services devolve on to others many of the key elements in rural development.
9. The second type of extension services emerged as integral parts of agricultural departments. The departmental staff provided assistance to the farmer in the form of advice or training, but such extension activity was complementary to a host of other demands that the department made upon the staff. These could include regulatory work, grants and subsidy administration, inputs dispersal, credit administration, data collection, etc. The problem facing staff in such a multipurpose organization is that of deciding on priorities.

Should there be any kind of pressure in the systems, the area of responsibility that can most easily be abandoned is nearly always the education-information activity. The strength of the system lay in the various activities that could be coordinated and the lower cost resulting from not having to provide separate additional services.

10. The Solomon Island extension service has been modeled on the multipurpose type of organization. Priority has been given to centrally determined development programs to be promoted within the farming community. Targets were set and the extension effort was concentrated in areas which were more likely to be responsive to the demands of the program. The orientation of this type of service is, however, seldom primarily in the interests of the clients, but almost always in the direction of the center and its needs.
11. Some of the enterprises selected in the past engendered social stresses. Enterprises that demanded a higher level of disciplined management such as cattle and cocoa required a considerable destabilization of the traditional attitudes to agriculture for them to be successfully integrated. The new enterprises exacerbated further the existing problems relating to land use. The Solomon Islanders had made a clear distinction between members of the community who held ownership rights and those who were limited to usufruct. Land devoted to tree crops and cattle was no longer available for gardens. The result of these developments has been a series of intractable land rights disputes. Gardens have been established at considerable distances from villages, often on unsuitable land where the problems of erosion have been intensified.
12. Decentralization and extension. Following the publication of the Plan of Operations 1974-77 a general policy of decentralization has been pursued and is not yet fully implemented. The consequence for the extension service is that a unified service under central direction has been replaced by semi-autonomous organizations centered on the provinces. At present there are seven provinces. Various committees have deliberated on what form devolution will ultimately take, some in considerable detail, (1) but until the second appointed day (2) there will still be room for further compromise. At present it appears that at least some aspects of development policy will become the responsibility of the province, but how provincial policy and central policy are to marry together is not yet clear.

(1) Kausimae Report of the Special Committee on Provincial Government 1977-1979

(2) The Provincial Government Act 1981, Part 1, Item 1, 3b.

13. Decentralization has created a new context in which the extension service has to operate, and it is doubtful whether there has been an adequate appreciation of what these changes involve. It so happened that the discontinuation of subsidies as the main instrument of change coincided with the process of decentralization. Thus the removal of a centralized target-oriented policy has left a vacuum, and it is clear that a major rethink on the role of the extension service in the provinces in relation to central and provincial development policy is overdue. The uncertainties surrounding the ongoing process of decentralization make it virtually impossible to formulate recommendations at the present time.

The Present Organization

14. Headquarters staff. Consistent with the policy of decentralization, the numbers of headquarters staff have been drastically reduced. The Agricultural Division is now a section within the Ministry of Home Affairs and National Development. The division is headed by a permanent secretary whose span of control is considerably broader than just the Agricultural Division. He is supported by an undersecretary who in addition to agricultural extension also has responsibility for research, quarantine, and land use development. Below the undersecretary there is one other member of staff, the chief field officer (CFO) who alone has direct responsibility for the seconded staff in the provinces. In addition to the CFO there is one member of staff with responsibility for the organization of training. One further established post of PFO(E) has been vacant for some time (1). With such a minute headquarters staffing establishment certain problems are all too apparent, and it is difficult to see how the servicing demands of seven provinces can be met without it resulting in a heavy work overload or leading to dereliction of duty. It would appear that headquarters does not intend to act in a major supportive role to the dispersed field staff, yet without such support it is difficult to see how competence and morale can be developed.
15. Provincial staff. The staffing of the agricultural departments in the provinces remains the responsibility of central government. Staff are seconded to posts within each province, therefore their placement, transfer, and consequently their promotion and their training remains ostensibly the responsibility of the central government. The provincial premiers and their executives appear to have perceptions rather different from those of the central government as to the role of the extension service and of the degree of control which they have over it. They see a seconded officer as being at all times fully under the control of the provincial executive, and indeed would like to select and employ the staff from provincial funds. How the staff are to maintain their competence, where they should seek promotion, and similar matters appear not to have been considered.

(1) The job specification given in Attachment 2 to this annex indicates clearly the major role of this post in the organization of the extension service.

16. The categories of seconded provincial staff by level are as follows:

- level 8 principal field officer
- level 7 senior field officer
- level 6 field officer
- level 5 assistant field officer
- level 4 field assistant I
- level 3 demonstrator (field assistant II)

Details of present establishment and the number of staff at post for all the provinces are given in the following table:

	WEST		ISABEL		MALAITA		CENTRAL		GUAD.		MAKIRA		TEMOTU	
	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT	EST	ACT
PFO	1	1	-	-	1	1	-	-	-	-	-	-	-	-
SFO	-	-	1	1	-	-	-	-	1	1	1	1	-	-
FO	2	1	-	-	2	2	1	1	1	-	-	-	1	1
AFO	6	6	1	1	4	5	-	-	5	3	2	2	-	-
FAL	13	11	4	3	12	10	3	3	8	8	7	4	3	3
FA2	3	2	2	2	4	4	2	2	3	3	2	2	2	2
	25	21	8	7	23	22	6	6	18	15	12	9	6	6

Establishment total = 98

Actual total = 86

The shortage on establishment is 12. The actual shortage is, of course, greater since a number of extension staff are presently attending courses overseas. These include one field officer, two field assistants I, and four field assistants II.

17. All established staff will have received some post-school formal training at either the certificate, diploma, or degree level. The Schemes of Service appended (Attachment 1) indicate the level of entry depending on formal qualification. Staff entering at level 3 are the demonstrators or field assistants II. Because of a trained manpower shortage, Form V secondary-school-leavers are recruited and given specialist training in just one discipline, as for example in cocoa production. Training can be very specific; depending on the requirements of the province it can concentrate on the establishment of cocoa or on the building of dryers and fermentaries. Should the demonstrator show some aptitude he may be recommended to go overseas for certificate training.

18. Extension workers. In addition to staff seconded from central government there is another cadre of non-established staff recruited and paid for by the province. Usually these staff have completed primary education only with some additional training at a mission school or a provincial secondary school. The levels of literacy and numeracy among these workers is such that they are able only to undertake practical work or demonstration. Their main contribution derives from their knowledge of the area in which they work and their ability to converse in the local language or dialect.

19. Current problems. In reviewing the structure and organization of the present extension service several key problems become evident. Most of them have a direct bearing on the morale and effectiveness of staff involved.
20. Promotional prospects. The scheme of service indicates the point of entry and the promotion possibilities. A revised public service order has resulted in the point of entry for certificated staff being enhanced from somewhere in the middle of level 3 to the bottom of level 4. The consequence has been the telescoping of the promotion ladder. In addition salary scales have been made to overlap to a point where someone at the top of level 4 would have a salary equivalent to the fourth point upon level 5. Promotion from level 4 to level 5 could bring very little financial reward but a considerable increase in responsibility. With decentralization the number of staff within a province is very small. If any semblance of a career structure is to be maintained it is essential that the extension service remain a unified service nationally. Even so, the prospect for advancement within the organization can appear to be arbitrary. When a post becomes vacant there is no selection board process whereby a review is made of potentially suitable candidates. The filling of such a post is the result of arbitrary decision by staff at headquarters.
21. The image of any service is largely determined by the competence of the staff and this is directly related to the training they have received. While training is more specifically dealt with elsewhere in the annex, there are two categories of staff that deserve comment here.

Demonstrators have little prospect of promotion unless they are selected for an overseas scholarship. Though the original concept of having someone minimally trained in some area of specialization was to compensate for the lack of more broadly trained manpower, because of shortage of staff, the demonstrators are often expected to fulfill an extension role outside their area of specialization. The employment of the demonstrator in the field has not always been satisfactory. Whether this has arisen from insufficient commitment to initial training or to the misallocation of his limited talents at the provincial level remains to be seen. It is clear that some review procedure to take account of follow-up training is necessary.

22. Extension workers have a limited educational background which restricts their field of competence, and it is not possible for them to be of much help in advising on even simple management techniques such as record keeping, cash books, etc. This is not a problem if there is a good coverage of the district by higher level staff. But staffing levels are such that extension workers are being asked to do work for which they possess neither the education nor the training.

23. Women extension workers. It is the men's task to clear the bush but it is the women's job to look after the food gardens planted in the cleared areas. Increases in population and the need to maintain self-sufficiency in indigenous food crops means a large increase in the output of food, but there is very little extension done in this important area. It is not generally possible for men from one community to talk to women of another, so male extension workers are not useful in this area of food production. The recruiting of women into the service may be slow and difficult for many reasons, but real efforts must be made to overcome these barriers. Because of the social sensitivity and complexity of this problem no proposals are made in the current project.
24. Housing. The problem of housing is acute for certain levels of staff. The most disadvantaged are the field assistants, who live in leaf houses which are often in a worse state of repair than those of the farmers they service. It is appreciated that a program to provide field assistants with more permanent dwellings would face some real difficulties with respect to establishing tenure on customary land, but they cannot be expected to attain any effective status within a community when they can be seen to be so poorly housed.
25. The main concern is that, since devolution, the extension service has been without a central focus or an identity and the conditions of service do not promote individual effort. It does not mean that the service is without certain acquired values or attitudes. At present there appears to be a policy vacuum, or at least an atmosphere of uncertainty. The 1970s had seen a bandwagon approach to development with the incentives of ready cash in the form of grants as well as inputs in kind. With few exceptions, the extension staff had been recruited into a system of extension that had made no real attempt to come to grips with what the rural areas needed or could support. The message had really been "development at any cost." It will not be easy to change staff attitudes to enable fresh initiatives to be taken when new policies are introduced. If there is to be a basic change of emphasis and to convert extension staff from being largely "grant administrators" to becoming extension staff in the widely accepted sense, a substantial re-training program will be needed.

Organization of Training Provisions

26. The senior field officer (education and training) has a very broadly based responsibility for meeting the training requirements of the Agricultural Division. His involvement includes the selection process of scholarship candidates for overseas training, staff in-service training (both in-country and overseas), and farmer training, as well as the overall management of the four farmer training centers (FTCs). Each of these areas of responsibility is commented upon under separate headings:

27. Pre-service selection and training: Applicants who are Form V school-leavers with school certificates are subject to a scholarship selection exercise, and the ministry looks to an annual intake of 20 students to the pre-service program. At present there is no system of bonding, so that a student may drop out of the program at any time or, once a certificate or diploma has been gained, he may opt for a post other than with the government. In spite of this freedom it is hoped that sufficient numbers will seek employment with the ministry to meet the annual staff intake requirement; this has not happened in recent years. A student enters the pre-service year in February and is attached to various agriculture activities, including some in the private sector, until December. During this period students are required to submit a written report at the end of each attachment. This provides a record of the subject area covered and demonstrates the ability of the student to absorb the training given. The supervisory officer also submits a confidential report at the same time so that over the year a good understanding is gained by and of the trainee. Should he appear unsuitable the trainee can be dropped from the program. This process of introducing a student to a range of departmental responsibilities works well. The one improvement that could be recommended would be a short orientation course for all the students at the outset, followed by another short consolidation course at the end of the attachment. To be submitted to a range of experiences does not necessarily generate an overall perspective, but insistence on a pre-service training period in a variety of agricultural disciplines has helped in selecting the right type of trainee. Most overseas training institutions now make this a prerequisite for entry.
28. Certificate and diploma candidates: Having successfully completed the pre-service year, the student proceeds overseas for formal training. The certificate course covers two years and the diploma course three years. Upon completion of formal training a student gaining a certificate will be offered a level 4 position as field assistant, and a diplomate qualifies for the level 5 position of assistant field officer. Since 1973 agriculture students have been sent to colleges in Papua New Guinea (PNG). The diploma course was dropped by the Department of Primary Industry in 1978, but is due to start up again next year. A one-year post-certificate diploma course was brought in as a substitute, and since 1978 certificate staff who have shown promise and an ability to utilize additional training have been sent as in-service students to undertake this course. Reliance on Papua New Guinea institutions will be eased as fresh areas for overseas training are tapped, particularly Fiji and Australia. In any event, PNG authorities have indicated that they could take many more students. Difficulty is at present being experienced in having trainees meet the entry requirements of colleges in these countries, and it will be necessary for the Ministry of Education, Training, and Cultural Affairs to reappraise the quality and subject matter of the Solomon Islands school certificate. All in all, however, this seems to be no pressing need to establish certificate and diploma training in the Solomon Islands.

29. Degree candidates: Form VI students are undergraduate material, and the Ministry of Education, Training, and Cultural Affairs seeks eight or so such students annually for entry to university courses of all kinds. Students are offered scholarships subject to selection by the scholarship committee. Graduates are essential to fill posts in the research section, and as more come on stream it would be most desirable for senior posts in quarantine, extension, livestock, training, and land use development to be manned by university graduates. Anyone gaining such a qualification would be able to take up a level 6 post in government service. Unfortunately Form VI students do not pursue studies which prepare them for formal examinations such as the New Zealand University entrance, and the weaknesses of the school certificate program are perpetuated in the Form VI year. While the University of the South Pacific (USP) Fiji makes provision for a foundation year intended to compensate for such weaknesses in the education program, it is found that the students have academic difficulties even at this foundation year level, and hopes of a regular out-turn of new graduates are dim until such time as the subject matter within the school certificate program is of a comparable standard to that in similar programs in other countries. Efforts to strengthen Form VI teaching in the Solomons would bring substantial benefits to the country.
30. In-service training: Courses, seminars, workshops, and ad hoc attachments for staff at post are on offer. In-country courses, either arranged domestically or subregionally, have the major advantage of permitting greater numbers of staff to attend. Courses have been held in farm management and economics, and special courses for land use development staff have been held by the land resources unit of the Overseas Development Administration (ODA). Staff in-service needs are also met at provincial level by attendance at the training centers with the courses run by training section staff. Area measurement, metrication, and extension methods, in addition to any specific crop training, are some of the subjects covered. Training is also extended to include non-established extension workers directly employed by provinces. Short out-of-country courses provide specialist training in aspects such as beef cattle management, pig husbandry, crop protection, plant quarantine, rural development, and project planning. None exceed three months in duration and all are informal in nature, i.e., they do not offer certificates or diplomas leading to incremental awards. Long out-of-country courses are of at least an academic year's duration and usually lead to incremental credit or promotion. Examples of this type of training are post-certificate diploma, PNG, diploma/M.Sc. in extension, U. K., diploma in teaching (agriculture), PNG, certificate in practical animal husbandry, Australia, and M.Sc. (crop protection), U.K. Members of staff have been attached for periods of up to two months to agriculture services overseas -- the quarantine services in Fiji and New Zealand, the research station at Koronivia, Fiji, for example. Of the 142 Solomon Islands members of staff, 56 (40% approximately) have undertaken in-service training overseas since 1978. Since 1980 the recruitment of demonstrators (FAII) has taken place to meet provincial needs in agricultural development, and these have been trained at Tenavatu (livestock), Black Post (cocoa), and Dodo Research Station (coconuts, minor cash crops, pest control).

31. District Training Centres: These four centers have continued to provide on-going farmer and in-service staff training over a number of years. Barakoma Centre was opened to residential farmer training in 1965 and the farm of some 20 hectares can accommodate 24 trainees. Dala Training Centre has a 16-hectare unit with classroom, kitchen, and dormitory accommodation for 24 trainees conveniently accessible to the farmer research complex. The 24-bed training center at Dodo provides dormitories, kitchen, and classroom. The nearby Tanevatu farm can be used for livestock training and the Dodo research station adds demonstration areas for courses in cocoa, coconuts and minor cash/food crops. Some 16 hectares plus accommodation and other facilities are available at Kaonasughu, Makira. Each center is manned by an assistant field officer and a field assistant, plus a small supporting staff of cook/laborers. With one exception the training staff have no formal teaching qualifications and have had to acquire skills through practice, although two assistant field officers are soon to have a one-month attachment to Solomon Islands Teachers College. Overseas short courses such as the training officers and instructors, Fiji; agricultural extension tutors, Western Samoa; and field staff management development, Australia, have been undertaken by various members of the training section. The one female trainer, who is based at the ministry, has attended a food crops and home economics course in American Samoa.

32. Farmer training: The training of farmers takes place either at the training centers or by running off-center courses in the villages. Courses are short (maximum duration two weeks) and practical. Though some classroom work does take place, this is kept to a minimum. Where appropriate, taking the course to the village is seen as worthwhile since the training program can be formed around the farmer's project. During January to August 1982, for example, 70% of the farmer courses (of which there were 43 with 669 farmers in attendance) were held off-center. Courses for farmers fall into fairly specific areas, and the frequency of course attendance is an indicator of farmers' interest or of changing agricultural priorities. More food crop courses are replacing courses in minor cash crops. Farmers do not attend many coconut courses though interest is maintained in drying and storage of copra. Both cocoa and cattle courses are run at the three levels of beginners, remedial/improvers, and advanced.

The following details are given to show training trends:

	Cattle		Cocoa		Minor Cash Crops		Vegetables	
	Courses	Attend.	Courses	Attend.	Courses	Attend.	Courses	Attend.
1978	8	122	14	214	7	65	3	23
1979	11	167	19	277	3	41	-	-
1980	11	125	17	208	2	30	5	58
1981	15	177	19	250	2	22	8	120
1982	13	171	13	250	2	20	5*	67
(8 mths)								

* A further four courses with 54 women attending have been conducted by the field assistant (women).

The farmer training program appears to be quite effective; if there is a criticism to be made it is of the failure of the extension service to follow up the courses. Where courses are held in the training center the problems of transportation of farmers to and from the center have been acute in some areas. Courses run in the villages have been welcomed and appear to have been successful, but such work makes excessive demands upon instructors' time, audiences are often small, and a considerable amount of repetition is necessary in order to ensure reasonable coverage of the farming community.

33. Projected manpower requirement: Projections as to the future manpower requirement for extension staff can be made on two bases. The first would be to use some formula to establish the number of posts by calculating the number of households and then finding an appropriate equation of number of households per extension worker. At present to attempt this would not be realistic in view of the limited number of secondary school-leavers who are available to proceed overseas for certificate, diploma, or degree qualification. The following tables based upon the likely number of qualified staff who could be recruited provide an alternative base upon which to establish such projections (Tables 1 and 2 in the text).

Table 1 Estimated Number of Recruits Becoming Available (Certificate/Diploma/Degree)

	<u>Maximum</u>	<u>Minimum</u>
* 1983	20	12
1984	12	8
1985	12	8
1986	12	8
1987	15	10
1988	15	10
1989	20	12

- * Note: These figures for 1983 include an element of previously qualified staff who sought employment elsewhere.

Table 2 Extension Staffing Projections
Staff in-service

	<u>Maximum</u>	<u>Minimum</u>
1983	132	125
1984	138	129
1985	144	132
1986	148	134
1987	154	137
1988	150	139
1989	168	141

(Based on recent averages of the recruitment of tertiary trained staff and presumed losses through retirement and resignation.)

As these tables refer only to tertiary trained staff the numbers for demonstrators has not been included, but a probable annual maximum of eight and a minimum of four would be a conservative estimate.

A review of the output of the educational system in the Solomon Islands indicates how critically it relates to future manpower planning in any department.

Education

34. The present meager provision of educational opportunities is unquestionably the major constraint on development in the Solomon Islands. The position at the primary and secondary levels is well documented but for the purpose of this project the important items are the shortage of staff qualified at degree, diploma, and certificate levels resulting from the small output of suitable candidates from the secondary school system. The government has acted vigorously to start improvements at the primary level. A similar program is needed at the secondary level -- especially an increase in the output from the Form VI level. (1) So far as extension in food crops is concerned the very few females entering secondary- and tertiary-level training means that few candidates can be found for posts which involve the training of village women in food production and home economics.
35. Technical and vocation training: Formal technical training is carried out at the Honiara Technical Institute. It was established in 1969 and is composed of the four schools of commerce, survey and drafting, trade, and marine. The institute admits an estimated 120 Solomon Islands students annually, and the courses offered cater to school-leavers. It also provides in-service and upgrading courses for those already in employment. To meet the growing demand for trained manpower it will be necessary to expand the institute's training facilities. The minimum education requirement is two years secondary education.
36. Solomon Islands Teacher College: The 1981 enrollment was 150 students, and it is planned that this will be increased to about 430 by 1986. This expansion of facilities and of numbers is overdue, but it could have a temporary adverse effects on the number of students seeking training in agriculture.
37. The main religious missions have good secondary schools in which the students learn agriculture as a main subject. There is no formal training of farmers as such, but parents are encouraged to visit and to stay at the schools. While representing a substantial training input, their work does not overlap with that of the District Training Centres.

(1) A sixth form is to be started at the Seventh Day Adventist School at Betikama in 1983; this will concentrate on science and mathematics training.

The Proposed National Agricultural Training Institute (NATI)

38. Present position: The need for an institution specifically for providing advanced agricultural training has been under consideration for some time. In 1977 parliament passed a motion unanimously approving the early establishment of an institute, and support for the project has continued with relevant directives being issued as late as August 1982 by the Minister of Home Affairs and National Development.

Documents relating to NATI which had been prepared earlier indicated that in the first years of its existence the institute should concentrate on courses which would lead to the improvement of the overall ability of the extension staff, but that the eventual aim might be the provision of training that would lead to the award of a certificate. Initially courses would be structured to meet specific needs; they would be of an essentially practical nature and would be of short duration, two weeks to two months. Provision would be made for initial training in specific skills for level 2 staff, remedial training for levels 2 and 3, and in addition provision would be made for advanced farmer training. It was envisaged that staff returning from overseas training would be given an orientation course. The total number of staff to be trained would be such as to occupy two or three instructors on a full-time basis.

39. It was proposed by the Division of Agriculture that NATI be established at Tenaru in Guadalcanal Province. This site had much in its favor -- the proximity to Dodo Creek Research Station, Tenaru Research Substation, Tenavatu Livestock Farm, Black Posts cocoa trials, Levers Solomons Ltd. (LSL) coconut and Solomon Islands Plantations Ltd. (SIPL) oil palm plantation, and Cattle Development Authority (CDA) Cattle Production Farm meant that reciprocal training inputs could be conveniently provided. Since internal shipping and air lanes focus on Honiara and there is already a permanent all-weather road to Tenaru, these amenities would provide easy access for staff and students. The major advantages of locating the institute in Guadalcanal were obvious and the arguments for this location are still valid. The full Guadalcanal Provincial Assembly, however, refused permission for the release of land on which to build the institute on Guadalcanal. Sites have been proposed in other provinces of which the most suitable is on Malaita on land which also houses the Dala District Training Centre.

40. Since the original proposals to build NATI, there have been other developments. In July 1982 a draft report of "The Proposed Solomon Islands Institute of Higher Education" has appeared. This is a combined report of the Solomon Islands Ministry of Education and Training and the University of the South Pacific by E. R. Treyvaud. The main proposal is for the amalgamation of existing institutions in the Solomon Islands into an institute of higher education. One of the proposals refers to a new school of agriculture and home economics. The course in this school would lead to the award of a certificate in agriculture in one of three areas of specialization: horticulture, livestock, and home economics. In the report there is a recommendation that the proposed NATI be incorporated, either directly or as an affiliated school, into the institute of higher education. A further recommendation in the report is that the terms of reference for the proposed NATI should be expanded to include:

- the development of post-secondary courses in horticulture, animal husbandry, and home economics for persons wishing to enter agricultural pursuits or the teaching profession;
- to provide supporting courses for college students studying agricultural business management and rural technology;
- to assist the secondary schools in the conduct of agriculturally based programs.

