IICA

RESULTS OF SOCIO-ECONOMIC SURVEY IN COASTAL AREAS OF GUYANA

Georgetown, Guyana

March 1994

INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE

INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

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PREFACE

In response to the Government of Guyana's (GOG) concern for the needs of small farmers, the International Fund for Agricultural Development (IFAD) and the Inter-American Development Bank (IDB) initiated the design stage of an Agricultural Support Services Programme in March 1993. Under this programme consideration was to be given to improving basic services in such areas as agricultural research, extension and training, drainage and irrigation, seed production and plant propagation, credit and other support services to selected coastal agricultural producers.

Due to the scarcity of recent and reliable information on the agricultural sector, the decision was made to carry out a survey to generate data to guide follow up technical missions in project design. This study was also intended to generate the data necessary to make an evaluation of the poverty situation in the surveyed area.

The Inter-American Institute for Cooperation on Agriculture (IICA) was contracted by IFAD to undertake the study. An inter-institutional and inter-disciplinary team was then formed to collect and analyse the information and write the final report.

The study consists of four chapters. Chapter 1 presents information on Guyana's economy and the agricultural sector, including eight statistical tables in annex. It also describes the surveyed areas, both from their physical and social aspects and the survey methodology. Chapter 2 presents the results of the survey in respect to the farm, land use, production, productivity and marketing of diverse crops, and agricultural services. In Chapter 3, attention is given to the population in the surveyed areas, social infrastructure and services and income levels. Chapter 4 concentrates on the evaluation of the level of poverty in the surveyed area. Extensive annexes include maps and detailed profiles of each surveyed area and numerous supporting statistical tables of survey results.

The information contained in this document is based on in-depth surveys of 743 households distributed across four agricultural communities extending from the East Bank Demerara to Black Bush Polder frontlands on the Corentyne Coast.

IICA wishes to thank IFAD and the Ministry of Agriculture for the opportunity to make this contribution of relevant and up-to-date information to the development process in Guyana.

Jerry La Gra
IICA Representative in Guyana

March, 1994

ACKNOWLEDGEMENTS

A number of organizations and individuals were involved in the activities related to the planning of the study, data collection and processing, analysis, documentation, writing, typing and editing of the findings of the survey. Without their effective collaboration this report would not have been possible. IICA would therefore like to acknowledge its gratitude to the following institutions and individuals:

The Ministry of Agriculture for its support in making available Crop Reporters and Field Assistants who played a vital role in the initial data collection.

The Bureau of Statistics for their invaluable support in making available maps of the Enumeration Districts (EDs) and listings of the households in the Surveyed area, as well as technical advice related to the selection of the survey sample of households.

The four contracted supervisors (Ingrid McPherson, Sorella Jacobs, Narine Dyal and Mr. Ramnarine) and Mr. Cromwell Crawford, IICA Rural Development Specialist, who assisted in the coordination and monitoring of the survey and the codification of the questionnaires.

The team from the National Data Management Authority who carried out the initial processing of the raw data.

The team from the Institute of Development Studies, (Clive Thomas, Dennis Canterbury, Garfield Barnwell and Cyril Solomon) for their contribution towards the interpretation of the survey data, the preparation of Chapter 1 and their contributions to the final report.

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Mr. Hector E. Maletta, IFAD Consultant, whose contribution towards the structuring of the questionnaire, the analysing and presentation of data in a coherent form and the evaluation of the poverty situation in the surveyed area (as contained in Chapter 4) cannot be over emphasized.

Mr. Charles Carmichael, IICA Consultant, for his role in the coordination of the survey, the processing and analysis of the data and most of all for his major role in writing up the final report.

Mr. J. La Gra, IICA Representative, for his role in the coordination of the entire project, his technical advice and his editorial contribution.

A special thanks is due the International Fund for Agricultural Development (IFAD) for financing this project as an initial step towards the implementation of the Agricultural Support Services Programme.