No estimates are contained in the Treyvaud report for the throughput of certificate students intended for employment in agriculture in general, but the enrollment in the School of Agriculture of certificated students intended for the teaching profession is conservatively estimated in Table 3.

Table 3 Estimated Enrollment of Certificate Students in the School of Agriculture

	1982	1983	1984	1985
Certificate in Agriculture	-	-	20	38
Certificate in Home Economics	-	-	15	28
	-	-	35	66

It is understood that the proposal for the creation of an institute of higher education has been generally well-received by the government and has been favorably commented on publicly by the governor general. As the intention is to amalgamate a number of institutions to form this institute, having one of the constituent institutions based on Malaita as is now proposed by MHAND would not be very convenient. Though it is obvious that the aims and purposes of NATI and an institute of higher education would be different, this does not rule out the need and the possibility of sharing facilities between them. In addition to the inconvenience of having separate institutions on different islands, the cost of building duplicate facilities gives cause for concern.

Constraints to the Development of the Extension Service

41. There are considerably more constraints facing the development of the extension service than can be catered for by the components of this project. Those that have been selected assume major proportions in spite of the relatively small size of both the country and its total population.
42. Decentralization: While recognizing that devolution of responsibility to the provinces is still an on-going process and it would be premature to conjecture the final outcome, there is no doubt that even now there has been an adverse effect on the management of the extension service. Central staff are seconded to each of the provinces so that the provincial executives have

jurisdiction over them. Each province formulates its own development plan, and it is not clear what happens if the collective plans are at variance with those of the central government. Inevitably senior staff in charge of provincial extension services will have to shoulder considerably more responsibility without having access to higher authority or to supporting technical guidance except from the central research service. Perhaps the worst effect of decentralization is the way it can affect staff morale. With the diminution in the size of the unit there can be anxiety over career prospects and, within provincial administrations, a reluctance to cater to staff interchange. These problems can be exacerbated when there is no acceptable procedure for making representations to higher authority. The greater the degree of devolution, the more susceptible the system is to local political pressure. There is then seldom a clear set of directions or objectives with which staff can identify themselves. There is a tendency for the extension service to attempt to satisfy each and every demand throughout the province with little regard for what can be achieved. A dilution of effort can have undesirable consequences on the available funds, transport, equipment, and, not of least importance, staff morale. Managerial skills are consequently at a premium and if the service is to maintain its effectiveness, improved extension management has a high priority.

43. Recruitment of staff: The demand from both the private and public sectors for the limited number of Form V and Form VI secondary-school-leavers places a severe strain on the numbers available annually for recruitment into the Agricultural Division. Even after completing a pre-service year of training and returning from overseas with a certificate or diploma there is no assurance that the returning students will opt for posts in the Agricultural Division. In a highly competitive market for trained personnel it does not appear that a career in agriculture has all that many attractions. It is not easy, therefore, to plan for the expansion of the service and still maintain standards when the supply of suitably trained staff is so limited. It is recognized that at the lower levels, the terms of service for staff are not attractive. Altering the conditions of service is daunting and complicated, but improving the living conditions is a more tractable task. There is little doubt that a contribution to the quality of life through improved housing would have marked effects on both the efficiency and self respect of the qualified extension staff stationed in the provinces.
44. In-service training of staff: In view of the problems relating to recruitment, the in-service training of staff assumes great importance, and, though a good start has been made, it should be substantially augmented through the establishment of a central training unit (NATI).
45. Junior staff training: Initially priority should be given to staff training at level 3. These are the demonstrators or field assistants II. Whether NATI would take over all responsibility for the training of this cadre from the District Training Centres would depend on the institute's capacity. The emphasis should be on highly practical courses. A distinction can be made between two

kinds of training. First, skills training -- here the aim is to improve actual performance, and training is so arranged that participants are given every opportunity to actually carry out the operations that are being taught. There is minimum concern for theory. In the second type of training the focus is on perceiving a problem or a situation in a broader context. It could be described as training in perspectives. For example, to fully appreciate the aims and objectives of rural development, skills training could make very little of a contribution. Skills training seldom affects the morale of the participant, but the acquiring of a new and broadened perspective could. Both types of training are needed.

46. Senior staff: Improved perspectives become more relevant as the extension officer acquires managerial responsibility. What is necessary is a form of training that develops the judgmental ability of the students. Case study work would be ideal in this context. Considerable remedial training is necessary even when staff members have had tertiary overseas training. A lecturer's comment on the certificate curriculum in PNG where a student is expected to cover 72 subjects in eight terms summed up the result of such training⁽¹⁾.

"Students know a little about a lot of subjects, but not enough about any one subject. Thus they leave confused and lacking in self confidence."

47. Management training. It is acknowledged that the numbers of present staff with managerial responsibility in the service is not large, but there is a need for them to come together other than in the context of staff seminars. It would be a valuable contribution to efficiency if NATI were to organize O.D. (organizational development) training. Such training sets out on an in-house basis to inculcate a problem-solving approach to organizational activities. Provisions for staff management courses are made at present at the Administration Training Centre at Vavaya Ridge, but the courses are not specifically related to the running of extension services, nor are the students selected on an in-house basis. Such O.D. courses could provide an across-province focus. The case for the establishment of NATI at present rests on a need to energize a service both technically and managerially. A narrowly based curriculum would not achieve this.

48. The curriculum will need to be flexible as new demands arise. Some of the most effective forms of rural development depend on the capability of farmers to collaborate. Such collaboration might range from informal groups to formal associations. The Programme of Action 1981-84 emphasizes the need for collaboration and encourages such a development. This will add further to the workload of the extension agents, and if this development is to be achieved it will demand a sustained training program for the staff concerned. NATI would also provide orientation courses for both pre-service students and for those returning from tertiary training overseas.

(1) DPI Manpower and Training Review Feb. 1982. Port Moresby, Papua New Guinea.

49. It is not intended that the whole of the curriculum would or could be handled by the resident staff. There would be an opportunity for injections of external training inputs. ILO and other institutions such as the South Pacific Commission have run courses in the Solomon Islands in the past. It would be the responsibility of the consultant to explore what provisions could be made and to make recommendations. Accommodation for visiting teachers is provided for.
50. Specialization. Concessions to the need for staff with specialized training has already been made in the case of the demonstrators, but this was only at an elementary level of training. In view of the technical demands of some of the main enterprises such as cocoa, cattle, spices, etc. there will be a need for a degree of specialization either at provincial headquarters or in the area councils. If a policy of concentrating enterprise development within specific areas is generally adopted, staff specialization will be necessary.

In considering specialization more attention must be given to the problem of improving food crop production. In many areas food production is essentially women's work where advice from a male or even his presence would be resented. There is a need, and this is urgent in some areas, for the recruitment of women extension workers. There is still an apparent apathy in the whole country towards food production which can only lead eventually to serious problems.

51. Farmer training: Though the training staff at the District Training Centres do a valiant job they do have their limitations on account of their inadequate training as teachers. Much of what impact they have on farmers is often lost because of the failure of the extension service to provide any kind of follow-up to the training course.
52. Training material: A continued lack of adequate training equipment such as audiovisual aids and printed matter has meant that courses for staff and farmers at the District Training Centres have been less than fully successful.
53. Apart from drawing attention to the virtually insoluble problems created by the decentralization of a small technical service (extension) so that it is broken into pieces too small to stand in isolation and to remain viable, it would not be appropriate for the mission to offer advice as to what might be done. For the remaining items some alleviation of these constraints could be expected from the proposals developed in the succeeding parts of this annex.

III. Rationale

General

54. For the extension and training service to maintain and improve effectiveness a number of organizational features need to be institutionally strengthened:
- there is a need to compensate for the poor prospects for the recruitment and retention of an adequate number of well-trained staff in a situation where the general demand for trained staff is greatly in excess of the supply;

- there is a need to improve both the competence and morale of extension staff who, due to the nature of their work, have to draw heavily on their own resources with little guidance from senior officers.
- there is a need to counteract the parochialism which has emerged as a result of decentralization. The attenuation of administrative links with headquarters and the loss of focus occasioned by the devolution of much of the service to the provinces needs some form of an institutional response.
- the increasing emphasis throughout the provinces on cash crops that demand a more disciplined approach to farm management requires increased and improved provision to be made in farmer training.

Training

55. The National Agricultural Training Institute: The project proposals for extension training take note of the observations made in the previous paragraph and are reflected in the following recommendations.

- The government's proposal to develop an in-service training institute for staff of the extension service which would also include provision for advanced farmer training is considered sound and is supported by the mission.
- A strong training institute as an integral part of the service, energetically led and effectively supported by senior provincial staff, would lead to improved technical competence and improved morale among staff.
- The institute should be located on Guadalcanal on a site which is within reasonable distance of Honiara. Dodo Creek or Tenaru would be suitable on account of their accessibility by air and sea transport, their proximity to the research complex at Dodo Creek, and the convenient access to the proposed agricultural information unit.
- The institute should be planned to accommodate a maximum of 24 students. Initially there would be few women students but the number should increase in the future, the dormitory accommodation being designed with this in mind. The institute's equipment requirements, which would be modest, fall into two categories: teaching aids and workshop and field facilities.
- Because of the severe shortage of trained manpower at the present time and the equally severe shortage of persons in training, both at the certificate and teacher level, the appointment to the post of principal to head the institute would have to be an expatriate. His contract should extend for a maximum of five years, and during this time a local member of staff should be appointed directly as an understudy so that he could, during the initial period, take advantage of an overseas fellowship for training in extension.

56. Farmer training centers: Attendance figures for farmers at these centers give adequate confirmation that they make a very important contribution to the task of coping with technological change.

Farmers are generally reluctant, however, to leave home for long periods so that there is a strong case for increasing the local provisions for farmer training. The more demanding enterprises of cattle and cocoa clearly need improved managerial expertise. Such training with adequate extension follow-up could be very effective in improving the general competence of the farmers. To improve the provision made for farmer training, priority should be given to establishing further centers in two provinces. A phased increase and improvement in farmer training provisions is proposed. Priorities are apportioned as follows:

- the building of a farmer training center on Choiseul;
- the District Training Centre at Barakoma to be re-sited at Gizo.

57. Advanced farmer training. The District Training Centres offer three levels of technical training: beginners, remedial, and advanced, and carry out this training with some degree of proficiency. NATI, therefore, should cater exclusively to different aspects of farm management training. Courses should also service the needs of responsible staff of cooperative ventures such as those promoted by the land use development section and the land development cooperatives.
58. To improve the conditions of service for extension personnel an initial program of permanent house building for field assistants II should be undertaken.
59. The extension staff appear to have few materials and little equipment at their disposal. While the re-establishment of the information service which was discontinued some years ago should go a long way to meeting the needs of the staff for informational and promotional materials, the extension staff will need to have basic spraying equipment, and supplies of agrochemicals and of fertilizer to meet new demands being made on them. For the present, a nominal provision is made for each of the field assistants (60) to have access to the essential items. A modest total sum is included in the project proposals to provide these simple needs.
60. Problems of travel in the islands are immense, but in the absence of roads any form of mechanized transport is ruled out. The one exception is for travel by sea where canoes with outboard motors are used. Increased extension activities will mean an increase in the amount of travel but this is virtually impossible to quantify. If the detailed representations are made at appraisal for them to be included in the project, these would be supported in principle.
61. The demand for the re-establishment of an agricultural information unit is substantial, and proposals to this effect are considered an integral part of the project. It would be of value to research, extension, farms, and policy-makers in the government. At present there is a scarcity of informational and training materials at all levels (see Annex 8).

IV. Project Components

62. The project would provide the following support for the extension and training activities of the Agriculture Division of the Ministry of Home Affairs and National Development.

63. Civil works costing SI\$1,217,600 at Dodo Creek/Tenaru for the National Agricultural Training Institute, at sites on Gizo and Choiseul for farmer training centers (FTC) and for 30 houses for field assistants at various locations.

(i) at Dodo Creek/Tenaru (SI\$322,000) (see Annex 10, Table 5a). The following would be built

- office, classroom, and library, 400 m²,
- dormitories (4 x 6 persons -- male and female), 4 x 200 m²,
- mess block, 200 m²,
- store, workshop, covered parking area, 200 m²,
- 5 houses in all for staff and visiting teachers.

(ii) at each of the two FTCs (SI\$267,800) (see Annex 10, Table 4a).

- survey and land development, 20 ha,
- establishment costs of perennial crops and pasture, 16 ha in all,
- access roads, gravel unsealed, 2 km,
- offices, lecture and store rooms, 210 m²,
- dormitory, 200 m², and messblock, 200 m²,
- 3 houses for teachers, and 4 houses for support staff,
- workshop, 100 m², implement shed and garage, 250 m²,
- copra dryer, cocoa fermentary,
- miscellaneous ancillary services including fuel and water tanks.

(iii) at locations in the provinces a total of 30 houses would be built for field assistants (SI\$360,000).

64. Equipment, vehicles, and furniture costing a total of SI\$486,700 for

(i) the National Agricultural Training Institute (see Annex 10, Table 5a)

- farm equipment (SI\$19,000 comprising one wheeled-tractor-and-trailer,
- vehicles (SI\$39,000) comprising one 3-ton truck, two 4-wheel-drive pickups, and six motorcycles,
- office equipment and teaching materials (SI\$15,000),
- furniture for the offices, classrooms, and houses (SI\$39,000)
- one standby generator 15 KVa (SI\$8,500) (1).

(ii) each of two farmer training centers (see Annex 10, Table 4a) (SI\$80,000) comprising:

- farm equipment (SI\$39,700) including one wheeled-tractor together with trailer and cultivation equipment (cultivator, disc harrow, grass cutter), chainsaws and minor tools, transport equipment (SI\$5,800) being one motorcycle, two fiberglass canoes, and four outboard engines,
- office equipment and teaching materials (SI\$3,800),
- furniture for offices, classroom, dormitory, and houses (SI\$22,200),
- one generator 15 KVa (SI\$8,500).

(1) This not needed at Dodo Creek/Tenaru -- would be essential if NATI sited at Dala.

(iii) the total of 30 houses for field assistants
- furniture and equipment (SI\$90,000).

(iv) additional equipment for existing FTC (SI\$22,000)

65. Additional professional and support staff costing SI\$708,700 as follows:

(i) at the National Agricultural Training Institute (SI\$554,500) (1)
(see Annex 10, Table 5b)

- new professional staff (SI\$411,700) being

-- one principal with a thorough knowledge of tropical agriculture and of the teaching of extension officers to establish the institute both with regard to the facilities and the curricula to be followed; provision is made for an expatriate salary for this post;

-- one deputy to be trained for the role of principal

-- two supporting teachers (one deputy, one female teacher);

- new supporting staff

-- two field support staff

-- one classroom support staff

-- one clerical officer and typist.

(ii) at the farmer training centers as follows (see Annex 10, Table 4b, including Attachment 1)

- two junior professional staff,

- four supporting staff.

Since the development of centers is phased the costs would be in SI\$1,000s,

	Choiseul	Gizo	Total
Junior professional	45.2	33.0	78.2
Support	<u>43.2</u>	<u>32.8</u>	<u>76.0</u>
Subtotals	<u>88.4</u>	<u>65.8</u>	<u>154.2</u>

66. Technical assistance to provide a consultancy on curriculum development and some overseas training of extension staff through short courses and visits is provided.

67. A sum of SI\$90,000 is provided for the supply of one hand-operated sprayer to each of the 60 field assistants, together with small supplies of mainly fungicides for use on new crops as indicated by the plant protection officer.

(1) In addition to the staff shown there would be an information support unit of one person from the information service at headquarters.

Full details and the proposed phasing of expenditure are given in Annex 10, Tables 9a and 9b.

V. Organization and Management

General

68. The objective of this chapter is to set out a few salient points connected with the management of the extension service which could overcome some of the problems which have been identified. These fall into two groups, those which have arisen from devolution of responsibility to the provinces and those which arise from the changed nature of the work which the staff are being required to do and for which they are inadequately trained and equipped.

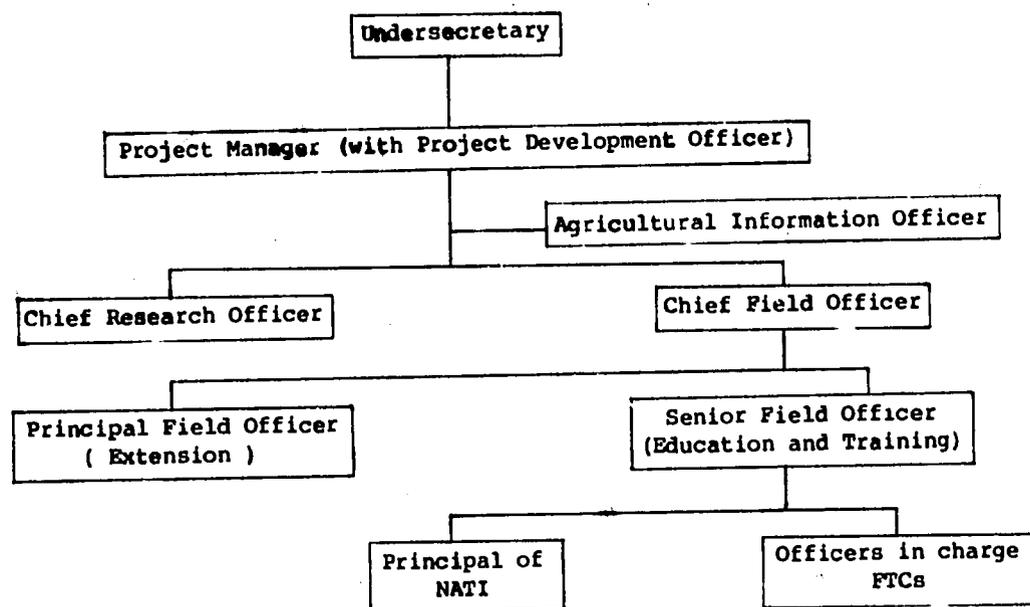
Management of the Extension Service

69. Because of the devolution of responsibility for extension to the provinces it seems appropriate to consider the establishment of provincial committees to determine the work program of the extension services in each province. By involvement of the provincial executive on a regular basis (e.g., by meetings at six-monthly intervals), the executives could feel fully involved in the formulation of agricultural programs for their provinces and be assured of full support from the central government in terms of the training of the staff and of resources needed to carry out the programs. It is proposed, therefore, that there should be, in each province, a small committee comprising the provincial secretary, the senior field officer in the province, the chief field officer (representing the undersecretary), and a member of the research service, to discuss the work programs and the requirements of the provincial agricultural development plan. These would be translated into research programs by the chief research officer and his staff, and would also be taken into account in arranging the training of the extension staff within each of the provinces. Annex 6 makes adequate provision for a committee structure for determining the national research program and it would seem that similar considerations should be applied to evolving effective work programs for the extension services.
70. The information service to be established should be able to ascertain the needs of each part of the service, whether research, extension, or training, for information and promotional materials on an on-going basis, so that a meeting at yearly intervals of research, extension, and the agricultural information unit, would be adequate to indicate the general lines which the service should take in its development. Since the agricultural information unit would be an integral part of the divisional activities as a whole it would have very frequent contacts with all parts of the service, the annual review would be essentially to chart progress and general lines of development, rather than to be involved in precise operational details.

71. Recruiting teachers to the farmer training centers and ensuring that these teachers have knowledge, not only of the agricultural components that they are to teach, but also of training in teaching methods, gives cause for concern. It would seem appropriate that there should be some close working relation between the teacher training college in Honiara and the Division of Agriculture to ensure that the staff of the various farmer training centers can be given refresher courses in teaching within the training college. This is not included as a project component, since little cost, if any, would be involved, other than the subsistence of staff members.
72. It has been repeatedly emphasized that the nature of the work which the extension staff are required to do has changed from a target-oriented approach with free or subsidized inputs to one which requires a thorough understanding of the whole production system at farm level and how new innovations to increase output may be introduced. The range of crops to be dealt with has also increased.
73. The main consequence of this change is the need for a large and sustained program of refresher training for extension staff both in technical aspects and in the general orientation of the service. It is proposed, therefore, that all of the staff of the extension service would receive appropriate refresher training in formal courses at least once every year to fit them for their tasks. This will require the establishment of a clear training schedule for all staff at least one year ahead of implementation so that staff releases can be scheduled well in advance. The senior field officer (education and training) would have the responsibility for drawing up schedule and ensuring that the appropriate courses were available at NATI or at the FTCs as appropriate.

Management of the Project Components

74. Within the extension component there are three main areas: staff, facilities, and training programs. The facilities are to be developed at several different locations. The project manager will be responsible for all project components but could delegate much of the day-to-day detail to the principal field officer (extension), the senior field officer (education and training) and to the principal of NATI. It should be noted that the officer in charge of the agricultural information service would report directly to the project manager since the unit is not a direct line unit in the extension service. The proposed structure is indicated in the chart.



These proposals take into account the levels (grades) of the posts concerned.

75. The principal field officer (extension) would have direct responsibility for working with the provinces on all matters connected with the field work and the officers seconded from the central service. He would assist the project manager in matters related to buildings and site acquisition but the main responsibility in this difficult area would rest with the project manager himself. He would be responsible for working with the senior field officer (education and training) and the principal of NATI on the one hand and the provincial executives on the other to arrive at practical training schedules for staff having regard to their duties in the provinces and their needs for training.
76. So far as project operations in general are concerned the officers mentioned above would follow the procedures set down by the project manager as indicated in the chapter on organization and management in the main report.

The National Agricultural Training Institute

77. Staffing: Provision has been made for a principal and for a deputy as an understudy. This is extremely important and the understudy should not be regarded as an additional teacher. The teaching strength would be made up of an additional deputy and one male and one female teacher. This may appear to be a fairly large complement for the likely teaching load. When it is understood that the principal will be responsible for developing the physical facilities of the institute and the curriculum to be followed, and for organizing, along with the senior field officer (training) in the headquarters of the extension service, all of the training courses for extension service and leading farmers the work load would be considerable. His deputy would be available to assist but would be outside the country for a large part of the time. It is proposed that

during the fourth and fifth years of the institute's existence the deputy would increasingly take over the role from the principal with a view to the institute being self-sustaining thereafter. For this reason the rather large staffing component is strongly recommended so that the local staff can have adequate time to be trained for this exacting role.

78. Curriculum guidelines: It is not intended here to offer a detailed curriculum for NATI. Many of the very sound courses, currently available from the training officer, could be readily adapted for use in the initial stages while the long-term balanced plans are being developed. In the development of these, it is to be expected that there will be full involvement of the provincial agricultural staff and of the provincial executives, in cooperation with the principal and the senior field officer (training).
79. Facilities: Adequate classroom, workshop, and field facilities are essential, along with sufficient dormitory accommodation for students of all kinds. At Dodo Creek (and at Dala) there are already District Training Centres with some field, workshop, and dormitory facilities. These have been taken into account in arriving at the items to be supported in this project. The facilities are designed to handle a maximum of 24 students at one time. Initially there will be few women students but the number should increase in time. The dormitory accommodation has been designed with this in mind. The equipment requirements are modest and are in two categories, classroom teaching aids, and workshop and field facilities. The latter are available at the FTCs so that they need not be fully duplicated provided that suitable arrangements can be made.

VI. Issues

The main issues to be resolved are as follows:

80. The attendance of staff at training courses is an essential component of the whole training package. There will be a need to determine to what extent the nomination and placement of provincial staff at the National Agricultural Training Institute will be under the control of the undersecretary and his senior colleagues when the decentralization process is completed.
81. There is an overwhelming case for NATI to be situated on Guadalcanal near to the research complex at Dodo Creek and to the other educational units which may become associated in an institute of higher education. For political reasons given in this annex (paragraph 39) the government asked the mission to consider a site at Dala, on Malaita. This site would not be suitable for possible future development to accommodate certificate and diploma teaching, mainly because of inaccessibility and distance from other units of higher education and research from which teaching support could be expected to be drawn. If it is felt, after appraisal, that the institute should be sited at Dala, the detailed arrangements by which the facilities of the FTC at Dala would be shared between the FTC and NATI would have to be worked out and the necessary financial arrangements would have to be made.
82. If NATI, which would be under MHAND, were to become part of an institute of higher education in the Ministry of Education, Training, and

Cultural Affairs, a number of interministerial issues would arise since the two types of training to be given in the institute would need careful blending and understanding on the part of all concerned.

83. A further major issue is that of the availability of land for the building of the institute already referred to, the farmer training centers on Choiseul and at Gizo, and the sites for the houses for the field assistants. The mission does not underestimate the difficulties involved but, if progress is to be made, the government must be required to take firm action to make it possible for project development to take place.
84. The issues connected with the recruitment of experienced staff within the project as a whole are discussed in paragraph 6.02 of the main report.

SOLOMON ISLANDS

Agricultural Research, Extension, and Support Facilities Project

SCHEMES OF SERVICE

Division of Agriculture (MHAND)

EXTENSION

FIELD ASSISTANT

Duties To undertake daily contact with farmers and farming communities, and promote agricultural and horticultural development within the area assigned to him, and to organize the work of extension workers in his area.

Entry (LEVEL 3)

A. Direct entry from Form V secondary school, combined with a period of formal training, at the commencement of his employment, of not less than two months.

or

B. By promotion from classified worker level 2 after the successful completion of a trade examination set by the Ministry of Agriculture and Lands to determine his knowledge of his work as well as his standards of literacy and numeracy.

(LEVEL 4)

C. Direct entry subsequent to the successful completion of a period of study and relevant work experience of not less than three years duration leading to the award of a certificate in (tropical) agriculture.

Note.

There will be no advance from level 3 to level 4 unless the officer first successfully completes a certificate-in-agriculture course.

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ASSISTANT FIELD OFFICER (LEVEL 5)

Duties To coordinate and plan the operations of the extension service within the area of his authority, traditionally known as a subdistrict.

Entry

D. Direct entry upon successful completion of a course of study and relevant work experience of not less than four years duration leading to the award of a diploma in (tropical) agriculture.

or

E. By the holder of a certificate in agriculture who has successfully completed a one-year in-service course leading to the award of a post-certificate diploma in tropical agriculture.

or

F. By promotion from the ranks of level 4 upon the recommendation of his senior officer, having first served in the ranks for level 4 for a minimum of four years.

or

G. By the holder of a certificate of agriculture who has successfully completed a special course of study of not less than six months duration leading to the award of a certificate of attendance or similar qualification. The course must be relevant to his work and his attendance must have been at the behest of the Ministry of Home Affairs and National Development or its predecessor.

FIELD OFFICER (LEVEL 6)

Duties To plan, organize, and manage the activities of the extension service within the area of his authority.

or

Where the field officer is the most senior agricultural officer in a province:

To undertake the overall responsibility for a provincial extension service and in pursuance of ministerial and provincial policies to prepare and implement agricultural development plans for that province to which he is seconded.

Entry

H. Direct entry upon the successful completion of a period of study of not less than four years duration leading to the award of a degree in agriculture plus a period of training in administrative duties of not less than three months duration.

or

I. By promotion from level 5 upon the recommendation of his senior officers having served a minimum of four years at that level.

SENIOR FIELD OFFICER (LEVEL 7)

Duties To plan, organize, and manage the activities of the extension service within his area of authority.

or

Where the senior field officer is the most senior officer in a provincial agricultural extension service:

To undertake the overall responsibility for the various central government and provincial agricultural extension services and, in pursuance of ministerial and provincial policies to prepare and implement agricultural development plans for that province to which he is seconded.

Entry

J. By promotion upon recommendation of his senior officers from level 6 having served at least four years at that level.

or

K. By the holder of a certificate or diploma who successfully completes a course of study of not less than 10 months duration, leading to the award of a diploma or degree in agricultural extension technology. (This course of study would normally be expected to have been undertaken at a metropolitan university.)

PRINCIPAL FIELD OFFICER (LEVEL 8)

Duties To plan, organize, manage, and coordinate the activities of extension services within his area of authority

or

Where he is the most senior officer in a provincial agricultural extension service:

To undertake the overall responsibility for provincial agricultural extension and, in pursuance of ministerial and provincial policies to prepare and implement agricultural development plans for that province to which he is seconded.

Entry

- L. By promotion upon recommendation of his senior officers from level 7 having served at least four years at that level.

CHIEF FIELD OFFICER (LEVEL 9)

Duties Undertake the overall responsibility for the various central government and provincial agricultural extension activities and, in pursuance of ministerial and provincial policies to supervise the implementation of development plans.

Entry

- M. By the successful completion of a course of study at a metropolitan university leading to the award of a master's degree in extension technology, having served in the extension service of the Ministry of Home Affairs and National Development or its predecessor at level 8 for at least one year prior to undertaking the course of study

or

Entry

- N. By promotion upon recommendation by his senior officer from level 8 having served at least four years at that level.

UNDERSECRETARY (LEVEL 10)

Duties To coordinate and manage the activities of the Agricultural Division of the Ministry of Home Affairs and National Development.

Entry

- Q. By promotion upon recommendation from a level 9 within the Agricultural Division of the Ministry of Home Affairs and National Development.

TRAINING AND STAFF DEVELOPMENT

FIELD ASSISTANT

Duties To carry out day-by-day operations of a training center and courses held there, or at any other location as shall be selected, or such other special training projects as may be required.

Entry As in A, B, and C above according to level.

ASSISTANT FIELD OFFICER (LEVEL 5)

Duties To manage and operate a training center, to plan and run training courses and draw up training programs in cooperation with provincial extension services.

Entry As in D, E, F, and G above.

FIELD OFFICER (LEVEL 6)

Duties To manage and operate a training center, and to work with provinces in the establishment of special training courses for farmers and staff beyond the scope of local training center capabilities, or where national coordinated training for all staff is necessary

Entry As in H above

or

Promotion from the rank of assistant field officer in charge of a training center upon the recommendation of his senior officers

or

By the successful completion of an in-service course of studies of not less than nine months duration, leading to the award of a certificate of attendance or similar qualification, dealing with educational and training technology, the officer having, prior to the commencement of the course held the substantive rank of level 5.

SENIOR FIELD OFFICER

Duties To coordinate and direct the operations of the training and staff development section of the Agricultural Division.

Entry As in J above

or

By the successful completion of an in-service course of study leading to the award of a certificate or diploma in education and training technology, the officer having, prior to the commencement of the course, held the substantive rank of level 6.

LIVESTOCK

FIELD ASSISTANT (LEVEL 3)

Duties Where applicable:

- i. assist in small farm animal extension work/planning
- ii. undertake duties as directed on government livestock breeding farms.
- iii. assist as directed in a laboratory or on a disease survey.

Entry As in A or B above.

FIELD ASSISTANT (LEVEL 4)

Duties Where applicable:

- i. assist in administration of livestock development projects/staff and farmer training.
- ii. undertake duties as directed on government livestock breeding farms.
- iii. assist as directed in a laboratory or on a disease survey.
- iv. undertake ante/post mortem meat inspection as directed.

Entry As in C above.

ASSISTANT FIELD OFFICER (LEVEL 5)

Duties Where applicable:

- i. assist the manager in all aspects of the operation of a government livestock breeding farm.
- ii. assist senior veterinary officer (animal disease) in disease survey and laboratory management.
- iii. within a province to assist and advise in the execution and management of provincial livestock development programs.
- iv. assist in the administration of the cattle farm grant scheme and provide specialist inputs.

Entry As in D, E, and F above.

or

By the holder of a certificate in agriculture who has successfully completed a course of study, specializing in beef husbandry, of not less than nine months duration.

FIELD OFFICER (LEVEL 6)

Duties Coordinate and plan the administration and operation of the cattle farm grant scheme and cooperate with SFO (E & T) in the provision of inputs for staff and farmer training courses.

Entry As in H above, but with an option that the degree may be in animal husbandry.

or

As in I above.

SENIOR FIELD OFFICER (SENIOR LIVESTOCK OFFICER) (LEVEL 7)

Duties Manage, under direction, large government livestock breeding herds.

Entry As in J above.

or

Direct entry upon successful completion of a training of not less than five years leading to the award of a degree in veterinary science, plus a period of study of not less than two months into the administrative tasks associated with his post.

SENIOR/PRINCIPAL VETERINARY OFFICER (LEVEL 7/8) (COMPOSITE GRADE)

Duties Where applicable:

- i. assist in the breeding, distribution, and extension effort required in promoting small farm animal production

or

- ii. manage the laboratory and animal disease survey/eradication programs

or

- iii. manage meat inspection, quarantine stations, and animal quarantine services,

or

- iv. directly under the chief veterinary officer to assist in the planning and implementation of phases of animal production.

- v. directly under the chief veterinary officer to assist in the planning and implementation of all phases of animal infectious disease survey, control, and eradication; the animal quarantine service; and the meat inspection service.

Entry For i, ii, and iii above.

Direct entry following the award of a degree in veterinary science, with preferably a diploma in agriculture or animal husbandry, or three years relevant experience in livestock industries.

For v and vi above

Direct entry following the award of a degree in veterinary science, with considerable extra experience to include a diploma in agriculture or animal husbandry and at least three years relevant experience in livestock industries

or

By promotion from a level 7 officer undertaking the duties outlined in i, ii, and iii above, having undertaken those duties for a minimum of two years.

CHIEF VETERINARY OFFICER

Duties Responsibility for all phases of the national livestock development program, including breeding farms, smallholder farms, planning development, and implementation of national policy.

Entry Direct entry for the holder of a degree in veterinary science, plus a diploma in agriculture/animal husbandry, with at least 10 years relevant postgraduate experience

or

By promotion upon recommendation of his senior officers from an officer performing the duties outlined in iv and v in the level 7/8 composite rank, having served at least three years at that level.

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

Job Specification

Post: Principal Field Officer (Extension) - PFO(E)
Grade: Level 8
Section: Extension (Ministry Headquarters)
Responsible to: Chief Field Officer

Supervise and monitor the provincial extension activities to ensure efficient, economical, and uniform effort in implementation and progress of approved national and provincial agricultural policies.

Work with provincial secretaries, premiers, and agricultural staff at all levels on matters concerning the agricultural extension service, both crop and livestock.

At ministry level, continue to closely cooperate with provincial ministers, permanent secretaries, and chief administrative officers on agricultural extension services within the appropriate provinces.

As requested, attend provincial assembly meetings, and executive and area committee meetings to provide advice and guidance with the implementation of national and provincial agricultural plans.

Attend ministry meetings on provincial agricultural extension matters to appraise provincial ministers, permanent secretaries, and chief administrative officers on problems and proposed solutions, and progress to date.

Represent the ministry at all provincial staff conferences.

Monitor training requirements to ensure that courses reflect the needs of field staff and farmers.

Prepare, or organize preparation of, data for planning purposes in connection with the agricultural extension services.

Submit tour reports, or as requested, any special reports on provincial agricultural extension activities.

As necessary, attend meetings of statutory bodies such as the Cattle Development Authority.

Work with the Development Bank SI (loans promotion officer, branch managers, etc.) on smallholder development credit.

Supervise and monitor national development projects being implemented by the provincial agricultural extension services.

Act for the chief field officer in his absence.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities Project

THE INFORMATION COMPONENT

I. Introduction and Summary

1. The purpose of this study is to review the information support services to agricultural research and extension in the Solomon Islands and to make recommendations for actions that will give added strength to this component of support to the government's agricultural development program.
2. At an earlier time responsibility for information support in agriculture resided in one officer, but current activities are scattered among different units. No officer carries a primary responsibility for information support to the research or extension programs. Some initiatives for printed or duplicated materials are taken by officers in headquarters education and training, research, and extension units, and a few are taken in provincial units. Some printed materials have been furnished to agricultural officers by the Development Bank of the Solomon Islands. Little, if any, audio-visual support activities are provided. Some use of radio occurs, with primary initiative taken by rural broadcasters of the Solomon Islands Broadcasting Corporation (SIBC).
3. Research officers act on their own interest or initiative to make formal reports on research, either within the Solomon Islands system or via professional journals. A modest, but useful, collection of references and current periodicals on agricultural science is maintained at the Dodo Creek research station, although no staff member with librarianship training is available (some assistance in cataloguing is provided from the national library).
4. This Annex will present a rationale for providing professional support needed to establish and operate an effective information planning and production unit for research, extension, and training programs. It presents recommendations for organization, equipment, management, and developmental training for eventual localization of the agricultural information support unit. Project components are identified, and issues are discussed.

II. Background and Current Situation

5. The research section of the Division of Agriculture in the Ministry of Home Affairs and National Development (MHAND) carries out a creditable program. Yet little or no formal arrangement is in place to assure that its results are made available promptly and understandably to the extension system or directly to farmers. For many decades in the developed world, and in recent years in most developing countries, agricultural information has been a subject for specialized organization and services. It is seen as an important supporting and accelerating element in agricultural development.
6. Some years ago there was specialization in information support for agricultural development in the Solomon Islands. A regular magazine was printed and distributed, numerous publications were made available, and radio was used as a vehicle to carry current information to Solomon Island farmers. That specialization was eliminated at some point in the past; but the need for it was not eliminated, as is now clear from expressions of officers at many points and levels within the agricultural sector.
7. Some information support activities are performed now: some duplicated materials are prepared within the Education and Training unit; some research workers take personal initiative for materials thought to be useful to extension workers and others; the Development Bank of the Solomon Islands prepares and makes available some handbook-type materials; some agricultural topics appear in news services of the Government Information Office; the rural broadcasting staff of SIBC prepare and broadcast several programs weekly that relate to agricultural development. However, there is no single point at which responsibility is assigned for conceiving, developing, and coordinating information support services for agriculture.
8. Needs for information support services have been voiced by officers at several levels, and the range of services requested is wide: scientific editorial services for research reports and aid in access to professional literature and world data bases; popularized treatments of specific findings and handbook-type reference materials for field extension staff and some farmers; development of training aids for extension and farmers; expertise in programming use of radio and other media to explain and support development programs; and -- of central importance -- expertise in producing or arranging for production of effective information materials.
9. Government resources in the Solomon Islands are not sufficient to support a research system with well-trained specialists and support for its own research into all the significant crops and farming systems. Most of the technological base for improving the agricultural sector must come from work done and reported in other parts of the world. It is crucial in the Solomon Islands that attention be given to assure a prompt flow and exploitation of technological information within its research system. That

requires some investment to tie the Solomon Islands research group into the world networks that deal in its main areas. This is another area for information specialists in both obtaining the needed information and sharing it throughout the system.

10. Many of the supporting production facilities or services needed for an agricultural information program are currently available in the Solomon Islands. These include design services, printing services, audio or radio production services, and sales and service for typewriters, duplicators, and such essential equipment. The two major lacks are (1) personnel with professional skill in conceiving, planning, and supervising production of effective information materials and (2) funds to obtain essential personnel and provide them equipment, transport, and budget to produce the needed material.

III. Rationale

11. An agricultural information unit (AIU) can be justified by the needs expressed within the research and extension staffs. The unit's potential to perform services beyond those currently envisaged by those staffs provides additional justification. The usefulness of specialized information services has been recognized in the region; several regional organizations and some individual countries have set up units. These existing services (notably the South Pacific Commission and the University of the South Pacific) provide some resources that are usable in the Solomon Islands, but they do not build their information support programs around the central needs of any one location. They do not substitute for local attention to local needs.
12. Although there was once some specialization in information in the agricultural section, there is not now a government cadre for the development of an AIU. (One qualified Solomon Islander was encountered, but he is not in and does not appear interested in government service.) To establish this unit on a sound base will require expatriate input so it can be fully functional while local personnel are trained to serve and eventually to lead it.
13. The specific elements of a rationale for this proposal may be set out in terms of the primary tasks required to support fully the research and extension activities envisaged. These tasks may be organized into three areas: Receiving essential input; sharing and coordinating information within the organization; and moving the content or output to those who can use it.
14. Handling incoming information: The main area where an agricultural information officer (AIO) can help the system here is in helping to obtain and circulate information from outside sources: professional journals for the major disciplines in research, extension, and information; and up-to-date reference materials for the same areas of interest. The AIO could receive and circulate news of accessions and arrange for scientists to use international literature through computer search.

15. Another important flow of incoming information is from the government, which interprets the policy aims of government for agricultural development and the expectations of agricultural research and extension. Still another is information concerning the farming situations and problems faced by Solomon Islanders. An information officer can help obtain and interpret these kinds of information, but he cannot take the main responsibility for it. The main initiative must rest with the program officers.
16. Handling information within the organization: Where the staffs are posted to far points and where mobility is limited and costly, the challenge for internal communication is heightened. The costs of face-to-face communication limit the frequency with which scattered units communicate. Much important information can be moved by other means at less cost and with greater frequency. The AIO can be of great service here -- if organizational leaders give the time and thought that this area of information deserves. Perhaps the first method to be considered is a regular newsletter that links national and provincial activities. Under policy guidance of the undersecretary, the time and journalistic skills of the AIO could make this an appropriate and effective communication device.
17. Even though difficult under present limitations of the international telephone system, there is a possibility of conducting regular staff meetings by voice. An information officer could add much to the effectiveness of these distance contacts through preparation and distribution of materials for study ahead of the "conference"; then the open line is used to clarify ideas and to get responses.
18. Handling output information: This is the area where the expertise of the information officer is utilized most. There are many audiences for different items of research or extension output; non-professional communicators seldom have both the desire and the knowledge needed to fit the audience and treatment to the material available. Here are some combinations of audience and output that justify special considerations:
19. * Reporting results to scientists is usually the first and main interest of persons doing research. They may prepare a technical report of their research and consider that they have met their responsibility. Usually the editor performs the tasks more efficiently and with better results than when the scientist must do it unaided or unsupported. The scientist's technical report, whether for journal or for the extension service, is seldom adequate to communicate findings to all of the potentially interested audiences.
20. * Reporting results to other users. Research results need to be interpreted for practical application and translated into concepts understandable by those who could apply them. An information specialist cannot do this work alone. But as a

member of a team, the information specialist can do a lot to insure more useful reporting. Backed by a modest line of production equipment and aide(s), the AIO can apply needed communication expertise in both strategy and materials to get the new ideas promptly to people who can use them.

21. Important advances in equipment and technology for information support services occur on a continuing basis. Most add measurable efficiency or effectiveness; potential contributions from these advances should be considered carefully as this unit is conceptualized and established.

IV Project Components

22. The project would provide the following support for the establishment of an Agricultural Information Unit in the Division of Agriculture of MHAND:
23. Civil works, costing SI\$13,200, at or near MHAND headquarters (Annex 10, Table 7a) comprising:
 - air conditioned office and work area, 40 m²;
24. Equipment and vehicles, costing SI\$50,400 for the initial establishment of the unit, to ensure adequate mobility for the staff of the unit. In addition to the normal office equipment of electric typewriter, duplicating machinery, desks, filing cabinets, and other smaller items, special equipment for securing access to computer based data systems, photographic equipment, and audio recorders would be provided. The items listed here account for the major part of costs given in Annex 10, Table 7.
 - Apple computer and word processor
 - Dry photocopy machine
 - Headline machine -- with templates
 - Two correcting electric typewriters

 - Two 35 mm cameras, lenses, accessories
 - Photo copy stand
 - Portable lighting

 - Two slide projectors
 - Dissolve unit
 - Electronic control unit
 - Projection stand
 - Two portable screens
 - Overhead projector

 - Two audio cassette recorders
 - Cassette transcriber
 - Sound mixer

 - Drafting boards, accessories

- Heavy duty equipment storage cabinet
- Refrigerator (for film storage)
- Modem for Apple computer.

The named equipment is available and can be serviced in Honiara; this was an important consideration in choosing items.

Transport would be provided in the form of one four-wheel-drive long wheelbase vehicle (to carry equipment for work on site) and two motorcycles.

25. The cost of the staff of the unit would be provided for the period of the project. Three professional and two support staff would be required. If one of the professionals is recruited from overseas, the total staff cost including the services of a short-term consultant would be SI\$483,700. (Annex 10, Table 7b).
26. Operating costs estimated at SI\$163,000 would be paid to cover materials and supplies, transport operation and maintenance, costs of communications (line-fees), and the travel and subsistence costs of staff on duty (Annex 10, Table 7b). The estimated annual operating costs after the project period would be SI\$59,100 at 1982 prices, assuming full localization of posts by that time. The latter condition may be difficult to achieve in the five years that the project would run.

V. Organization and Management

Organization of the Agricultural Information Unit

27. The agricultural information unit is seen as a service that links and enhances the work of both the research group and the extension services. A principle of sound organization suggests that the information group be equally accessible, responsive, and accountable to both. Thus it should not be placed under the direct administration of either. The suggested structure would place it outside the line chain of command, attached to and responsible to the Undersecretary for Agriculture, the logical point for coordinating the use of these resources and for approving or altering program priorities and plans.
28. Within the formal structure, the way should be clear for the information staff to interact freely and directly with the groups it serves. A formal chain-of-command line of contact would likely constrain both sides -- and be counterproductive overall.
29. The work program envisaged for this unit would entail considerable purchase of goods and services, most used in developing materials to be utilized by other units. One suggested means of fiscal administration would place the budget

for purchase of information goods and services under management by the AIO, subject to an approved scheme of annual allocation to support the major areas of service.

30. Staffing. The lead person in an effective agricultural information service must be able (1) to plan information materials, (2) have information production skills, plus (3) a working knowledge of tropical agriculture. The person must also be able to train and supervise national staff in production skills necessary to carry out the program. Professional support staff are required. They should have field experience in agriculture, ability to work in both English and Pidgin, and credentials sufficient for admission to degree training abroad.
31. The staff complement should include three posts: the leader and two professional support staff. In the developmental years, a supernumerary professional support post will be necessary to assure that essential services are maintained and expanded while one qualified person is away for university training .
32. The lead person should have a combination of academic and work experience that includes agriculture, communications, or journalism, with at least five years of successful work in agricultural communications. One academic degree should be in social sciences or education, although a degree in agriculture may be sufficient if the individual has a successful record of production work in communications. An academic degree is required, with M.Sc. the preferred attainment. Definite preference should be given to a qualified person who also has worked in agriculture in a less developed country; experience in a South Pacific Island country would justify special consideration.
33. Professional support staff should be recruited, if possible, from ranks of present extension or training staffs in the Solomon Islands. The person must have or gain competence to prepare material in English and to translate English to oral Pidgin. Aptitude for photography and simple mechanical drawing would be useful. The minimum formal training level should be the certificate in tropical agriculture; diploma level would be preferred. The person should have at least three years of successful performance at the level of field assistant or higher in the Solomon Islands and should have demonstrated an aptitude for innovation in teaching or communications methods. Two persons should be employed as support staff; at least one should have a past school record that would permit admission for degree training in agricultural communication (probably in an institution in Australia, New Zealand, or the Philippines).
34. Other support would be needed: one person competent in typing, filing, and records, with aptitude to master routines for receiving and circulating library materials, maintaining mailing lists and other records, and utilizing a word processor -- the

person should be competent in English and available for occasional travel abroad for training); a second support person would be needed for varied subprofessional services.

35. An expatriate AIO would be necessary at the start of this project. A minimum time for training and qualification of a national for the lead post would be six years for an exceptional person; 7 to 10 years may be more realistic: 1 year on the job, with some skills training abroad; in second year, begin degree program; return in fifth or sixth year; work with AIO for 1 or more years before fully assuming the lead position.

Management of the Unit Within the Project

36. The agricultural information officer would have responsibility for all aspects of the project operations relating to this component. Subject to adherence to the procedures to be laid down by the project manager, he would be responsible for:
- designing and planning accommodation for the unit;
 - obtaining estimates, but not negotiating contracts unless specifically requested to do so by the project manager;
 - selecting the appropriate equipment and ensuring its correct installation and maintenance;
 - assisting in the selection of the support staff and in their training (one to lead the unit in time);
 - developing the unit to be of maximum service to the people and Government of the Solomon Islands by assisting the research and extension services and in other ways;
 - deciding on the most appropriate ways in which the information needs of the NATI, FTCs, extension, and the research headquarters can best be met;
 - the preparation of accounts and inventories as required by the project manager;
 - the submission of reports as required by the project manager;
 - advising the project manager concerning the use of the resources after the project ends.

VI Issues

37. The only issue of note concerns the location for the unit. The agricultural information unit provides a support service; it draws its program and work from other units in MHAND. The major sources will be the research section (the most knowledgeable source on scientific matters) and the extension section (those

closest to farmers to interpret farm needs and to identify materials and methods to disseminate useful information). This group will probably be called on to serve other functions, including communication with government and the general public. Continuing attention to the work program of this unit will be needed to assure that its resources are directed to priority needs. The agricultural information office must be close physically, as well as organizationally, to the leaders of research and extension sections. In addition to needing to be near the research staff, the main sources of information they will handle, the information unit will also be involved with the library, which is housed with and used most by the research units. The site of the computer unit is also a factor relevant to location of the information group.

38. In considering potential locations for this unit, it is clear that few of these conditions could be met away from the Honiara area of Guadalcanal. Honiara itself offers certain advantages: nearness to the offices of government; nearness to supporting services (designers, artists, radio production services, and government printery, for example); closeness to the telecommunications facilities, including the satellite link to USPNET and PEACESAT networks; and relatively short distance to the research staff and fields at Dodo Creek station. A Dodo Creek location would meet the basic criteria of site, but on nearly all measures (except nearness to the research staff) that site is less desirable than a location within Honiara.
39. It would seem most appropriate, therefore, that the unit to be located in Honiara. In time appropriate staff members could be located as required at Dodo Creek and the NATI.

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

INPUT SUPPLY, PRODUCT MARKETING, AND CREDIT

Introduction

1. Input supply, produce marketing, and agricultural credit are presently important to only a small proportion of Solomon Island farmers. While it is estimated that a large majority of farm families participate to some extent in the market economy, the share of cash income in total income (i.e., including subsistence production) is small, typically 25 %, or SI\$40 out of a total of SI\$165 per capita (1974 figures (1)). Only a third to a fifth of this cash income is derived from the sale of farm produce, a part that varies markedly from year to year, and by location; the remainder comes from paid employment. Some four-fifths of sales are derived from copra, which is sold in variable but mainly small quantities (in 1976 less than 200 kg per family per year in Malaita to nearly 1,000 kg in Western Province). Quantities vary considerably from year to year as producers react strongly to price changes. Other farm sales concern cocoa, vegetables, and cattle which are produced by a small proportion of rural households, mostly on individual farms on customary land.
 2. The effects of the rapidly increasing population on the productivity of traditional systems of production have been discussed in Annex 6, paragraph 3.01. In short, new land must be brought into cultivation, or the productivity of existing land will have to be increased. Furthermore, if the producers are to be involved in cash crop and stock enterprises to increase their cash incomes, productivity per unit of labor used will also need to improve. This transition from essentially subsistence cropping to a mixture of subsistence and cash cropping must be expected to be, on average, a slow process, with those areas in which there is pressure on land taking the lead.
 3. As indicated in paragraph 3.01, intensification of production requires the use of additional resources, whether of capital, labor, specialized inputs, or knowledge. The main purpose of this project is to help to develop services that provide these components.
- (1) More recent figures will become available early in 1983, when data from the socio-economic survey on all Solomon Islands villages has been processed.

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4. Apart from copra and the main plantation enterprises, agricultural development efforts in the past have emphasized production rather than returns to the producer; little or no regard appears to have been paid to marketing, either in terms of market size and price or in assembling commercially salable quantities from the large numbers of small and widely dispersed producers.
5. This lack of market and economic focus of many past efforts (which appear to have been largely directed at generating foreign exchange rather than benefits to the farmers) has caused general neglect of the input supply sector -- although planting materials and fertilizers have been supplied on a program basis over several years. There has been little development of input supply services.
6. The development of the supply of credit has been stimulated in the agriculture sector by the rehabilitation of old estates or the development of new ones. Lending has been to land use or land purchase cooperatives, companies, or large private estates and relatively large numbers of small farmers; the terms for lending to these farmers appear to be lenient. The subsistence farmer has no need for credit until he orients to a cash and market based economy, but there is evidence that a proportion respond when the need arises.
7. This annex discusses the current situation with regard to marketing, input supplies, and credit in the context of the national development plans which call for increased participation of the smallholder sector in the production of cash crops to increase incomes and living standards. The needs of the large scale public companies are not considered in detail, since these companies have management structures through which they can make their own arrangements. They may need agronomic support from the research services and transport facilities for produce, but in the main they can look after themselves. The proposed diversification of cropping will make severe demands on research and extension services and also on those services considered here. It can be argued that diversification should start with market, rather than agronomic, studies.

Input Supply

8. Inputs purchased by the agricultural sector concern mainly fertilizers and agro-chemicals. Smaller items are farm machinery and fuel, fencing wire, seeds, and animal feed. With the exception of coconut seeds, which are locally provided, all inputs are imported -- most directly by the three main farming corporations. Imports of fertilizer, agro-chemicals, and animal feed for 1978-81 are shown here in Table 1. Increasing values reflect price rises rather than increased quantities. Data are not available on either imports of machinery and transport equipment for agriculture or on the fuel used to operate them, but their combined value seems unlikely to exceed SI\$0.5 million per year. Taking into account recent price increases of both fertilizers and fuel, the total value of purchased farm inputs would in 1982 be in the order of SI\$ 2.5 million, all of which imported. With the possible exception of animal feed no import substitution can be expected.

Table 1: Imports of Fertilizers and Agro-Chemicals (in MT and SI\$1000)

	<u>1978</u>		<u>1979</u>		<u>1980</u>		<u>1981</u>	
	Q	V	Q	V	Q	V	Q	V
Crude fertilizer	91	14	-	-	1416	149	1864	353
Mfg. fertilizer	5570	835	4253	439	1865	343	2238	650
Agro-chemicals(1)	-	411	-	489	-	643	-	724
Animal feed	195	47	128	50	109	37	197	51
Total		<u>1307</u>		<u>970</u>		<u>1172</u>		<u>1778</u>

(1) Mostly insecticides and herbicides.

Source: Statistics Office, Ministry of Finance.

9. The smallholder sector as a whole uses few inputs from outside the family farm. Apart from fencing wire, seed supply, and a few tons of fertilizer, all purchased inputs are used by the three large joint ventures and a few middle-sized private plantations. This situation is unlikely to change until pressure on land increases or there is increased production of crops for sale off the farm. Under present conditions, attention needs to be focused on the supply of small quantities of fertilizers for smallholders and others who are engaged in the planting of cocoa, for the production and supply of improved planting materials, and for the inputs needed to sustain production in areas (some parts of Malaita) where population pressure on available land is leading to over-frequent cropping, causing lower productivity and soil deterioration.
10. One major concern is the supply of good quality coconut seedlings for any replanting program. The importance of this is stressed in Annex 6, paragraph 34, and specific proposals are made for both the large scale and smallholder sectors. The cost of production of good seed and of seedlings from vigorously rogued nurseries is higher than that of seed from the provincial seed gardens and nurseries, but the good quality seed is in demand despite its higher price; it is well worth the extra cost. It would pay the country in the long term to insist on the production of good seedlings from good seed, using well established methods.
11. The importance of adequate marketing mechanisms for produce and inputs can be illustrated by reference to the situation regarding use of fertilizers. Trials have been carried out on the response of different crops to fertilizers on different soil types, but the economics of fertilizer use under smallholder conditions has not been assessed. Potential benefits are determined by the ratio between the farm-gate price of fertilizer, the farm-gate price of the crops on which it is used, and on the size of the response to its application. The information needed to make the necessary estimates of likely returns is only partially available: e.g., fertilizer prices c.i.f.

Honiara are known, but not the cost of distributing the small quantities involved to the various islands. Farm-gate prices of copra are easily known, but those of cocoa vary from 40 to 80 cents per kg (September 1982) from one province to Honiara respectively. While the fertilizer requirements of coconuts are known on most soils, the age and condition of most of the stands of coconuts is not known, so that the potential benefits from the use of fertilizer cannot be estimated. The age and state of coconut stands will only be known after the coconut survey has been completed (a pilot survey is now underway).

12. What can be said is this:

- Most Solomon Island soils are naturally low in potassium.
- To provide reasonable yields, all cocoa plantations -- except those in the Guadalcanal plains -- should regularly receive fertilizer. This is particularly important at the establishment stage and on soils which have been in coconuts for many years.
- Fertilizer use on pastures under present conditions is not justified.
- Fertilizer use seems justified for coconuts only on those stands that have been replanted since the mid-1960s, and that are still in good conditions. It is believed that such stands represent only a relatively small part of all coconut stands.
- Problems created by too-short fallow periods, such as in Northern Malaita, can be alleviated by fertilizer use, although it is difficult to see how to introduce its use in subsistence conditions other than through free distribution.
- In view of earlier experiences when fertilizer was distributed free to farmers and its use was not adequately supervised, a steady educational and demonstrational program will be needed in most areas to encourage the farmers to use fertilizer again and derive benefits therefrom.

Estimates of how much fertilizer could be used well by the smallholder sector run from 100 to 300 tons per year.

13. There is little use in convincing farmers of the benefits of inputs that are not available to them. Yet in the absence of an effective distribution system, this may happen. The little fertilizer that is used by smallholders today reaches them through the provincial extension service, which places orders with the Agriculture Division of the MHAND, which then orders through the government supply organization. Procedures are cumbersome because various small orders need to be combined; the division is understaffed and the provincial and central budgets do not provide for adequate funding for free distribution. The Ministry of Finance appeared to raise no objection to the use of foreign exchange to buy fertilizer, but it appeared that no initiatives have been received from MHAND on this important topic.

14. An effective supply system is urgently needed for those farmers who have borrowed funds from the DBSI to develop coconut and cocoa production. DBSI fears that these borrowers will be able to meet their obligations only if the young plants receive adequate fertilizer in the establishment stage to bring them into early bearing and to sustain yields on often less than ideal cocoa soils. DBSI considers the matter to be sufficiently serious for it to make contingency plans to establish its own distribution system, if no alternative is set up in the near future. The mission shares the concern of DBSI and appreciates its reluctance to become involved in an activity for which it has neither the facilities nor the expertise.
15. Provisional plans exist to expand the activities of the Copra Board into other commodities, such as cocoa and other crops. This would entail an increase in the number of buying points from the present three, and it could make the Copra Board a suitable organization to handle fertilizer and other inputs. While these plans are at the preliminary stage, they appear to offer a satisfactory solution to the problem.
16. It has also been suggested that fertilizer could be distributed through the smallest administrative unit in the provinces: these have an assistant field officer as agricultural representative, and there are about 30 of the units in the country. The mission is inclined to advise against this alternative as a long term solution, not only because the quantities involved would be too small to justify investment in storage and stockholding, but mainly because experience elsewhere has shown that small-scale commercial and development activities (rural development centers, rural trading centers) tend to collapse rapidly if they are not sustained by strong demand support from the users and guidance from a central authority. Present demand would be small so that, as a temporary measure, there could be no real objection to the assistant field officers taking part in this activity. At least one province welcomed the idea if only fertilizer could be obtained.
17. It would ultimately be preferable to distribute fertilizers and other farm inputs through private channels. As a first step, the Agriculture Division might investigate whether a private importing house or the Solomon Islands representative of a company supplying fertilizers, e.g., the Shell Oil Company, would be prepared to stock the necessary quantities, and either do the retailing itself or use existing private retail stores, at average prices covering all costs and reasonable margins. Further government involvement should be limited to financing bagging and storage facilities in Honiara and taking the financial risks of the early consignments. It should request the importing agency to provide for bagging in units of 10 or 15 kg and to operate a system of equalizing transport costs, along the same lines as that operated by the Copra Board, and could provide a subsidy to cover distribution costs only. Finally, it could remove

the present import duties⁽¹⁾ on fertilizer and agro-chemicals on the grounds that their use will lead to higher crop production and thus, ultimately, to more revenue from export duties.

18. Pending some indication from the government as to how it wishes to implement its policy to support the use of "modern inputs," it is not possible to provide specific support in this project. The DBSI is prepared to take the initiative and use its own resources. For the present, this action should be supported.

Marketing

19. Internal marketing of agricultural products concerns mainly shipments of smallholder copra to the three buying points operated by the Copra Board. In addition, there are small shipments of cocoa beans, cattle, and vegetables to Honiara.⁽²⁾ Large-scale producers of cocoa, palm products, and rice arrange for their own marketing, while the large-scale copra producers export through the Copra Board.
20. Apart from the unreliability of inter-island shipping facilities, internal market arrangements for copra are satisfactory. The Copra Board, which is the sole buyer, is performing a good service in providing grading, storage and handling facilities, and ensuring prompt payment to producers. The freight equalization scheme introduced in 1980, whereby producers receive more or less the same price irrespective of their location, is working well, as is the price stabilization scheme. Despite reasonably profitable prices set by the Cattle Development Authority, and despite a subsidy on shipping rates, marketing of cattle presents serious problems. These are mainly due to the location, often remote from possible loading places, the small size of the cattle projects, and a lack of apparent concern on the part of the shipping authorities to provide an effective service. This issue was mentioned as the major problem in all the provinces visited⁽³⁾. Marketing of smallholder cocoa beans is difficult because of the small quantities involved. These small parcels are grouped by private traders, who then ship to either of the two Honiara-based exporters. Producers in the provinces often receive less than half the Honiara f.o.b. price.
21. There is an evident need for more and better collecting centers, where producers can group their shipments. For this purpose some 40 rural trading centers were set up in the late 1970s. They fall under the responsibility of the Internal Marketing Division of MHAND. Due to

On crude fertilizers 15 percent of c.i.f. value, on manufactured fertilizers and agro-chemicals 5 percent.

- (2) Small holders production accounts for two thirds of total copra production and for half of cocoa production.
- (3) See also Solomon Islands Inter-Island Shipping Problems and Potentials. A reconnaissance Mission Report. ADB June 1981 (Circulation restricted).

lack of support and supervision, most of these centers have all but disappeared; only two or three are still active. (1) The plans to expand the activities of the Copra Board into other commodities, and to increase the number of buying points, might need to take account of the successful centers and how their numbers might be increased to augment the number of centers which would be under its direct control.

22. External marketing of agricultural products is still of great importance to the economy. Exports of copra, palm products, and cocoa in 1981 account together for 31% of all exports, versus 52% in 1978. Trends in exports have been discussed extensively in recent economic surveys, (2) and earlier in this report. Suffice it to say here that the declining share of agricultural exports is wholly due to the rapidly growing importance of fish and timber; it does not reflect a decline in the absolute overall value of the four products mentioned. On the contrary, export values of palm products and cocoa have shown rapid growth despite adverse price movements in the last few years. Copra earnings, however, have been disappointing, as low prices have had a depressing effect on output thus accentuating the effects of the low prices.

23. The drop in copra and wood prices in the mid-1970s and again since 1979 has been partly compensated by payments the financed from the STABEX fund of the European Economic Community (EEC). As one of the parties to the Lomé convention, the Solomon Islands has received the following payments (expressed in European currency units, ECU):

In 1975: 761,000 ECU for wood exports
In 1975: 138,000 ECU for copra exports
In 1976: 1,273,000 ECU for copra exports

A further payment is expected for copra exports in 1982, on which an advance of 400,000 ECU has been made.

24. Payments from the fund are based on shortfalls in export earnings from a particular commodity (3) as a result of falling prices; a comparison is made with average earnings in the previous five years. Under the rules of the convention, funds from STABEX are to be spent on measures to diversify exports and/or to strengthen the competitive position of producers. Part of the money received so far has been used to build the facilities at the CB buying point in Noro, to strengthen the copra price stabilization fund, and for reforestation.

(1) One of these, on Vella Lavella, ships 300 bags of copra per month.

(2) -World Bank, An Introductory Economic Report, April 1980.
-S.I. Monetary Authority, Annual Report 1981, May 1982.
-International Monetary Fund, Economic Survey, forthcoming.

(3) All Solomon Islands exports, except cocoa, are on the list of eligible commodities.

25. Future payments can be expected to be on a smaller scale since, even if copra prices remain depressed, the difference between current earnings and average earnings will narrow in the reference period. More importantly, however, is that the STABEX fund has been depleted at a much faster rate than was originally anticipated. Under the Lome II convention, which covers the period 1981-85 and at which 5.3 billion ECU were pledged for aid to developing countries, the STABEX fund was set at 550 million ECU. By mid-1982 about one-third had already been committed, so that further payments are being rationed to about half of the justified claims.
26. Are copra prices likely to recover to their 1974 and 1979 levels? World Bank price projections show a recovery to US\$650-700 per ton c.i.f. Rotterdam (in 1980 constant dollars) for the second half of the decade. At present costs of handling and transport this would correspond to a price for the Copra Board of SI\$550-600, which is far above the present SI\$200-220 per ton. This optimism is not shared by people of the trade, who fear that competition from soybeans and palm oil will prevent any significant recovery of copra prices. It is possible that coconut oil will become a premium oil used for particular purposes and be supplanted by palm oil in some of its current uses. The two are not strict alternatives, but some substitution is possible.
27. Prices for palm products are expected to remain at their present levels, at which it would be profitable to expand production in the Solomon Islands. World market prices for cocoa are notoriously erratic. World Bank projections show prices for the coming years in the range of US\$1,850-2,000 per ton c.i.f. London and New York, but past projections for cocoa prices have seldom been accurate.
28. The market outlook for the three main export crops is mixed; this points to the desirability to look for additional export crops, so as to minimize the risk of strong fluctuations in export earnings. The agronomic potential of a number of possible crops is discussed in Annex 6, in particular, coffee, chillies, and spices. With regard to possible markets, mention should be made of the agreement, signed in 1981 between Australia and New Zealand on the one hand and the countries of the South Pacific on the other, the South Pacific Agreement on Trade and Economic Cooperation (SPATEC). Under this agreement, tariffs are waived on a number of commodities from South Pacific countries, such as cocoa and coffee for which Australia and New Zealand are net importers. In addition there would be an automatic entitlement to a small export quota, if the government made application to join the International Coffee Organization.
29. To make full use of the possibilities opened by SPATEC, and of those offered by Solomon Islands association with the EEC, an effort needs to be made to investigate and develop new markets. Two recommendations are made in this respect. First, a specialized consultant should be hired for a few months to make a detailed inventory of the markets for a small number of the most obvious

possibilities, with special emphasis in specific requirements as to quality, quantities, timing, prices, and market channels. (1) (2) Second, it is suggested that the knowledge available in the country on the agronomic and market possibilities be coordinated. This might best be done by having regular meeting of a small group of people, including the heads of research and extension, the senior officer for external marketing of the Ministry of Foreign Affairs and External Trade, the marketing officer of the Copra Board, and one or two people of the private sector.

30. The value of food imports has increased dramatically over the past 10-12 years, from SI\$2.0 million in 1970 to SI\$7.0 million in 1981. Some of this increase has arisen from increases in volume, but most has been caused by price developments. The question often asked is to what extent these imports can be substituted by local products. Detailed figures on imported foodstuffs are not published regularly by the government statistical office, so a summary is reproduced in Table 2 in the text.
31. For most commodities shown it is clear that they do not lend themselves to local production. Some observations can be made on poultry, fish, rice and coffee. It should be possible to produce poultry meat locally, on the basis of local feed from rice bran, maize, palm and coconut by-products. Imports of fish may occasion some surprise, but these concern canned mackerel, imported at prices well below those of fish canned in the country and exported. Imported rice is preferred by some consumers to locally grown rice. Coffee has been grown for many years on a few places on Santa Isabel, and it finds a ready local market. There are good grounds for increasing production to supply the local market and for export. Little serious effort has been applied to the production of animal feeds. Coconut meal, fish meal, rice bran, and maize are -- or could be -- produced, and the reliance on imported feeds could be reduced. It is expected that this will be taken up by the mission set up to consider the establishment of a livestock development authority; it is not pursued further in this report. In summary, the possibilities are not strong for a substantial substitution of food imports.

- (1) The mission is aware of a document on this matter that was recently submitted to the S.I. Government, but feels that some of the recommendations made should be subjected to further study before actions based on them are taken.
- (2) See Annex 13 for details and costs.

Table 2.: Value and Volume of Food Imports

	Value in SI\$1,000				Volume in MI			
	1976	1978	1980	1981	1976	1978	1980	1981
Poultry	74	155	230	355	67	110	162	197
Meat products	446	844	1036	1091	388	522	560	568
Dairy products	155	161	261	290	153	141	219	191
Fish	151	225	364	348	269	316	425	371
Cereal products	88	129	276	352	74	96	190	252
Rice	909	1231	1105	868	3126	3096	2520	1695
Flour	418	646	762	791	2172	3334	3785	2944
Sugar	334	486	763	778	1042	1412	1428	1233
Coffee	67	99	113	134	20	13	19	20
Tea	<u>55</u>	<u>88</u>	<u>94</u>	<u>84</u>	41	31	36	28
Total above	2697	4064	5004	5090				
As percent of total food imports	77	81	76	72				

Agricultural Credit

32. All institutional credit to the agricultural sector is channeled through the Development Bank of Solomon Islands (DBSI). The commercial banks are not involved in agricultural lending, and there is hardly any non-institutional lending such as supplier's credit, traders, or private money lenders. The predominance of DBSI is likely to persist, and further expansion of commercial agriculture, in particular in tree crops, hinges to a large extent on the scale and direction of future DBSI operations and its ability to attract further funds.

33. DBSI was established as an independent statutory body in 1977, when it took over the functions of the Agricultural and Industrial Loans Board. In the first 4 to 5 years, the emphasis was on expansion of lending, somewhat to the detriment of adequate appraisal and accounting procedures. (1) With a change in management and recruitment of additional experienced staff in critical areas, these problems are now being corrected, and a policy of consolidation has been adopted. Appraisal procedures have been tightened and standardized; accounting will be computerized starting next year. Table 3 shows some major features of DBSI's activities since 1978.

(1) After a thorough review in August 1982 it was discovered that arrear payments represented as much as 15% of receivables, and not 7% as had been thought. Two-thirds are considered bad debts, and will be written off.

Table 3: Summary of DBSI Lendings, 1978-81

	1978	1979	1980	1981
All Solomon Islands banks, total advance, SI\$ million	10.0	18.5	23.5	29.0
Share of DBSI, in percent	19	16	23	26
Net receivables, end of year, SI\$ million	1.9	3.2	5.5(1)	7.4
Approvals during year, SI\$ million	1.5	2.5	4.4(1)	2.2
of which in percent:				
-agriculture, fishery, forestry	31	32	32	45
-industry and construction	44	21	10	35
-commerce	23	12	13	13
-services and transport	12	24	46(1)	7

34. DBSI has so far mainly been funded by government on-lending of grants and soft loans obtained from multinational aid agencies. Amounts received so far are shown in Table 4. Receipts of loan repayments are still small, and lending in coming years will continue to depend on external sources. The bank has at present applications for several million dollars awaiting approval (SI\$2.0 million for agricultural loans), but is currently short of funds. It hopes to raise SI\$1.0 million in 1983, half from the monetary authority and half from a grant from Australia; it is considering other sources from which to borrow additional funds. It may be possible to borrow from the National Pension Fund (NPF) at commercial rates, and the possibilities of obtaining SI\$1.0 million from EDF are being explored.

Table 4: Sources of finance of DBSI, 1978-1982

Source	Year	Amount	Interest paid by Government	Interest paid by DBSI
ADB	1978	US\$0.45	1.5%	2.5%
ADB	1978	US\$2.0	2.5%	5.0%
EDF	1980	SI\$0.8	1.0%	5.0%
NPF	1980	SI\$0.75	n.a.	8.0%
ADB	1981	US\$2.0	2.5%	5.0%
IDA	1981	US\$1.5	2.5%	5.0%

Sources DBSI.

(1) Including an exceptional loan of SI\$1.2 million for three barges.

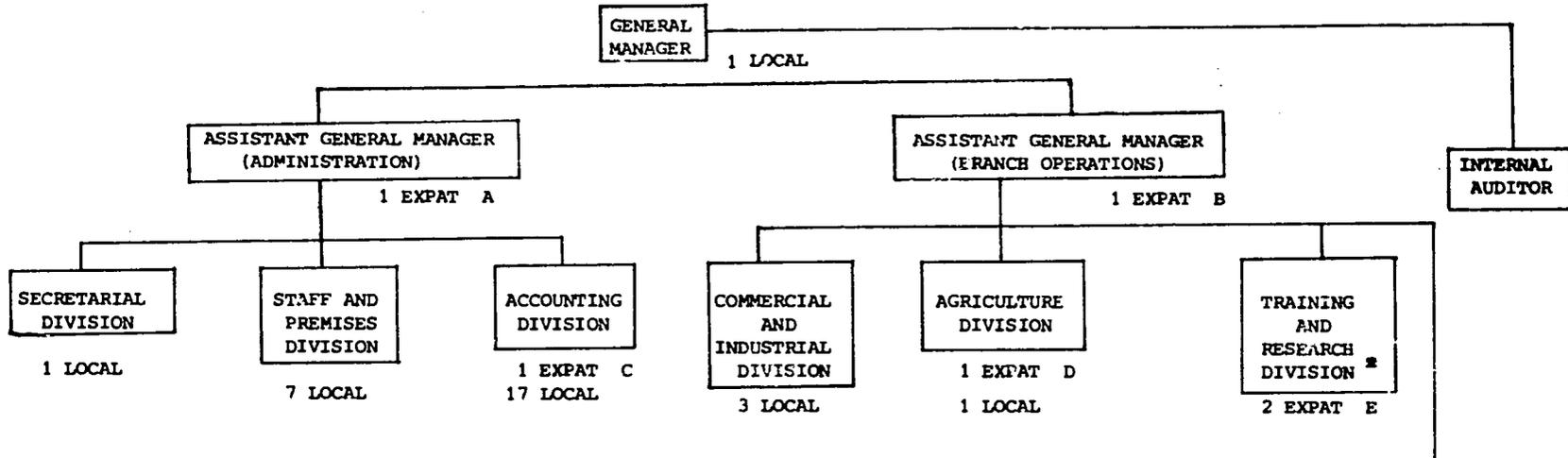
35. Because of the spread between borrowing and lending rates, DBSI has been able to cover its costs of operation. The small size of most loans makes lending costs a relatively high proportion of the total of the loans. Lending rates on loans for agriculture, (1) logging and fishing are 10%, and on loans for other purposes 11%. Expatriates and companies pay an additional 1%. With inflation currently running at about 15%, real interest rates are negative. This policy of subsidization of DBSI borrowers, if continued, has some negative effects: it will erode the bank's financial viability and will perpetuate its dependence on funding at soft terms; it may have adverse effects on resource allocation.
36. To expedite loan processing, loans of up to SI\$2,500 can be approved by the branches. Loan applications between SI\$2,500 and SI\$10,000 can be approved by the general manager, and larger amounts require approval by the board. The use of funds is closely supervised, and most payments are made directly to suppliers. Repayment schedules vary by purpose: loans for coconut plantings are to be repaid in 15 years, including a 6-year grace period; for cocoa these periods are 10 and 4 years, respectively. Interest payments are to be made during the grace period, and this may lead to liquidity problems for borrowers. Consideration could be given to capitalization of interest payments, and also to bringing the repayment periods more into line with the economic life of the trees. In the case of cattle fattening, payment of interest and principal is due after 2 1/2 years; for cattle breeding, repayment is fixed at 80% of all net sales during the first 2 1/2 years, and at 60% thereafter. (2) The number, amounts, and size of all agricultural loans in operation in 1981 is shown in Table 5.
37. As to loan security, the bank takes a double risk. It does not expect any participation of the borrower, other than his own labor ("sweat equity"), in his proposed venture. Second, it does not require a borrower to have secure title to the land he intends to develop; it is satisfied with a "Declaration of Permission to use Customary Land," signed by a representative of his village. So far DBSI has not had to test the legal validity of these documents.
38. At present DBSI is confronted by two distinctly different problems. A number of borrowers find difficulties in meeting payments of interest and principal because the yields they are obtaining are lower than expected. The lack of fertilizer in the establishment period may be one of the causes of these low yields. As mentioned earlier in this annex, the bank is considering its own distribution system to overcome this part of the problem, since it expects the problem to take on critical proportions in future. Another area of
- (1) Loans for cattle projects till mid-1982 were financed from a 1973 soft loan from the U.K., carrying interest of 4%. As these funds became exhausted, the rate was raised to 10%.
- (2) This peculiar policy can be applied only because cattle prices are set by the Cattle Development Authority.

concern is that it is responsible for the financing of the land purchase cooperatives (LPC) and the land development cooperatives (LDC). These cooperatives, which have been set up to develop estates on a communal basis, are virtually all suffering from a lack of effective management. In a number of cases, this is causing severe financial problems. As no short-term remedy is in sight, it has been suggested in a discussion paper that DBSI should take over the management of these plantations as a measure to safeguard the banks' financial interests, but the bank is ill-equipped for this agricultural management task. In addition, DBSI would organize management training for existing and future LPCs and LDCs.

39. In the opinion of the mission, the DBSI is rightly reluctant to take on any of these additional functions, for which it is not equipped and which fall outside its functions. The mission would rather support the strengthening of the Land Use Development Section of the Division of Agriculture, the introduction of a team of roving management advisers, and the setting up of a management training center. The situation regarding this unit is discussed in Annex 13, paragraph 6. The mission would prefer that a detailed review of the situation should be carried out before action is taken on its reorganization and strengthening. The important role which this unit has in developing communal estates can, however, be re-emphasized and the provision of a short consultancy would be supported to do this review if it is not taken up by the current funding agency.
40. The organizational structure of DBSI is shown in the following diagram. The present number of staff is 87, of which four are expatriates. More local staff will be needed as the number of branches is increased from 7 to 12 in the coming five years. To provide for in-house training of present and future staff, two additional expatriates are being recruited. Although this will allow for further localization of staff in the medium term, some outside expertise will be required, also in the longer term. The diagram shows the expected time schedule for localization. The mission strongly believes that, if DBSI is to maintain its current level of performance, this schedule should be seen as a minimum requirement.

DEVELOPMENT BANK OF SOLOMON ISLANDS

ORGANISATIONAL STRUCTURE



STAFF COMPOSITION (1982)

4 EXPATRIATES (3 ASAS, 1 CFTC)	80 PROFESSIONAL
83 LOCAL	7 SERVICE STAFF
—	—
87	87
==	==

LOCALIZATION SCHEDULE OF POSTS HELD BY EXPATRIATES

POST A	IN	1987
" B	"	1993
" C	"	1985
" D	"	1988
" E	"	1988

BRANCH	NETWORK
G & CIP	CHOISEUL *
AUKI	MUNDA
	TULAGI
GIZO	
KIRA KIRA	AFIO*
BUALA	LAMBI BAY*
	MARAU*
	LATA*

52 LOCAL

* YET TO BE ESTABLISHED

Table 5: DBSI Loans for Agriculture, Fisheries, Forestry,
and Rural Infrastructure in 1981

	Number of loans	Amount in SI\$1000	Average size of loan in SI\$(1)
Agriculture			
- cocoa	29	173	6,000
- copra	67	215	3,200
- mixed farming	6	15	2,500
- cattle	128	189	1,500
- piggeries	38	16	400
- poultry	<u>16</u>	<u>8</u>	<u>500</u>
Sub-total	284	616	
Fisheries	74	28	400
Forestry	68	33	500
Rural infrastructure (2)	235	160	700

(1) Rounded to nearest SI\$100

(2) Including water supply and electrification

Source: DBSI

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

Project Costs and Supporting Tables
List of Tables

- 1a Unit Costs, Capital Items
- 1b Unit Costs, Recurrent Expenditure Items
- 1c Unit Costs, Development of Individual Crops: Individual Station Costs.

- 2a Research Station at Dodo Creek, Capital Costs with Attachment.
- 2b Research Station at Dodo Creek, Recurrent Expenditure

- 3a Research Sub-station, Dala, Capital Costs
- 3b Research Sub-station, Dala, Recurrent Expenditure

- 4a Farmers Training Centres, Choiseul and Gizo, Capital Costs
- 4b Farmers Training Centres, Choiseul and Gizo, Recurrent Expenditure

- 5a National Agricultural Training Institute, Capital Costs
- 5b National Agricultural Training Institute, Recurrent Expenditure

- 6 Housing, Fields Assistants, Capital Costs

- 7a Agricultural Information Unit -- Capital Costs
- 7b Agricultural Information Unit -- Recurrent Costs

- 8a Summary of Support for Research, Capital Costs
- 8b Summary of Support for Research, Recurrent Expenditure

- 9a Summary of Support for Extension, Capital Costs
- 9b Summary of Support for Extension, Recurrent Expenditure

- 10 Project Office Costs

- 11a Total Project Costs and Contingencies: Local Costs in SI\$
- 11b Total Project Costs and Contingencies: Foreign Exchange in US\$.

- 12 Costs of Individual Project Components

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SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

Unit Costs, Capital Items
(in SI\$, (1) Sept. 1982 prices)

Item	Unit	Life Expectancy in years	Cost (2) in SI\$	Foreign Exchange (3)	
				in SI\$	in%
I CIVIL WORKS					
a. Roads					
Unsealed, 4 m wide	km	indef.	9,000	900	10
b. Land					
Acquisition	ha	indef.	P.M. (4)		
Cadastral and soil survey	ha	indef.	100	-	-
Preparation	ha	indef.	800	-	-
Establishment coconut	ha	40	300	-	-
Establishment cocoa	ha	20	500	-	-
Establishment pasture	ha	indef.	100	100	50
Establishment for research	ha	10	500	-	-
c. Buildings, incl.					
Site preparation					
Office, brick	m2	25	300	150	50
Laboratory, brick	m2	25	300	150	50
Dormitory, wood	m2	15	100	25	25
Lecture room, wood	m2	15	100	25	25
Mess block, brick	m2	25	300	150	50
Library, brick	m2	25	300	150	50

(1) SI\$1 = US\$0.95, September 1982

(2) Exclusive of duties and taxes

(3) Only direct foreign exchange cost

(4) If and how land has to be acquired by the central or a provincial government will have to be determined in each case. The preparation mission is of the opinion that any cost arising from land acquisition (purchase or rent) should not be treated as a cost of the project.

Annex 10
Table 1a (cont'd)

Item	Unit	Life Expectancy in years	Cost (2) in SI\$	Foreign Exchange (3) in SI\$	int
Storeroom, brick	m2	25	200	50	25
Inflammable store, brick	m2	25	250	50	20
Machine shed, wood	m2	15	100	-	-
Work shop, wood	m2	15	100	-	-
Water storage Tank, 4m3	1	15	1,000	500	50
Copra dryer	1	15	1,500	500	33
Cocoa fermentary House, brick, type A	1	15	2,500	500	20
House, brick, type A	m2	25	400	200	50
House, wood, type B	m2	15	200	50	25
Laborer House, type C	1	10	5,000	-	-
Generator, 15 KVA, diesel + installation	1	5	8,500	8,500	100
Air conditioner, 1.5 HP	1	15	1,200	12,000	100

II EQUIPMENT

a. Farm equipment

Wheel tractor, 65 HP	1	5	15,000	15,000	100
Four-wheel trailer, 4 tons	1	10	4,000	4,000	100
Springtine cultivator	1	5	3,000	3,000	100
Disc harrow, 16 plate offset	1	5	3,000	3,000	100
Grass cutter	1	5	3,000	3,000	100
Overhead irrigation equip.	1	7	6,000	6,000	100
Mower	1	3	600	600	100
One-axle cultivator	1	5	3,500	3,500	100
Chainsaw and bench	1	2	1,000	1,000	100
Minor tools	set	4	1,000	1,000	100
Cattle purchase	head	3(1)	120	-	-

(1) Proceeds of cattle sales, if any, go to general revenue.

Annex 10
Table 1a (cont'd)

Item	Unit	Life Expectancy in years	Cost (2) in S1\$	Foreign Exchange (3) in S1\$	int
b. Transport equipment					
Truck, 3 ton	1	5	15,000	15,000	100
FWD, pick-up	1	3	9,000	9,000	100
FWD, LWB	1	3	13,000	13,000	100
Microbus, 16-seater	1	5	9,000	9,000	100
Motorcycle, 125cc	1	3	1,000	1,000	100
Canoe, 24 ft	1	5	1,200	600	50
Outboard engine	1	2	600	600	100
c. Laboratory equipment					
Radio Unit	1	10	10,000	10,000	100
Selftaring balance	1	10	600	600	100
Spring balance	1	5	100	100	100
Meteorological screen	1	10	3,500	3,500	100
Instr. environment monitoring	1	5	5,000	5,000	100
Silica gel dehumidifier	1	15	900	900	100
Micro computer	1	10	15,000	15,000	100
Drying oven	1	10	2,500	2,500	100
Refrigerator	1	10	500	500	100
Mortar and pestle	set	10	50	50	100
Trolley	1	10	450	450	100
Multimeter	1	5	200	200	100
Plastic bag sealer	1	5	200	200	100
Insect cage	1	5	300	300	100
Vivarium	1	5	500	500	100
Dissecting dish	1	5	150	150	100
Thermometer	set	5	150	150	100
Light trap	1	10	250	250	100
Stereoplotter	1	10	2,500	2,500	100
Analytical balance	1	10	4,500	4,500	100
Deep freeze	1	10	600	600	100
Stereoscopic microscope	1	10	1,300	1,300	100
pH meter	1	10	650	650	100
Soil sieves	set	10	450	450	100
Camera and lenses	1	10	750	750	100
Autoclave	1	10	1,000	1,000	100
Cooled incubator	1	10	3,000	3,000	100
Suction trap	1	5	700	700	100
Water still	1	5	1,000	1,000	100
Generator 3KVA portable	1	5	1,000	1,000	100

Annex 10
Table 1a (cont'd)

Item	Unit	Life Expectancy in years	Cost (2) in SI\$	Foreign Exchange (3) in SI\$	int
Magnetic stirrer	1	5	600	600	100
Muffle furnace	1	10	3,250	3,250	100
Flame photometer	1	10	1,500	1,500	100
Slide projector	1	5	1,200	1,200	100
Laboratory furniture	set	10	3,500	3,500	100
d. Office equipment					
Photocopier	1	5	4,500	4,500	100
Typewriter, electric	1	5	1,200	1,200	100
Typewriter, portable	1	5	500	500	100
Calculator	1	5	500	500	100
Office furniture	set	10	1,000	1,000	100
e. Teaching + communication					
Cine projector and screen	1	5	1,500	1,500	100
Small generator, 1KVA	1	3	500	500	100
Slide projector	1	3	250	250	100
Computer and word-processor	1	5	10,500	10,500	100
Miscellaneous	set	3	1,000	1,000	100
Headline machine	1	5	1,000	1,000	100
Library, initial supply, research		10	8,000	8,000	100
Library, initial supply, NTC		10	4,000	4,000	100
Library, initial supply, info unit		10	2,000	2,000	100
f. Furniture					
Closet, dormitory	1	10	50	-	-
Bed, dormitory	1	10	50	-	-
Chair and table, dormitory	set	10	100	-	-
Chair and table messblock	set	10	100	-	-
Chair and table lecture room	set	10	100	-	-
Chair and table, study	set	10	100	-	-

Annex 10
Table 1a (cont'd)

Item	Unit	Life Expectancy in years	Cost (2) in SI\$	Foreign Exchange (3) in SI\$	int
Furniture, type A house	unit	15	7,000	3,500	50
Furniture, type B house	unit	15	5,000	2,500	50
Furniture, type C house	unit	10	3,000	750	25

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

Unit Costs, Recurrent Expenditure
(in SI\$ per year, Sept. 1982 prices)

Item	Unit	Cost (1) in SI\$	Foreign Exchange	
			in SI\$	in %
I STAFF (2) (3)				
a. Professional staff				
Level 8	man year	10,000	(3)	(3)
Level 7	man year	8,100	(3)	(3)
Level 6	man year	6,300	-	-
Level 5	man year	5,000	-	-
b. Support staff				
Level 5	man year	5,000	-	-
Level 4	man year	3,600	-	-
Level 3	man year	2,900	-	-
Level 3, prov. staff	man year	1,500	-	-
c. Casual labour				
	man day	2.30	-	-
II OPERATION and MAINTENANCE				
a. Roads				
Maintenance	Constr. cost	10 %	1 %	10
b. Land				
Research stations	ha	500 (4)	-	-
Farmer Training Centres	na	(5)	-	-
Demonstration areas	na	(5)	-	-

- (1) Where appropriate expressed as a percentage of construction or purchase cost.
- (2) Salaries shown apply to local staff and include staff benefits.
- (3) Emoluments of expatriate staff are SI\$40,000-SI\$80,000 higher, depending on level, funding agency, and type of assignment. An average of SI\$60,000 on top of local salary has been used throughout this report.
- (4) Costs vary by crop and by year. A weighted average has been calculated.
- (5) Item covered by wages of support staff and operational cost of farm equipment.

Annex 10
Table 1b (cont'd)

Item	Unit	Cost (1) in SI\$	Foreign Exchange in SI\$	in%
c. Buildings				
Maintenance	construction cost	3%	1,5%	50
d. Farm equipment				
Maintenance	purchase cost	10%	5%	50
Operation	purchase cost	15%	15%	100
e. Transport equipment				
Maintenance	purchase cost	10%	5%	50
Operation	purchase cost	15%	15%	100
f. Research equipment				
Maintenance and supplies	purchase cost	5%	5%	100
g. Office				
Maintenance and supplies	purchase cost	5% (1)	5% (1)	100
h. Teaching and communication				
Maintenance and supplies	purchase cost	15 %	15%	100
i. Library and ref. materials				
Supplies research	annual supply	4,000	4,000	100
Supplies info. unit	annual supply	2,000	2,000	100
j. Furniture maintenance	purchase cost	5%	2-5%	50
k. Travel and subsistence				
Staff travel inter- island	trip	300	-	-
Trainees travel	trip	70	-	-
Staff lodging and subsistence	day	20	-	-
Trainees subsistence	day	3	-	-

(1) For Dodo Creek Research Station a percentage of 10% has been used in view of computer use.

Annex 10
Table 1b (cont'd)

Item	Unit	Cost (1) in SI\$	Foreign Exchange in SI\$	in%
1. Study tours				
Conference attendance	5 days	2,500	2,500	100
Tour special technique	2 weeks	3,000	3,000	100
Tour research technique	6 weeks	5,000	5,000	100
Staff NTC	2 weeks	3,000	3,000	100
m. Consultants				
Specialist consultancies	month	10,000	10,000	100

COST OF DEVELOPING VARIOUS CROPS
S1\$ PER HECTARE

CROP	Years									
	1	2	3	4	5	6	7	8	9	10
<u>COCONUTS</u>										
Clearing and Establishment	832.06	-	-	-	-	-	-	-	-	-
Maintenance	-	159.00	104.40	87.70	87.70	87.70	87.70	87.70	87.70	87.70
Harvesting and Processing	-	-	-	-	62.10	124.20	207.00	289.80	393.30	465.75
Copra Drier (O.I. Cost)	-	-	-	500.00	-	-	-	-	-	-
Replacement Tools	-	-	-	80.00	-	-	-	80.00	-	-
TOTAL	<u>832.06</u>	<u>159.00</u>	<u>104.40</u>	<u>667.70</u>	<u>149.40</u>	<u>211.90</u>	<u>294.70</u>	<u>457.50</u>	<u>481.00</u>	<u>553.45</u>
<u>COCOA</u>										
Clearing and Establishment	828.07	-	-	-	-	-	-	-	-	-
Maintenance	-	490.02	270.30	237.48	237.48	237.48	237.48	237.48	237.48	237.48
Harvesting and Processing	-	-	44.60	96.00	170.00	280.00	360.00	360.00	360.00	360.00
Fermentery (0.1 cost)	-	-	500.00	-	-	-	-	-	-	-
Replacement Tools and Sprayer	-	-	-	180.00	-	-	180.00	-	-	180.00
TOTAL	<u>828.07</u>	<u>490.02</u>	<u>814.90</u>	<u>513.48</u>	<u>407.48</u>	<u>517.48</u>	<u>777.48</u>	<u>597.48</u>	<u>597.48</u>	<u>777.48</u>
<u>PASTURES</u>										
Clearing and Establishment	765.77	-	-	-	-	-	-	-	-	-
Maintenance	-	127.70	97.70	72.70	72.70	72.70	72.70	72.70	72.70	72.70
Replacement Tools	-	-	-	80.00	-	-	-	80.00	-	-
TOTAL	<u>765.77</u>	<u>127.70</u>	<u>97.70</u>	<u>152.70</u>	<u>72.70</u>	<u>72.70</u>	<u>72.70</u>	<u>152.70</u>	<u>72.70</u>	<u>72.70</u>
<u>ANNUAL CROPS</u>										
Clearing, Establishment	-	-	-	-	-	-	-	-	-	-
First Crop	622.70	-	-	-	-	-	-	-	-	-
Subsequent Crops	-	209.70	209.70	209.70	209.70	209.70	209.70	209.70	209.70	209.70
Harvesting and Processing	620.00	620.00	620.00	620.00	620.00	620.00	620.00	620.00	620.00	620.00
Replacement Tools	-	-	-	80.00	-	-	-	80.00	-	-
TOTAL	<u>1242.70</u>	<u>829.70</u>	<u>829.70</u>	<u>909.70</u>	<u>829.70</u>	<u>829.70</u>	<u>829.70</u>	<u>929.70</u>	<u>829.70</u>	<u>829.70</u>
Mean Development Costs, All crops 1 ha	<u>917.15</u>	<u>401.60</u>	<u>461.68</u>	<u>560.90</u>	<u>364.92</u>	<u>437.94</u>	<u>493.65</u>	<u>534.35</u>	<u>495.22</u>	<u>558.33</u>
Mean Development Costs, Tree and Annual Costs 1 ha	<u>967.61</u>	<u>429.91</u>	<u>583.00</u>	<u>696.96</u>	<u>462.33</u>	<u>519.69</u>	<u>633.96</u>	<u>661.56</u>	<u>636.06</u>	<u>720.21</u>

FIELD DEVELOPMENT COSTS OF RESEARCH SUBSTATIONS
SI\$ (ROUNDED)

STATION		Years									
		1	2	3	4	5	6	7	8	9	10
1. <u>DODO CREEK</u> , Tenaru Area (Mainly Annuals)	6 Ha	7,500	5,000	5,000	5,500	5,000	5,000	5,000	5,500	5,000	5,000
	6 Ha	-	7,500	5,000	5,000	5,500	5,000	5,000	5,000	5,500	5,000
	6 Ha	-	-	7,500	5,000	5,000	5,500	5,000	5,000	5,000	5,500
	6 Ha	-	-	-	7,500	5,000	5,000	5,500	5,000	5,000	5,000
	6 Ha	-	-	-	-	7,500	5,000	5,000	5,500	5,000	5,000
Sub-total	30 Ha	<u>7,500</u>	<u>12,500</u>	<u>17,500</u>	<u>23,000</u>	<u>28,000</u>	<u>25,500</u>	<u>25,500</u>	<u>26,000</u>	<u>25,500</u>	<u>25,500</u>
2. <u>DALA</u> , Mixed Crops (Trees and Annuals)	6 Ha	-	5,800	2,600	3,500	4,200	2,600	3,100	3,800	4,000	4,300
	6 Ha	-	-	5,800	2,600	3,500	4,200	2,800	3,100	3,800	4,000
	6 Ha	-	-	-	5,800	2,600	3,500	4,200	2,800	3,100	3,300
	6 Ha	-	-	-	-	5,800	2,600	3,500	4,200	2,800	3,100
	6 Ha	-	-	-	-	-	5,800	2,600	3,500	4,200	4,200
Sub-total	30 Ha	<u>-</u>	<u>5,800</u>	<u>8,400</u>	<u>11,900</u>	<u>16,100</u>	<u>18,900</u>	<u>16,200</u>	<u>17,400</u>	<u>17,900</u>	<u>18,000</u>
TOTAL	60 Ha	7,500	18,300	25,900	34,900	44,100	44,400	41,700	43,400	43,400	43,500
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====

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SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project

Research Station at Dodo Creek, Capital Costs⁽¹⁾ (in S\$1,000)

	Year 1			Year 2			Year 3			Year 4			Year 5		
	No.	Costs		No.	Costs	F.E.									
		Local	F.E.												
I LAND & LAND PREPARATION															
- Land survey, ha	30	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-
- Land preparation, ha	6	4.8	-	6	4.8	-	6	4.8	-	6	4.8	-	6	4.8	-
- Crop establishment, ha	6	3.0	-	6	3.0	-	6	3.0	-	6	3.0	-	6	3.0	-
- Roads, repair, km.	3	12.2	1.3	-	-	-	-	-	-	-	-	-	-	-	-
- Road construction, km	-	-	-	2.5	20.2	2.3	-	-	-	-	-	-	-	-	-
Sub-total		23.0	1.3		28.0	2.3		7.8	-		7.8	-		7.8	-
II BUILDINGS															
- Office/laboratory, 120 m ²	1	18.0	18.0	-	-	-	-	-	-	-	-	-	-	-	-
- Library extension, 40 m ²	-	-	-	-	-	-	1	6.0	6.0	-	-	-	-	-	-
- Workshop + machine shed, 300 m	1	30.0	-	-	-	-	-	-	-	-	-	-	-	-	-
- Store room, 80 m ²	1	12.0	4.0	-	-	-	-	-	-	-	-	-	-	-	-
- Inflammable store, 10 m ²	1	2.0	0.5	-	-	-	-	-	-	-	-	-	-	-	-
- Houses, type A, brick, 100 m ²	1	20.0	20.0	1	20.0	20.0	1	20.0	20.0	-	-	-	-	-	-
- House' type B, wood, 100 m ²	-	-	-	-	-	-	1	15.0	5.0	-	-	-	-	-	-
Sub-total		82.0	42.5		20.0	20.0		41.0	31.0		-	-		-	-
III EQUIPMENT															
Farm equipment															
- Tractors, 65 HP	1	-	15.0	-	-	-	1	-	15.0	-	-	-	-	-	-
- Trailers	1	-	4.0	-	-	-	1	-	4.0	-	-	-	-	-	-

SOLOMON ISLANDS

Agricultural Research, Extension, and Support
Facilities Project

Research Component

<u>List of Laboratory Equipment</u>	<u>Total in SI\$ all F.E.</u>
Radio network, control plus 4 outstations, complete	7,000
Self taring balances x 3 at \$600 unit	1,800
Spring balances x 3 at \$100 unit	300
Metereological screens x 3 at \$3,500 unit	7,500
Instruments for environmental monitoring	5,000
Air conditioners 1.5 HP x 5 at \$1,200	6,000
Silica gel dehumidifier, complete	900
Micro computer with peripherals, complete	15,000
Drying ovens x 2 at \$5,000 unit	10,000
Refrigerators x 2 at \$500 unit	1,000
Mortars and pestles x 4 at \$50	200
Laboratory trolley, complete	450
Multimeter, circuit testing, complete	200
Plastic bag sealer, complete	200
Insect cage, complete	300
Vivarium, complete	500
Dissecting dishes, set	150
Thermometer, set	150
Light trap, complete	250
Stereoplotter, complete	2,500
Analytical balances x 2 at \$4,500 unit	9,000
Deep freeze, complete	600
Stereo microscope, complete	1,300
PH meter, complete	650
Soil sieves, one set, complete	450
Camera with lenses, complete	750
Autoclave, complete	1,000
Cooled incubator, complete	3,000
Generator 3 KVA portable, complete	1,000
Magnetic stirrer, complete	600
Muffle furnace, complete	3,250
Flame Photometer	1,500
Slide projector	1,200
Laboratory special furniture	3,500
Computer room equipment	1,000

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SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project

Research Station at Dodo Creek, Incremental Recurrent Costs⁽¹⁾ (in SI\$1,000)

	Year 1		Year 2		Year 3		Year 4		Year 5	
	No.	Costs Local F.E.								
I STAFF (incremental)										
- Agronomist, Level 7	-	-	-	-	1	8.1 60.0	1	8.1 60.0	1	8.1 60.0
- Agricultural economist, Level 8	-	-	1	10.0 60.0	1	10.0 60.0	1	10.0 60.0	1	10.0 60.0
- Support staff, Level 5	1	5.0 -	2	10.0 -	3	15.0 -	3	15.0 -	3	15.0 -
- Support staff, Level 4	-	-	1	3.6 -	2	7.2 -	2	7.2 -	2	7.2 -
- Support staff, Level 3	-	-	2	5.8 -	4	11.6 -	4	11.6 -	4	11.6 -
- Secretary to CRO, Level 5	1	5.0 -	1	5.0 -	1	5.0 -	1	5.0 -	1	5.0 -
- Clerks, Level 4	1	3.6 -	2	7.2 -	2	7.2 -	2	7.2 -	2	7.2 -
- Consultancies, months	2	- 20.0	3	- 30.0	2.5	- 25.0	2	- 20.0	1.5	- 15.0
Sub-total		13.6 20.0		40.6 90.0		64.1 145.0		64.1 140.0		64.1 135.0
II OTHER RECURRENT COSTS⁽²⁾										
- Roads, maintenance	-	-	-	2.4 0.3	-	4.5 0.5	-	4.5 0.5	-	4.5 0.5
- Land, maintenance, ha	6	3.0 -	12	6.0 -	18	9.0 -	24	12.0 -	30	15.0 -
- Buildings, maintenance	-	1.9 1.9	-	2.5 2.5	-	3.6 3.6	-	3.6 3.6	-	3.6 3.6
- Farm equipment ⁽³⁾ , maintenance	-	1.4 1.4	-	1.8 1.8	-	2.8 2.8	-	2.8 2.8	-	2.8 2.8
- Farm equipment ⁽³⁾ , operation	-	- 4.2	-	- 5.5	-	- 8.5	-	- 8.5	-	- 8.5
- Transport equipment, maintenance	-	1.2 1.2	-	2.8 2.8	-	2.8 2.8	-	2.8 2.8	-	2.8 2.8
- Transport equipment, operation	-	- 3.4	-	- 8.4	-	- 8.4	-	- 8.4	-	- 8.4
- Office, maintenance & supplies	-	- -	-	- -	-	- 0.8	-	- 0.8	-	- 0.8
- Library, supplies	1	- 4.0	1	- 4.0	1	- 4.0	1	- 4.0	1	- 4.0
- Research equipment, maintenance & supplies	-	- -	-	- 2.0	-	- 3.0	-	- 3.8	-	- 4.4
- Staff travel, inter-island, trips	4	1.2 -	8	- 2.4	12	3.6 -	16	4.8 -	16	4.8 -
- Staff travel, lodgings & subsistence, days	40	0.8 -	80	1.6 -	120	2.4 -	160	3.2 -	160	3.2 -
- Staff travel, study tours, 2 weeks	-	- -	1	- 3.0	2	- 6.0	2	- 6.0	2	- 6.0
- Staff travel, study tours, 6 weeks	-	- -	1	- 5.0	-	- -	1	- 5.0	1	- 5.0
- Staff travel, conference attendance, 5 days	2	- 5.0	2	- 5.0	2	- 5.0	2	- 5.0	2	- 5.0
Sub-total		9.5 21.1		17.1 42.7		28.7 45.4		33.7 51.2		36.7 51.8
TOTAL RECURRENT COSTS		23.1 41.1		57.9 132.7		92.8 190.4		97.8 191.2		100.8 186.8

(1) Rounded to nearest SI\$100.

(2) Maintenance at percentage of construction or purchase costs, see Table 1b. unless specified.

(3) Including generator.

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SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project

Research Sub-Station at Dala, Capital Costs (in SI\$1,000) (1)

	No.	Year 1 Cost		No.	Year 2 Cost		No.	Year 3 Cost	
		Local	F.E.		Local	F.E.		Local	F.E.
I LAND & LAND PREPARATION									
- Land survey, ha	30	3.0	-	-	-	-	-	-	-
- Land preparation, ha	15	12.0	-	15	12.0	-	-	-	-
- Crop establishment	-	-	-	15	7.5	-	15	7.5	-
- Road construction, km.	-	-	-	2	16.2	1.8	-	-	-
Sub-total		15.0	-		35.7	1.8		7.5	-
II BUILDINGS									
- Office/laboratory, 80 m ²	1	16.0	16.0	-	-	-	-	-	-
- Store room, 60 m ²	1	9.0	3.0	-	-	-	-	-	-
- Inflammable store, 10 m ²	-	-	-	1	2.0	0.5	-	-	-
- Workshop + machine shed, 200 m ²	-	-	-	1	20.0	-	-	-	-
- Houses, type B, wood, 100 m ²	1	15.0	5.0	-	-	-	1	15.0	5.0
- Houses, type C	-	-	-	4	20.0	-	3	15.0	-
- Water storage tanks	1	0.5	0.5	-	-	-	1	0.5	0.5
Sub-total		40.5	24.5		42.0	0.5		30.5	5.5
III EQUIPMENT									
Farm + transport equipment									
- Tractor, 65 HP	1	-	15.0	-	-	-	-	-	-
- Trailer	1	-	4.0	-	-	-	-	-	-
- Sprintine cultivator	-	-	-	1	-	3.0	-	-	-
- Disc harrow	-	-	-	1	-	3.0	-	-	-
- One-axle cultivator	-	-	-	1	-	3.5	-	-	-
- Small equipment, set	1	-	3.0	-	-	-	-	-	-
- FWD pick-up	1	-	9.0	-	-	-	-	-	-
Generator 15 KVA + installation	1	-	8.5	-	-	-	-	-	-
Office equipment									
- Typewriter, portable	1	-	0.5	-	-	-	-	-	-
- Office furniture, set	1	-	1.0	-	-	-	-	-	-
Furniture									
- Houses type B	1	2.5	2.5	-	-	-	1	2.5	2.5
- Houses type C	-	-	-	4	9.0	3.0	3	6.8	2.2
Sub-total		2.5	43.5		9.0	12.5		9.3	4.7
TOTAL CAPITAL COST		58.0	68.0		86.7	14.8		47.3	10.2

(1) Rounded to nearest SI\$100.

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Agricultural Research, Extension and Support Facilities Project

Research Sub-Station at Dala, Recurrent Expenditure ⁽¹⁾ (in S\$1,000)

	No.	Cost		No.	Year 2 Cost		No.	Year 3 Cost	
		Local	F.E.		Local	F.E.		Local	F.E.
I STAFF									
- Farm manager, Level 4	1	3.6	-	1	3.6	-	1	3.6	-
Sub-total		3.6	-		3.6	-		3.6	-
II OTHER RECURRENT COSTS									
- Roads, maintenance ⁽²⁾	-	-	-	-	1.6	0.2	-	1.6	0.2
- Land, maintenance, ha	15	7.5	-	30	15.0	-	30	15.0	-
- Buildings, maintenance ⁽²⁾	-	1.0	1.0	-	1.8	1.8	-	2.4	2.4
- Farm & transport ⁽³⁾ , maintenance ⁽²⁾	-	2.0	2.0	-	2.5	2.5	-	2.5	2.5
- Farm & transport ⁽³⁾ , operation ⁽²⁾	-	-	6.0	-	-	7.5	-	-	7.5
- Staff travel, inter-island	2	0.6	-	2	0.6	-	2	0.6	-
- Staff travel, subsistence, days	20	0.4	-	20	0.4	-	20	0.4	-
Sub-total		11.5	9.0		21.9	12.0		22.5	12.6

(1) Rounded to nearest S\$100.

(2) Percentage of construction or purchase costs.

(3) Including generator.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities Project

Farmers Training Centre, (1) Capital Cost (2) (in SI\$1000)

	Number	First year of develop- ment		Second year of develop- ment		
		Costs		Costs		
		Local	F.E.	Local	F.E.	
I LAND & LAND PREPARATION						
- Land acquisition, 20 ha ⁽³⁾	-	-	-	-	-	-
- Land survey, preparation, ha	4	3.6	-	16	14.4	-
- Establishment coconut, ha	-	-	-	2	0.6	-
- Establishment cocoa, ha	-	-	-	2	1.0	-
- Establishment pasture	-	-	-	12	1.2	-
- Roads, unsealed, km	2	16.2	1.8	-	-	-
Sub-total		19.8	1.8		17.2	-
II BUILDINGS						
- Office, 60 m ²	1	9.0	9.0	-	-	-
- Dormitory, 200 m ²	-	-	-	1	15.0	5.0
- Lecture room, 100 m ²	-	-	-	1	7.5	2.5
- Mess block, 200 m ²	-	-	-	1	30.0	30.0
- Store rooms, 50 m ²	1	7.5	2.5	1	7.5	2.5
- House AFO, 100 m ² , wood	1	15.0	5.0	-	-	-
- Houses FA, 60 m ² , wood	1	9.0	3.0	1	9.0	3.0
- Houses support staff, wood	4	20.0	-	-	-	-
- Machine shed, 150 m ²	1	15.0	-	-	-	-
- Work shop, 100 m ²	1	10.0	-	-	-	-
- Inflammable store, 20 m ²	1	4.0	1.0	-	-	-
- Water storage tanks, 4 m ³	3	1.5	1.5	-	-	-
- Copra dryer	-	-	-	1	1.0	0.5
- Cocoa fermentary	-	-	-	1	2.0	0.5
Sub-total		91.0	22.0		72.0	44.0

Annex 10
Table 4a (cont.)

	First year of develop- ment		Second year of develop- ment			
	Number	Costs	Number	Costs		
		Local		F.E.	Local	F.E.
III EQUIPMENT						
Farm Equipment						
- Wheel tractor, 65 HP	1	-	15.0	-	-	-
- Trailer	1	-	4.0	-	-	-
- Cultivator	-	-	-	1	-	3.0
- Disc harrow	-	-	-	1	-	3.0
- Grass cutter	-	-	-	1	-	3.0
- One-axle cultivator	-	-	-	1	-	3.5
- Chain saws	2	-	2.0	-	-	-
- Minor tools, set	-	-	-	10	-	5.0
- Cattle purchase	-	-	-	10	1.2	-
Transport Equipment						
- Canoes, 24 ft.	-	-	-	2	1.2	1.2
- Outboard engines	-	-	-	4	-	2.4
- Motorcycles	1	-	1.0	-	-	-
Teaching Material						
- Cine projector	-	-	-	1	-	1.5
- Slide projector	-	-	-	1	-	0.3
- Generator, 1 KVA	-	-	-	1	-	0.5
Office Equipment						
- Typewriter, portable	1	-	0.5	-	-	-
- Office furniture, set	1	-	1.0	-	-	-
Furniture						
- Beds	-	-	-	24	1.2	-
- Closets	-	-	-	24	1.2	-
- Chairs and tables	-	-	-	48	4.8	-
- House AFO	1	2.5	2.5	-	-	-
- Houses FA	1	2.2	0.8	1	2.2	0.8
- Houses Support Staff	4	4.0	-	-	-	-
Generator, 15 KVA	1	-	8.5	-	-	-
Sub-total		8.7	35.3		11.8	24.2
TOTAL CAPITAL COST		119.5	59.1		101.0	68.2

- (1) Figures refer to either of the two centres to be established. FTC on Choiseul to be established in Years 2 and 3 of disbursement period, FTC on Gizo in Years 3 and 4.
- (2) Rounded to nearest SI\$100.
- (3) It is expected that sufficient government land will be made available at the location of the two centers to be established. See also footnote (4) Table 1a.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities Project

New Farmer Training Centre, Recurrent Expenditure ⁽¹⁾
(in SI\$1000)

	First year ⁽²⁾ of establish- ment			Second and following years of establish- ment		
	Number	Costs		Number	Costs	
		Local	F.E.		Local	F.E.
I STAFF						
- AFO, Level 5	1	5.0	-	1	5.0	-
- FAs, Level 4	1	3.6	-	2	7.2	-
- Support Staff	4	10.8	-	4	10.8	-
Sub-total		19.4	-		23.0	-
II OTHER REC. EXPENDITURE ⁽³⁾						
- Buildings, maintenance	-	1.7	1.7	-	3.5	3.5
- Farm equipment, maintenance	-	1.0	1.0	-	1.9	1.9
- Farm equipment, operation	-	-	3.2	-	-	5.7
- Transport equipment, maintenance	-	-	-	-	0.3	0.3
- Transport equipment' operation	-	-	0.1	-	-	0.9
- Office, maintenance and supplies	-	0.1	0.1	-	0.1	0.1
- Teaching, maintenance	-	-	-	-	-	0.3
- Staff travel inter-island, trips	3	0.9	-	3	0.9	-
- Staff study tours	-	-	-	1	-	3.0
- Staff lodging, subsistence, days	30	0.6	-	30	0.6	-
- Trainees travel	(4)	-	-	(4)	-	-
- Trainees subsistence, days	-	-	-	2600 ⁽⁵⁾	7.8	-
- Miscellaneous	n.a.	1.0	1.0	n.a.	1.0	1.0
Sub-total		5.3	7.1		16.1	15.7
TOTAL RECURRENT COST		24.7	7.1		39.1	15.7

(1) Rounded to nearest SI\$100.

(2) See footnote (1) of Table 5a.

(3) All maintenance at percentage of construction or purchase cost; see Table 1b.

(4) Travel of FTC trainees covered by transport operational cost, no special provision.

(5) In second year 10 groups of 20, thereafter a maximum of 20 groups of 20 for 10- to 13-day courses including one weekend.

SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project
Establishment of Two Farmers Training Centers, Costs in S\$1,000⁽¹⁾ (2)

	Year 2		Year 3		Year 4		Year 5	
	Local	P.E.	Local	P.E.	Local	P.E.	Local	P.E.
Capital Costs								
FTC Choiseul								
- Land & Buildings	110.8	23.8	89.2	44.0	-	-	-	-
- Equipment	8.7	35.3	11.8	24.2	-	(2.0)	-	(8.4)
FTC Gizo								
- Land & Buildings	-	-	110.8	23.8	89.2	44.0	-	-
- Equipment	-	-	8.7	35.3	11.8	24.2	-	(2.0)
Total for 2 FTCS								
- Land & Buildings	110.8	23.8	200.0	67.8	89.2	44.0	-	-
- Equipment	8.7	35.3	20.5	59.5	11.8	26.2	-	10.4
Recurrent Costs								
FTC Choiseul								
- Staff	19.4	-	23.0	-	23.0	-	23.0	-
- Other rec. cost	5.3	7.1	16.1	15.7	23.9	15.7	23.9	15.7
FTC Gizo								
- Staff	-	-	19.4	-	23.0	-	23.0	-
- Other rec. cost	-	-	5.3	7.1	16.1	15.7	23.9	15.7
Total for 2 FTCS								
- Staff	19.4	-	42.4	-	46.0	-	46.0	-
- Other rec. cost	5.3	7.1	21.4	22.8	40.0	38.5	47.8	31.4

(1) Rounded to nearest S\$100.

(2) Amounts in brackets refer to reinvestments.

SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project

National Agricultural Institute Training, Capital Cost⁽¹⁾ (in SI\$1,000)

	Year 1 Cost			Year 2 Cost			Year 3 Cost			Year 4 Cost			Year 5 Cost		
	No.	Local	F.E.	No.	Local	F.E.	No.	Local	F.E.	No.	Local	F.E.	No.	Local	F.E.
I LAND & LAND PREPARATION ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
II BUILDINGS															
- Office, 60 m ²	1	9.0	9.0	-	-	-	-	-	-	-	-	-	-	-	-
- Dormitories, 100 m ² , 6 pers.	-	-	-	4	30.0	10.0	-	-	-	-	-	-	-	-	-
- Lecture room, 120 m ²	1	9.0	3.0	-	-	-	-	-	-	-	-	-	-	-	-
- Mess block, 200 m ²	-	-	1	30.0	30.0	-	-	-	-	-	-	-	-	-	-
- Library and study, 100 m ²	1	15.0	15.0	-	-	-	-	-	-	-	-	-	-	-	-
- Store room, 30 m ²	1	4.5	1.5	-	-	-	-	-	-	-	-	-	-	-	-
- Workshop & shed, 200 m ²	1	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-
- House for principal, 140 m ²	1	28.0	28.0	-	-	-	-	-	-	-	-	-	-	-	-
- Houses for deputies + female teacher + visitors, 100 m ²	2	30.0	10.0	2	30.0	10.0	-	-	-	-	-	-	-	-	-
- Housing support staff ⁽³⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		115.5	66.5		90.0	50.0									
III EQUIPMENT															
Farm Equipment															
- Tractor, 65 HP	1	-	15.0	-	-	-	-	-	-	-	-	-	-	-	-
- Trailer	1	-	4.0	-	-	-	-	-	-	-	-	-	-	-	-
Transport Equipment															
- Truck, 3 ton	1	-	15.0	-	-	-	-	-	1	-	(9.0)	-	-	-	(1.0)
- FWD pick-up	1	-	9.0	-	-	-	-	-	2	-	(2.0)	-	-	-	-
- Motor cycles	2	-	2.0	1	-	1.0	-	-	-	-	-	-	-	-	-
Teaching Materials															
- Cine projector	-	-	-	1	-	1.5	-	-	-	-	-	-	1	-	(0.3)
- Slide projector	-	-	-	1	-	0.3	-	-	-	-	-	-	-	-	-
- Library supplies	-	-	-	1	-	4.0	-	-	-	-	-	-	-	-	-
- Office supplies	-	-	-	1	-	2.0	-	-	-	-	-	-	-	-	-
Office Equipment															
- Typewriter, electric	-	-	-	1	-	1.2	-	-	-	-	-	-	-	-	-
- Photocopier	-	-	-	1	-	4.5	-	-	-	-	-	-	-	-	-
- Calculator	-	-	-	1	-	0.5	-	-	-	-	-	-	-	-	-
- Office furniture, set	-	-	-	1	-	1.0	-	-	-	-	-	-	-	-	-
Furniture															
- Beds, Closet (sets)	-	-	-	24	2.4	-	-	-	-	-	-	-	-	-	-
- Chairs + tables	-	-	-	96	9.6	-	-	-	-	-	-	-	-	-	-
- House principal	1	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-	-
- Houses deputies, etc.	2	5.0	5.0	2	5.0	5.0	-	-	-	-	11.0	-	-	-	1.3
Sub-total		8.5	53.5		17.0	21.0					11.0				1.3
TOTAL CAPITAL COST		124.0	120.0		107.0	71.0									

(1) Rounded to nearest SI\$100. Amounts in brackets refer to reinvestments.

(2) Land for building sites and for demonstration plots may not be needed, as use can probably be made of existing facilities (PTC, Research Station and plantations).

(3) Available in vicinity or nearby town.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities ProjectNational Agricultural Training Institute
Recurrent Expenditure ⁽¹⁾ (in SI\$1,000)

	Number	Year 1 Cost		Years 2 and following Cost		
		Local	Foreign	Local	Foreign	
I STAFF						
- Principal, Level 8	1	10.0	60.0 ⁽²⁾	1	10.0	60.0 ⁽²⁾
- Deputies, Level 6	1	6.3	-	2	12.6	-
- Female teacher, Level 5	1	5.0	-	1	5.0	-
- Typist	1	3.6	-	1	3.6	-
- Support staff	-	-	-	3	8.7	-
- Consultancy, months	3	-	30.0 ⁽³⁾	1	-	10.0 ⁽³⁾
		<u>24.9</u>	<u>90.0</u>		<u>39.9</u>	<u>70.0</u>
II OTHER RECURRENT COST⁽⁴⁾						
- Buildings, maintenance	-	2.4	2.4	-	4.5	4.5
- Farm Eq. maintenance	-	1.0	1.0	-	1.0	1.0
- Farm Eq. operation	-	-	2.9	-	-	2.9
- Transport Eq. maintenance	-	1.3	1.3	-	1.4	1.4
- Transport Eq. operation	-	-	3.9	-	-	4.0
- Office, maintenance supplies	-	-	-	-	-	0.4
- Teaching, maintenance supplies	-	-	-	-	-	0.3
- Library, supplies	-	-	-	1	-	1.0
- Furniture, maintenance	-	0.5	0.5	-	1.0	1.0
- Staff travel, study tours	1	-	3.0	1	-	3.0
- Staff travel inter- island, trips	4	1.2	-	8	2.4	-
- Staff lodging, subsistence, days	40	0.8	-	80	1.6	-
- Visitors lodging, subsistence, days	100	2.0	-	50	1.0	-
- Trainees travel, trips	-	-	-	120 ⁽⁵⁾	8.4	-
- Trainees subsistence, days	-	-	-	2400 ⁽⁵⁾	7.2	-
- Miscellaneous	n.a.	<u>1.0</u>	<u>1.5</u>	n.a.	<u>2.0</u>	<u>3.0</u>
Sub-total		<u>10.2</u>	<u>16.5</u>		<u>30.5</u>	<u>22.5</u>
TOTAL RECURRENT COST		35.1	106.5		70.4	92.5

(1) Rounded to nearest SI\$100.

(2) Expatriate staff in Years 1-5, thereafter local staff.

(3) Consultancy on curricula during first 5 years of project.

(4) All maintenance at percentage of construction or purchase cost, see
Table 1b(5) In Year 2 five groups of 24, thereafter 10 groups yearly, for 20-day
courses. Consequently, recurrent cost will be SI\$15,600 higher
as from Year 3.

SOLOMON ISLANDS

Agricultural Research, Extension and
Support Facilities Project

Housing and Equipment Field Assistants, Capital Costs
and Maintenance (in SI\$1000) (1)

	Year 1		Year 2		Year 3		Year 4		Year 5	
	Number	Costs	Number	Costs	Number	Costs	Number	Costs	Number	Costs
	Local	F.E.	Local	F.E.	Local	F.E.	Local	F.E.	Local	F.E.
<u>CAPITAL COSTS</u>										
I Buildings										
- Houses, wood, 60m ²	6	54.0 18.0	6	18.0 18.0	6	54.0 18.0	6	54.0 18.01	6	54.0 18.0
II Equipment										
- Furniture	6	13.5 4.5	6	13.5 4.5	6	13.5 4.5	6	13.5 4.5	6	13.5 4.5
- Sprayer & minor tools	30	- 30.0	30	- 30.0	-	-	-	-	30	- 30.0
TOTAL CAPITAL COSTS		67.5 52.5		67.5 52.5		67.5 22.5		67.5 22.5		67.5 52.5
<u>RECURRENT COSTS</u>										
I Maintenance										
- Maintenance houses (2)	6	1.1 1.1	12	2.2 2.2	18	3.3 3.3	24	4.3 4.3	30	4.4 5.4
TOTAL RECURRENT COSTS		1.1 1.1		2.2 2.2		3.3 3.3		4.3 4.3		5.4 5.4
TOTAL CAPITAL & REC. COSTS		68.6 53.6		69.7 54.7		70.8 25.8		71.8 26.8		72.9 57.9

(1) Rounded to nearest SI\$100

(2) Three percent of construction costs, of which half local cost and half F.E.

SOLOMON ISLANDS
Agricultural Research, Extension, and
Support Facilities Project

Agricultural Information Unit, Capital Costs ⁽¹⁾ (in SI\$1,000)

	No.	Year 1		Year 2	
		Local	F.E.	Local	F.E.
I BUILDINGS					
- Office, 40 m ²	1	6.0	6.0	-	-
- Office air conditioning	1	-	1.2	-	-
Sub-total		6.0	7.2	-	-
II EQUIPMENT					
Office Equipment					
- Typewriter, electric	1	-	1.2	1	1.2
- Office furniture, set	-	-	-	1	1.0
- Communication equipment	-	-	-	(2)	32.0
Transport equipment					
- 4WD LWB	1	-	13.0	-	-
- Motorcycles	1	-	1.0	1	1.0
Sub-total		-	15.2	-	35.2
TOTAL CAPITAL COST		6.0	22.4	-	35.2

(1) Rounded to nearest SI\$100.

(2) For details, see text of Annex 8 and Annex 10, Table 1a.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities Project

Agricultural Information Unit, Recurrent Expenditure⁽¹⁾ (in SI\$1,000)

	No.	Year 1		No.	Year 2 and following	
		Local	F.E.		Local	F.E.
I STAFF						
- Agr. Inf. Off., Level 7	1	8.1	60.0 ⁽²⁾	1	8.1	60.0 ⁽²⁾
- Senior Inf. Asst, Level 6	1	6.3	-	2	12.6	-
- Typist	1	3.6	-	1	3.6	-
- Support staff	1	1.7	-	1	1.7	-
- Consultancy, months	2	-	20.0	1	-	10.0
Sub-total		19.7	80.0		26.0	70.0
II OTHER REC. COST						
- Comm. materials	(3)	-	-	(3)	-	10.0
- Office maint., supplies	(4)	-	0.1	(4)	-	1.8
- Transport eq. maintenance	(4)	0.7	0.7	(4)	0.7	0.7
- Transport, operation	(4)	-	2.1	(4)	-	2.3
- Buildings, maintenance	(4)	0.1	0.1	(4)	0.1	0.1
- Staff travel, inter-island trips	-	-	-	10	3.0	-
- Staff travel, subsistence	-	-	-	100	2.0	-
- Staff study tours, months	-	-	-	6 ⁽⁵⁾	-	16.0
Sub-total		0.8	3.0		5.8	30.9
TOTAL RECURRENT COST		20.5	83.0		31.8	100.9

(1) Rounded to nearest SI\$100.

(2) Expatriate in Years 1-5, thereafter local staff.

(3) For description, see text, Annex 8.

(4) Percentage of construction or purchase cost, see Annex 10, Table 1b.

(5) As from Year 3, three study tours of two weeks each, at total yearly cost of SI\$9,000 F.E. Consequently, recurrent costs will be SI\$7,000 lower as from Year 3.

SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project.
Summary of Support for Research, Capital Costs⁽¹⁾ (in SI\$1,000)

	Year 1			Year 2			Year 3			Year 4			Year 5			Years 1-5		
	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total
Research Station Dodo Creek																		
- Civil works	105.0	43.8	148.8	48.0	22.3	70.3	48.8	31.0	79.8	7.8	-	7.8	7.8	-	7.8	217.4	97.1	314.5
- Equipment ⁽²⁾	3.5	45.5	49.0	3.5	86.5	90.0	6.0	53.0	59.0	-	45.6	45.6	-	21.2	21.2	13.0	251.8	264.8
Sub-total	108.5	89.3	197.8	51.5	108.8	160.3	54.8	84.0	138.8	7.8	45.6	53.4	7.8	21.2	29.0	230.4	348.9	579.3
Research Sub-Station at Dala																		
- Civil works	55.5	24.5	80.0	77.7	2.3	80.0	38.0	5.5	43.5	-	-	-	-	-	-	171.2	32.3	203.5
- Equipment ⁽³⁾	2.5	43.5	46.0	9.0	12.5	21.5	9.3	4.7	14.0	-	9.0	9.0	-	3.0	3.0	20.8	72.7	93.5
Sub-total	58.0	68.0	126.0	86.7	14.8	101.5	47.3	10.2	57.5	-	9.0	9.0	-	3.0	3.0	192.0	107.0	297.0
All Incremental Research Facilities																		
- Civil Works	160.5	68.3	228.8	125.7	24.6	150.3	86.8	36.5	123.3	7.8	-	7.8	7.8	-	7.8	388.6	129.4	518.0
- Equipment	6.0	89.0	95.0	12.5	99.0	111.5	15.3	57.7	73.0	-	54.6	-	-	24.2	24.2	33.8	324.5	358.3
GRAND TOTAL	166.5	157.3	323.8	138.2	123.6	261.8	102.1	94.2	196.3	7.8	54.6	62.4	7.8	24.2	32.0	422.4	453.9	876.3

(1) Rounded to nearest SI\$100.

(2) Including costs of reinvestment in equipment: SI\$23,000 F.E. in year 4; SI\$ 9,000 F.E. in year 5.

(3) Including costs of reinvestment in equipment: SI\$ 9,000 F.E. in year 4) SI\$ 3,000 F.E. in year 5. (Not shown in Table 3a)

SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project
Summary of Support for Research, Recurrent Expenditure (in SIs1,000)

	Year 1			Year 2			Year 3			Year 4			Year 5			Years 1-5		
	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total
Research Station Dodo Creek																		
- Staff	13.6	20.0	33.6	40.6	90.0	130.6	64.1	145.0	209.1	64.1	140.0	204.1	64.1	135.0	199.1	246.5	530.0	776.5
- Other recurrent costs	<u>9.5</u>	<u>21.1</u>	<u>30.6</u>	<u>17.1</u>	<u>42.7</u>	<u>59.8</u>	<u>28.7</u>	<u>45.4</u>	<u>74.1</u>	<u>33.7</u>	<u>51.2</u>	<u>84.9</u>	<u>36.7</u>	<u>51.8</u>	<u>88.5</u>	<u>125.7</u>	<u>212.2</u>	<u>337.9</u>
Sub-total	23.1	41.1	64.2	57.7	132.7	190.4	92.8	190.4	283.2	97.8	191.2	289.0	100.8	186.8	287.6	372.2	742.2	1114.4
Research Sub-station at Dala																		
- Staff	3.6	-	3.6	3.6	-	3.6	3.6	-	3.6	3.6	-	3.6	3.6	-	3.6	18.0	-	18.0
- Other recurrent costs	<u>11.5</u>	<u>9.0</u>	<u>20.5</u>	<u>21.9</u>	<u>12.0</u>	<u>33.9</u>	<u>22.5</u>	<u>12.6</u>	<u>35.1</u>	<u>22.5</u>	<u>12.6</u>	<u>35.1</u>	<u>22.5</u>	<u>12.6</u>	<u>35.1</u>	<u>100.9</u>	<u>58.8</u>	<u>159.7</u>
Sub-total	15.1	9.0	24.1	25.5	12.0	37.5	26.1	12.6	38.7	26.1	12.6	38.7	26.1	12.6	38.7	118.9	58.8	177.7
All Incremental Research Facilities																		
- Staff	17.2	20.0	37.2	44.2	90.0	134.2	67.7	145.0	212.7	67.7	140.0	207.7	67.7	135.0	202.7	264.5	530.0	794.5
- Other recurrent costs	<u>21.0</u>	<u>30.1</u>	<u>51.1</u>	<u>39.0</u>	<u>54.7</u>	<u>93.7</u>	<u>51.2</u>	<u>58.0</u>	<u>109.2</u>	<u>56.2</u>	<u>63.8</u>	<u>120.0</u>	<u>59.2</u>	<u>64.4</u>	<u>123.6</u>	<u>226.6</u>	<u>271.0</u>	<u>497.6</u>
GRAND TOTAL	38.2	50.1	88.3	83.2	144.7	227.9	118.9	203.0	321.9	123.9	203.8	327.7	126.9	199.4	326.3	491.1	801.0	1292.1

SOLOMON ISLANDS

Agricultural Research, Extension and Support Facilities Project

Summary of Support for Extension, Capital Costs⁽¹⁾ (in SI\$1,000)

	Year 1			Year 2			Year 3			Year 4			Year 5			Years 1-5		
	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total									
Farmers Training Centers	-	-	-	110.8	23.8	134.6	200.0	67.8	267.8	89.2	44.0	133.2	-	-	-	400.0	135.6	535.6
- Civil works	-	-	-	8.7	35.3	44.0	20.5	59.5	80.0	11.8	26.2	38.0	-	10.4	10.4	41.0	131.4	172.4
- Equipment new centers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Add. equipment existing centers ⁽²⁾	-	10.0	10.0	-	3.0	3.0	-	3.0	3.0	-	3.0	3.0	-	3.0	3.0	-	22.0	22.0
Sub-total ⁽³⁾	-	10.0	10.0	119.5	62.1	181.6	220.5	130.3	350.8	101.0	73.2	174.2	-	13.4	13.4	441.0	289.0	730.0
National Agr. Training Institute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	205.5	116.5	322.0
- Civil Works	115.5	66.5	182.0	90.0	50.0	140.0	-	-	-	-	-	-	-	1.3	1.3	25.5	86.8	112.3
- Equipment	8.5	53.5	62.0	17.0	21.0	38.0	-	-	-	-	11.0	11.0	-	1.3	1.3	231.0	203.3	434.3
Sub-total ⁽⁴⁾	124.0	120.0	244.0	107.0	71.0	178.0	-	-	-	-	11.0	11.0	-	1.3	1.3	231.0	203.3	434.3
Agricultural Information Unit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0	7.2	13.2
- Civil Works	6.0	7.2	13.2	-	-	-	-	-	-	-	14.0	14.0	-	1.0	1.0	-	65.4	65.4
- Equipment	-	15.2	15.2	-	35.2	35.2	-	-	-	-	14.0	14.0	-	1.0	1.0	6.0	72.6	78.6
Sub-total ⁽⁵⁾	6.0	22.4	28.4	-	35.2	35.2	-	-	-	-	14.0	14.0	-	1.0	1.0	6.0	72.6	78.6
Housing for Field Assistants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270.0	90.0	360.0
- Civil works	54.0	18.0	72.0	54.0	18.0	72.0	54.0	18.0	72.0	54.0	18.0	72.0	54.0	18.0	72.0	270.0	90.0	360.0
- Equipment	13.5	34.5	48.0	13.5	34.5	48.0	13.5	4.5	18.0	13.5	4.5	18.0	13.5	34.5	48.0	67.5	112.5	180.0
Sub-total ⁽⁶⁾	67.5	52.5	120.0	67.5	52.5	120.0	67.5	22.5	90.0	67.5	22.5	90.0	67.5	52.5	120.0	337.5	202.5	540.0
All Extension Facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	881.5	349.3	1230.8
- Civil works	175.5	91.7	267.2	254.8	91.8	346.6	254.0	85.8	339.8	143.2	62.0	205.2	54.0	18.0	72.0	881.5	349.3	1230.8
- Equipment	22.0	113.2	135.2	39.2	129.0	168.2	34.0	67.0	101.0	25.3	58.7	84.0	13.5	50.2	63.7	134.0	418.1	552.1
Grand Total	197.5	204.9	402.4	294.0	220.8	514.8	288.0	152.8	440.8	168.5	120.7	289.2	67.5	68.2	135.7	1015.5	767.4	1782.9

(1) Rounded to nearest SI\$100.

(2) For details see attachment.

(3) Including costs of reinvestments in equipment: SI\$ 2,000 F.E. in year 4; SI\$10,400 F.E. in year 5.

(4) Including costs of reinvestments in equipment: SI\$11,000 F.E. in year 4; SI\$ 1,300 F.E. in year 5.

(5) Including costs of reinvestments in equipment: SI\$14,000 F.E. in year 4; SI\$ 1,000 F.E. in year 5.

(6) Including costs of reinvestments in equipment: SI\$30,000 F.E. in year 5.

SOLOMON ISLANDS

Agricultural Research, Extension, and
Support Facilities Project

Additional equipment for existing FTCs (costs in SI\$ 1,000)

	Dodo Creek	Dala	Kaonasugha	Barakoma	Total 4 Centers
1 Canoe, 24 ft	1.2	-	1.2	1.2	3.6
1 Outboard engine	0.6	-	0.6	0.6	1.8
1 Motorcycle, 125 cc	1.0	1.0	1.0	1.0	4.0
1 Rotary, cultivator	3.0	-	3.0	-	6.0
1 Calculator	0.1	0.1	0.1	0.1	0.4
1 Portable generator	-	-	0.5	-	0.5
Audiovisual equipment	1.2	1.2	1.2	1.2	4.8
Livestock	-	-	-	1.0	1.0
Total	7.1	2.3	7.6	5.6	22.1

SOLOMON ISLANDS

Agricultural Research, Extension and Support Services Facilities Project

Summary of Support for Extension, Recurrent Expenditure (in S\$1,000) (1)

	Year 1			Year 2			Year 3			Year 4			Year 5			Years 1-5		
	Local	F.E.	Total	Local	F.E.	Total												
Farmers Training Centers⁽²⁾																		
- Staff	-	-	-	19.4	-	19.4	42.4	-	42.4	46.0	-	46.0	46.0	-	46.0	153.8	-	153.8
- Other recurrent costs	-	-	-	5.3	7.1	12.4	21.4	22.8	44.2	40.0	38.5	78.5	47.8	31.4	79.2	114.5	98.8	214.3
Sub-total	-	-	-	24.7	7.1	31.8	63.8	22.8	86.6	86.0	38.5	124.5	93.8	31.4	125.2	268.3	98.8	368.1
National Agr. Training Institute																		
- Staff	24.9	90.0	114.9	39.9	70.0	109.9	39.9	70.0	109.9	39.9	70.0	109.9	39.9	70.0	109.9	184.5	370.0	554.5
- Other recurrent costs	10.2	16.5	26.7	30.5	22.5	53.0	46.1	22.5	68.6	46.1	22.5	68.6	46.1	22.5	68.6	179.0	106.5	285.5
Sub-total	35.1	106.5	141.6	70.4	92.5	162.9	86.0	92.5	178.5	86.0	92.5	178.5	86.0	92.5	178.5	363.5	476.5	840.0
Agricultural Information Unit																		
- Staff	19.7	80.0	99.7	26.0	70.0	96.0	26.0	70.0	96.0	26.0	70.0	96.0	26.0	70.0	96.0	123.7	360.0	483.7
- Other recurrent costs	0.8	3.0	3.8	5.8	30.9	36.7	5.8	30.9	36.7	5.8	30.9	36.7	5.8	30.9	36.7	24.0	126.6	150.6
Sub-total	20.5	83.0	103.5	31.8	100.9	132.7	31.8	100.9	132.7	31.8	100.9	132.7	31.8	100.9	132.7	147.7	486.6	634.3
Housing for Field Assistants																		
- Maintenance	1.1	1.1	2.2	2.2	2.2	4.4	3.3	3.3	6.6	4.3	4.3	8.6	5.4	5.4	10.8	16.3	16.3	32.6
All Incr-Extension Facilities																		
- Staff	44.6	170.0	214.6	85.3	140.0	225.3	108.3	140.0	248.3	111.9	140.0	251.9	111.9	140.0	251.9	462.0	730.0	1192.0
- Other recurrent costs	12.1	20.6	32.7	43.8	62.7	106.5	76.6	79.5	156.1	96.2	96.2	192.4	105.1	90.2	195.3	333.8	349.2	683.0
Grants Total	56.7	190.6	247.3	129.1	202.7	331.8	184.9	219.5	404.4	208.1	236.2	444.3	217.0	230.2	447.2	795.8	1079.2	1875.0

(1) Rounded to nearest S\$100

(2) Figures refer to new FICs. Recurrent costs of existing FICs are expected to be met by a U.K. grant, covering 1983-1985.

SOLOMON ISLANDS

Agricultural Research, Extension and Support Services Facilities

Project Office, Costs in SI\$ 1,000⁽¹⁾

CAPITAL COSTS	Year 1			Year 2 ⁽³⁾		
	Local	F.E.	Total	Local	F.E.	Total
I Buildings (2)	-	-	-	-	-	-
II Equipment						
- FWD Pick-up, one ⁽⁴⁾	-	9.0	9.0	-	-	-
- Typewriter, Electric, one	-	1.2	1.2	-	-	-
- Office furniture, set	-	1.0	1.0	-	-	-
- Miscellaneous equ.	-	2.0	2.0	-	-	-
TOTAL CAPITAL COSTS	-	13.2	13.2	-	-	-
RECURRENT COSTS						
I Staff						
- Project Manager, local, Level 8	10.0	-	10.0	10.0	-	10.0
- Development Officer, exp. Level 8	10.0	60.0	70.0	10.0	60.0	70.0
- Accountant, Level 6	6.3	-	6.3	6.3	-	6.3
- Secretary, Level 5	5.0	-	5.0	5.0	-	5.0
Sub-total	31.3	60.0	91.3	31.3	60.0	91.3
II Other recurrent costs						
- Vehicle maintenance	0.5	0.5	1.0	0.5	0.5	1.0
- Vehicle operation	-	1.4	1.4	-	1.4	1.4
- Office operation + misc.	1.0	1.0	2.0	1.0	1.0	2.0
Sub-total	1.5	2.9	4.4	1.5	2.9	4.4
TOTAL RECURRENT COSTS	32.8	62.9	95.7	32.8	62.9	95.7

(1) Rounded to nearest SI\$ 100.

(2) Office space to be provided in the MHAND.

(3) For recurrent costs, read "year 2" as "years 2-5".

(4) Vehicle to be replaced in year 4.

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Total Local Costs and Contingencies⁽²⁾, 1984-1988, expressed in SI\$ (1,000)⁽¹⁾

	1984 SI\$1,000	1985 SI\$1,000	1986 SI\$1,000	1987 SI\$1,000	1988 SI\$1,000	1984-88 SI\$1,000
<u>CAPITAL COSTS</u>						
Civil works, base	336	381	341	151	62	1,270
phys. cont.	34	38	34	15	6	127
1982 prices	<u>363</u>	<u>419</u>	<u>375</u>	<u>166</u>	<u>68</u>	<u>1,397</u>
Equipment, base	28	52	49	25	14	168
phys. cont.	4	8	7	4	1	24
1982 prices	<u>32</u>	<u>60</u>	<u>56</u>	<u>29</u>	<u>15</u>	<u>192</u>
Sub-total 1982 prices	402	479	431	195	83	1,590
price cont.	120	218	272	161	87	858
current prices	<u>522</u>	<u>697</u>	<u>703</u>	<u>356</u>	<u>170</u>	<u>2,448</u>
<u>RECURRENT COSTS</u>						
Staff, 1982 prices ⁽³⁾	93	161	207	211	211	883
Other, base	35	84	129	154	166	568
phys. cont.	5	13	19	23	25	85
1982 prices	<u>40</u>	<u>97</u>	<u>148</u>	<u>177</u>	<u>191</u>	<u>653</u>
Sub-total 1982 prices	133	258	355	388	402	1,536
price cont.	40	117	224	320	420	1,121
current prices	<u>173</u>	<u>375</u>	<u>579</u>	<u>708</u>	<u>822</u>	<u>2,657</u>
<u>TOTAL COSTS</u> base	492	678	726	541	453	2,889
phys. cont.	43	59	60	42	32	236
1982 prices	<u>535</u>	<u>737</u>	<u>786</u>	<u>583</u>	<u>485</u>	<u>3,126</u>
current prices ⁽⁴⁾	695	1,072	1,282	1,064	992	5,105
current prices (US\$)	<u>660</u>	<u>1,018</u>	<u>1,218</u>	<u>1,011</u>	<u>942</u>	<u>4,850</u>

(1) Rounded to nearest thousand dollars.

(2) In consultation with ADB, the following contingency rates have been applied.
 - Physicals: 10% on civil works, 15% on equipment, 0% on staff costs, and 15% on other recurrent expenditure.
 - Price contingencies for local costs have been calculated on the following percentages: 15% in 1983, 13% in 1984, 12% thereafter.

(3) Including local cost component of salaries of Project Management Office

(4) See explanatory note in text (para 4.23).

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Total Foreign Exchange Costs and Contingencies (2), 1984-1989, expressed in US\$ (1,000) (1)

	1984 US\$1,000	1985 US\$1,000	1986 US\$1,000	1987 US\$1,000	1988 US\$1,000	1984-88 US\$1,000
CAPITAL COSTS						
Civil works, base	152	111	116	59	17	455
phys. cont.	15	11	12	3	2	46
1982 prices	167	122	128	65	19	501
Equipment, base	204	217	118	108	71	718
phys. cont.	31	33	18	16	11	109
1982 prices	235	250	136	124	82	827
Sub-total 1982 prices	402	372	264	189	101	1,328
price cont.	67	88	82	74	48	359
current prices	469	460	346	263	149	1,687
RECURRENT COSTS						
Staff, 1982 prices(3)	238	276	328	323	318	1,483
Other, base	51	114	133	155	150	603
phys. cont.	8	17	20	23	23	91
1982 prices	59	131	153	178	173	694
Sub-total 1982 prices	297	407	481	501	491	2,177
price cont.	49	96	149	195	232	721
current prices	346	503	630	696	723	2,898
TOTAL COSTS base	645	718	695	645	556	3,259
phys. cont.	54	61	50	45	36	246
1982 prices	699	779	745	690	592	3,505
current prices(4)	815	963	976	959	872	4,585
current prices (SI\$)	858	1,014	1,028	1,010	918	4,828

(1) Rounded to nearest thousand dollars.

(2) In consultation with ADB, the following contingency rates have been applied.

- Physicals: 10% on civil works, 15% on equipment, 0% on staff costs, and 15% on other recurrent expenditure.
- Price contingencies for foreign exchange costs have been calculated on the following percentages: 9% in 1983, 7% in 1984, 6% thereafter.

(3) Including foreign exchange component of the salary of an expatriate project development officer during years 1-5.

(4) See explanatory note in text (para 4.23).

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Estimated Costs of Individual Project Components
at 1982 prices

	\$SI (000s)	
	Local	FE
<u>One Research sub-station</u>		
<u>Capital</u>		
Land and land preparation	56.2	1.8
Buildings	113.0	30.5
Equipment and furniture	20.8	60.7
Sub-total	192.0	93.0
<u>Recurrent for 3 years)</u>		
Staff	10.8	-
Other costs	55.9	33.6
Sub-total	66.7	33.6
<u>Total</u>	<u>258.7</u>	<u>126.6</u>
<u>One Farmer Training Centre</u>		
<u>Capital</u>		
Land and land development	37.0	1.8
Buildings	163.0	66.0
Equipment	20.5	59.5
Sub-total	220.5	127.3
<u>Recurrent Costs (for 3 years)</u>		
Staff	65.4	-
Other	45.3	38.5
Sub-total	100.7	38.5
<u>Total</u>	<u>321.2</u>	<u>165.8</u>

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Agricultural Research, Extension, and Support
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5. Department of Primary Industries, Manpower and Training Review. Report to the Government of Papua New Guinea by McKillop, Williamson and Associates Ltd., February, 1982. (3 Vols).
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13. An Agricultural Field Base Manual for the Smallholder Agricultural Industries in the Solomon Islands. Development Bank of the Solomon Islands, January 1982.
14. The 'Rolling-Plan' for 1981-5 for Central Islands Province.
15. The draft Development Plan for 1981-5 for Temotu Province.
16. Policy for Agricultural Development, Malaita Province.
17. The Provincial Government Act 1981, Government of Solomon Islands.
18. National Economic Development Policy, Government of Solomon Islands, December 1981.
19. Programme of Action 1981-84, Government of Solomon Islands, November 1981.
20. Solomon Islands Development Plan 1981-85, Draft only for reference on technical issues. (This plan not adopted by Government.)
21. Internal reports of the Research Section on a range of subjects:
 - No. 3. Jackson, G.V.H., and Lilogula, R. The resistance of yam, Dioscorea alata cultivars to anthracnose caused by Colletotrichum gleosporioides. August 1979.
 - No. 4. Chase, L.D.C. On the suitability of Choiseul Bay plantation for Agricultural Development. August 1979.
 - No. 6. Jackson, G.V.H. The screening of yam Dioscorea alata cultivars to dieback caused by Colletotrichum gleosporioides, in 1979-80. Report date 1980.
 - No. 8. Jackson, G.V.H. Root crop genetic resources of the Solomon Islands. 1980.
 - No. 9. Jackson, G.V.H. Observations on cultivars of Pana, Dioscorea esculenta collected in the Solomon Islands. 1980.
 - No. 10. Jackson, G.V.H. The screening of yam, Dioscorea alata cultivars for resistance to dieback caused by Colletotrichum gleosporioides. 1981.
 - No. 11. Chase, L.D.C. and Kirio, J. On the Soil Survey of Ruavatu Plantation, N.E. Guadalcanal. 1982.
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29. Development estimates and special funds estimates for 1981.
30. Annual reports and accounts of the Copra Board for 1978-80.

SOLOMON ISLAND

Agricultural Research, Extension and Support
Facilities Project

List of organizations and persons consulted

The Ministry of Home Affairs and National Development (MHAND)

The Honourable Kamilo Teke, Deputy Prime Minister and Minister (MHAND)
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E. Walaodo, Undersecretary (Agriculture)
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B. Smith, Chief Research Officer
M. Todd, Senior Field Officer (Head, Education and Training Section)
I. Knight, Senior Livestock Officer (Acting Head, Veterinary and
Livestock Section)
J. Hurd, Head of Development Administration Division
F. H. Webster, Cooperatives Adviser
K. Owen, Technical Officer, Land Use Development Section
C. Johnson, lately Head of the Land Use Development Project
F. Qaloboe, Field Officer, Land Use Development Section
G. Jackson, Principal Research Officer (Pathology)
L. Chase, Senior Research Officer (Soils)
B. Macfarlane, Senior Research Officer (Entomology)
P. Linton, Research Officer (Horticulture)
M. Smith, TA Post, (Pasture Agronomist)
Z. Patel, UNDP Volunteer (Plant Breeding, Root Crops)
M. Gurney, Plant Quarantine Officer
L. Runikera, Assistant Marketing Officer
G. Jackson, Land Use Development Officer
B. Apaniai, Controller Provincial Budgets
K. Sanders, Principal Field Officer (seconded to Malaita Province)
K. Toiti, Senior Field Officer (seconded to Guadalcanal Province)
, Senior Field Officer (seconded to Western Province)
W. Horea, Field Officer (seconded to Central Province)
M. Taro, Assistant Field Officer (seconded to Makira Province)
A. Medei, Assistant Field Officer (seconded to Temotu Province)

Ministers for Provincial Affairs

Hon. R. Harper, Central and Isabel Provinces
Hon. A. Bataiofesi, Malaita Province
Hon. A. Qurusu, Western Province
Hon. A. Tropa, Makira and Temotu Provinces
with their Permanent Secretaries.

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Ministry of Finance

F. P. Panjubo, Permanent Secretary
I. Taylor, Government Statistician
R. A. MacDonald, Commissioner for Inland Revenue
B. Kohata, Deputy Head Customs Office

Solomon Islands Monetary Authority

N. A. Dharmabandu, Manager (Banking Operations),
A. V. N. Iyengar, Manager (Research and Statistics).

Development Bank of the Solomon Islands

K. Misi, General Manager
G. Boyd, Assistant General Manager (Administration)
M. Wilkinson, Agricultural Promotion Officer (ex-Land Use Development project).

Solomon Islands Public Service

D. Buto, Secretary
K. H. Mann, Principal Administrative Officer

Ministry of Education, Training and Cultural Affairs

G. Siapu, Permanent Secretary
D. Cutts, Solomon Islands Teacher Training College
I. Murdoch, Administrative Training Centre

Guadalcanal Province

S. Paeni, Premier
S. Kokopu, Member of Provincial Executive (Agriculture)
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R. Natowan, Deputy Provincial Secretary
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D. Maepio, Field Officer, on secondment from MHAND

Temotu Province

D. Dawea, Premier
J. Malatua, Deputy-Premier
A. Medei, Assistant Field Officer

Makira Province

M. Ramoni, Premier
D. Setae, Deputy Provincial Secretary
M. Taro, Assistant Field Officer, on secondment from MHAND
G. Lyons, Cattle Development Officer, CDA (Australian Aid Program)
D. Tapera, Assistant Field Officer (Livestock)
J. Campbell, Planter

Central Province

P. Tahani, Provincial Secretary
N. Horia, Field Officer, on secondment from MHAND

Malaiketa Province

S. Tonofalex, Premier
B. Sava, Provincial Secretary
D. Sande, Deputy Provincial Secretary,
K. Sanders, Principal Field Officer, on secondment from MHAND
G. Polke, Cattle Development Officer, CDA

Western Province

Francis Billy Hilly, Premier
M. Glass, Provincial Secretary
S. Houma, Principal Field Officer, on secondment from MHAND
M. Pelomo, Field Officer, on secondment from MHAND.

Government Supply Organization

A. Faruara Kapiara, Acting General Manager

Cattle Development Authority

R. Finmore, General Manager

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B. Woodhead, General Manager
K. Armstrong, Visiting Agent

Lever Solomons Ltd

Mahboob bin Abdullah, Manager
D. Friend, Agronomist (Research and Development)

Brewers Solomons Ltd.

W. Bradley, General Manager
Nan Ding Masajo, Agronomist
Ying Yin Jackson, Entomologist

Solomon Islands Copra Board

S. Ilala, Managing Director.

Official Representatives

P. G. S. Slater, UK High Commissioner
D. Kerly, First Secretary, UK High Commission
I. Kennedy, Second Secretary, New Zealand High Commission
J. Foster, Second Secretary, Australian High Commission
W. Rothweiler, Resident Adviser, Delegation of the EEC

Others

M. F. Bugotu, Secretary-General, South Pacific Commission
D. Hicks, NCR (Solomon Islands) Ltd., Honiara
R. Keevil, Former Agriculture Information Officer
H. K. Paia, Director, Solomon Islands Centre, University of the South Pacific
Br. George van der Zant, S.M., Director, St. Martins Rural Training Centre, Tenaru
C. Woolley, Principal, Seventh Day Adventist Mission, Betikama
K. Peuser, Teacher
C. Chapangi, Farm Manager
R. Young, Pacific Agronomics
The Farm Manager, Horakiki Developments, Guadalcanal

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Additional Related Items for Early Funding

General

1. A number of additional matters arose in discussions on research and extension which, although strictly developmental, if ignored would hinder the development of effective research and extension services. These matters are set out in the following paragraphs with proposals to initiate action which would relieve any constraints which would arise. The costs are not included in the summary totals in the main project, since early action and funding are highly desirable for these items.

Coconut Survey

2. Arising out of the Coconut Workshop held in Tambea in December 1981 the Statistical Division of the Ministry of Finance was instructed to prepare a survey of the coconut industry; the object of the survey was to determine the ownership and extent of the industry and the age distribution, yield and stand of palms, and some indication of the socio-economic status of the holders. The results of a pilot survey launched in two areas is now being collated. Using these results, the existing questionnaire will be revised before the main survey is launched.
3. The object of the main survey would be to provide adequate information as a baseline from which to formulate a coconut replanting, rehabilitation, and intercropping project. The Solomon Islands Government having no funds to launch the main survey, a proposal has been made to a regional organization to support both the survey and a rehabilitation project. The status and outcome of this request for aid is uncertain. The mission considers that the mounting of the survey and the collation of the data from it are prerequisites for any rehabilitation project preparation mission; the survey results should be available well in advance of such a mission and are essential for formulating a rational program of research in the smallholder sector.

4. The estimated costs of the survey to cover 2,400 holdings would be:

	<u>SI\$</u>
Survey manager, one manyear	60,000
Enumerators, (5 manyears, at 240 working days at 2 visits per day, at \$3,000 per year)	15,000
Travel and subsistence, all staff	50,000
Data processing	<u>20,000</u>
Contingencies	<u>20,000</u>
Total	195,000

5. Data processing would be possible in the Statistical Division in 1983. When this project is appraised, further information should be sought from the Planning Unit of the Ministry of Home Affairs and National Development as to the progress of financing the survey. If the survey could be expedited under this project the costs should be included as a technical assistance item, but implementation should not be subject to agreement on the project as a whole. If this early funding is not possible, alternative arrangements for funding should be explored. (1)

The Land Use Development Unit

6. The main function of this unit is to assist in the development of Land Purchase Cooperatives, of which there are currently 23. Such cooperatives, by means of loans from the Development Bank of the Solomon Islands (DBSI) purchase, from the owners or from government, old plantations which are neglected or over-age or both for rehabilitation according to lines acceptable to the DBSI. Other cooperatives may be supported; these make use of communal land.
7. There is a present and probably continuing shortage of middle management staff in the Solomon Islands. To meet this shortage the Overseas Development Administration of the United Kingdom has supplied rural development officers to assist groups of Land Purchase Cooperatives in their management. The DBSI and other sources consider that these operations have generally been successful in maintaining initial impetus and in advising on generally correct plantation practices. However, the post of officer in charge of this unit at Honiara has been vacant for two years, and it is presently filled by an inexperienced officer on an acting appointment. In addition the contracts of the rural development officers expire in 1983, and the DBSI is seriously concerned about the situation which may arise after that date.
8. The review of ODA technical manpower support carried out in 1981 did not recognize that although the initial objectives of the Land Use Development project had in part been met, the demand for the services of the unit was increasing. Hence far from it being realistic to

(1) The Technical Cooperation Program of the Food and Agriculture Organization of the United Nations can respond rapidly to requests for this type of assistance.

reduce support for this work by the phasing out of the technical cooperation officer posts in 1983 and 1984, there is an identified need for a greater number of them. At present the section is not able to respond to the requests for assistance which have been received from an additional 20 to 25 potential communal estates.

9. The funding agency has indicated that it would consider extending the services of the rural development officers (TCOs) provided that a senior officer were appointed to be in charge of the unit and that the system was reviewed⁽¹⁾ to establish the progress of the project so far, the duties of the senior officer and the rural development officers, and the total support required. The mission shares the concern of the DBSI and of others as to the fate of the land purchase cooperatives in the event that external support would be withdrawn prematurely and feels that an objective review of the position by an Asian Development staff member or consultant would promote a degree of confidence in the financing agency and in the government as to the value of this approach to increasing production for customary land and on alienated land recently returned to customary ownership.
10. Technical assistance support for a one month consultancy at a cost of US\$10,000 would be needed; the mission considers that the terms of reference of the consultant should include:
 - the training needs of local middle management staff;
 - the preparation of adequate project proposals;
 - the minimum infrastructure necessary for the organization;
 - the organizational and management requirements for the extended program;
 - the necessary differentiation between plantation and smallholders agriculture in terms of support to be provided;
 - liaison with appropriate joint ventures and with the research section.
11. The Land Use Development unit should be able to stand on its own in advising and assisting land use and other cooperatives whose problems are different from those of smallholders; in particular the extension service should be relieved of any responsibility of advising these ventures on technical matters other than those of a general information nature. The supply of improved planting material from provincial nurseries would be a service primarily for smallholders and to cooperatives on adequate advance notice.

(1) It is possible or even likely that ODA would wish to carry out this review with its own staff.

Marketing

12. Many cash crops can be grown successfully in the Solomon Islands; considerable information already exists upon some of them. Farmers have, however, been disappointed by the apparent lack of markets, which has prejudiced them against innovations (chillies being a case in point). No further research and extension work would be justified on any program of crop diversification unless the market potentials have been established.

13. The marketing problem has two main components: first, the establishment of what can be sold in export and in local markets and, second, the collection of the salable commodities from widely disposed production sites in the face of severe limitations imposed by poor transport facilities both within any one island and between islands.

The Copra Board is at present considering increasing the number of points at which copra will be purchased and from which the Copra Board would assume responsibility for transport to the grading and export centre. If, as is planned the board is developed into a commodity board to handle crops in addition to copra, this could alleviate the internal marketing and transport problems for a few selected items.

The record of commodity boards in other countries suggests, however, that these boards function most effectively when the number of different items handled is small and the items individually are large enough to permit economical handling. The temptation to develop into a general merchandizing organization needs to be resisted. The external marketing problems are no less severe than those of collection and transport within the country.

14. In established crops, the Copra Board (to be a commodity board on January 1, 1983, when it will deal with cocoa as well) has only one outlet for its purchases and finds it difficult to locate others; it will shortly have to handle increasing amounts of cocoa, a crop with which it is unfamiliar.

15. It is proposed, therefore, that a marketing mission should be mounted which would examine

- the prospects for further outlets for copra and cocoa;
- the prospects of marketing a group of selected additional crops. In order of priority, these should be coffee, chillies, cardamom, ginger, black pepper, and tumeric.

16. Such a mission would consist of a marketing economist and appropriate marketing specialists⁽¹⁾, probably two. Such a mission would

(1) The advice of the Tropical Products Institute in U.K. could be sought with advantage.

commence with a desk study of the crops noted and follow by studying conditions in the Solomon Islands. It would then return via Australia and New Zealand, where special market conditions exist favorable to products from the South Pacific. A report would be submitted to the government in two sections on present and proposed cash crops, respectively.

17. Technical assistance support to the extent of US\$60,000 would be needed to support six months of consultant time. The present mission considers that, in a country so dependent on agricultural exports, the findings of such a study mission would be of fundamental importance to its future development and that the advice would be essential to determine and to orient research and extension work on the crop diversification program.
18. The following total amount of technical assistance would be needed for these three essential components, which need to be implemented as a matter of urgency.

	<u>Local S\$</u>	<u>F.E. in US\$</u>
- Coconut survey (S\$195,000)	135,000	60,000
- Review of LUD		10,000
- Marketing mission		60,000
	<u>135,000</u>	<u>130,000</u>

US\$260,000 would be needed in all, but the components are distinct and the costs need not be funded from one source only.

The Veterinary and Livestock Section of the Division of Agriculture

19. The development of the beef cattle industry has been assisted by the Asian Development Bank, the Australian aid agency, and others in various ways. The position was reviewed in June 1982, and the draft report (not yet cleared by government) was seen by the mission members. The salient findings which have relevance to the present report are:
- there should be a clear separation of functions between the Cattle Development Authority (CDA) and the Veterinary and Livestock Section of MHAND. The CDA would have charge of all production, including some developmental and operational research while the Veterinary and Livestock Section would retain its regulatory functions and its role in research;
 - all the farms now operated by the Veterinary and Livestock Section should be transferred to the CDA;
 - the income derived by the smallholders from cattle has been much less (about one-tenth) than that from pigs and poultry which are of dominant importance.

20. These items give rise for some concern. If the Veterinary and Livestock Section is to retain its responsibility for research on livestock in general (so far, little has been done on pigs, poultry, goats and hair sheep, all of which seem deserving of attention especially for the smallholder sector), it must retain some of its present farm facilities. The mission strongly recommends that the farm at Teravatu be retained by MHAND and that some of the facilities be leased to CDA until such time as they may be required or relinquished by MHAND. The difficulties of obtaining land are immense, so that it would be unwise for the Veterinary and Livestock Section to release all of its experimental facilities.
21. Since there is evidence that small livestock are important in the smallholder sector, these would be included in the farming systems research (Annex 6, paragraph 56) so that an experimental site near to Tenaru is needed so that there could programmatic interaction between the research and veterinary and livestock sections. It is not considered to be particularly important where the livestock research officers are administratively located, so long as there is full cooperation between them and officers in the Research Section.
22. In relation to small livestock, the question of the production of feed from local materials -- such as rice bran, coconut meal, fish meal (potentially) maize, and root crops -- would seem to merit more attention than has been given to it in the past.
23. The mission members do not feel qualified to comment on the proposed development of a goat industry, except that this has proved difficult in other areas of the South Pacific⁽¹⁾. While the water buffalo is acknowledged to be capable of producing good quality beef from forage of indifferent quality, the handling of the animals can present serious problems. For this reason, it is probably more appropriate that they be tried initially on the larger estates. To remain docile, these animals appear to need frequent handling and contact with the herdsmen.
24. It is suggested that the mission which is scheduled to investigate the establishment of a livestock development authority pursue the organization of research in this sector in the context of the farming systems programs recommended in this report.

(1) Private information from W.A. Payne