LIST OF ACRONYMS

BBP	Black Bush Polder
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community Secretariat
CIDA	Canadian International Development Agency
EBD	East Bank Demerara
ECD	East Coast Demerara
EDs	Enumeration Districts
ERP	Economic Recovery Programme
GDP	Gross Domestic Product
GEC	Guyana Electricity Corporation
GOG	Government of Guyana
GRMEDA	Guyana Rice Millers and Exporters Development Association
GUYSUCO	Guyana Sugar Corporation
GMC	Guyana Marketing Corporation
HYV	High Yielding Varieties
IDB	Inter-American Development Bank
IDS	Institute of Development Studies
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IICA	Inter-American Institute for Cooperation on Agriculture
IPED	Institute of Private Enterprise Development
MMA	Mahaica-Mahaicony-Abary
MMA/ADA	Mahaica-Mahaicony-Abary/Agricultural Development Authority
MOA	Ministry of Agriculture
NDDP	National Dairy Development Programme
NDMA	National Data Management Authority
NEOCOL	National Edible Oil Company
NGMC	New Guyana Marketing Corporation
SIMAP	Social Impact Amelioration Programme
UNDP	United Nations Development Programme

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CHAPTER 1

INTRODUCTION

1.1 MAIN FEATURES OF GUYANA'S ECONOMY AND THE AGRICULTURAL SECTOR.

1.1.1 Background to Guyana's Economy

The major pillars of Guyana's economy have been the production of sugar, rice and bauxite-alumina for export. In the 1970s the Guyana government embarked on a 'command strategy', which led to the nationalization of the bauxite-alumina and sugar industries and the expansion of State's control over all sectors of the economy. These policies were accompanied by the virtual collapse of the economy and disintegration of much of its infrastructure in the early 1980s. This led to the emergence in the late 1980s of a market based Economic Recovery Programme (ERP) as part of an accommodation process with the international donor community.

1.1.2 Macroeconomic Trends and Economic Performance

Until the mid-1970s the international price of Guyana's exports was favorable, and the economy recorded an annual average growth rate of 3.6 percent over the period 1961-70. The economy subsequently stagnated in the second half of the 1970s, and recorded an annual average growth rate of 0.9 percent for the period 1971-80. In the period 1981-90 the economy continued to deteriorate recording an annual average growth rate of -3.3 percent. The decline of the economy was attributed to a combination of technical, managerial and industrial relations problems along with political interference in the 'day-to-day' management of the public sector, that evolved in the late 1970s.[1] Approximately 60 percent of the total decline in real GDP for the period 1983-90 was attributed to the poor performance of the sugar industry. Similar production declines occurred in the bauxite-alumina and rice industries. These staggering declines of capacity utilisation in the economy were compounded by the inability of the Guyana Electricity Corporation to generate adequate and reliable supplies of electricity.

The social sector has also suffered significant deterioration as a result of the government's recession - mandated domestic adjustment programme. The lack of reliable statistics makes it difficult to assess the performance of the social sector. Nonetheless several reports IDB (1990); IICA (1991); World

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1 Thomas, C.Y. (1989) "The Guyana Economy: Review and Prospect," DATAPAC, Caribbean Journal of Economics, Finance and Management, Vol.9, No.2, pp.3-8.

Bank (1993); and Thomas, (1993), have indicated the 'social debt' and postponed expectations. The health care system collapsed as result of the severe reduction in financial resources and trained manpower. These reports have pointed out increased infant mortality rates which rose from 33.5 in 1979 to 45.0 per 1,000 live births in 1990. The main cause of death among children under five years are nutritional deficiencies which are associated with the deterioration in the health and nutritional status of mothers. Thomas (1993) indicated that over 79% of pregnant women attending clinics across the country suffer from mild to moderate anemia. In the education sector there is a chronic crisis because of the lack in necessary finance required to support the education system in its present form. A number of obstacles confront the system which range from the decline in the administrative capability, poor pay and conditions of work, poor quality teaching staff and consequently the dramatic decline in the students' performance. The deterioration of infrastructure is also evident in the state of disrepair of roads. Many roads are in such a poor state that they impede the delivery of supplies to farms and have often led to the serious deterioration in the quality of farm produce. These conditions have resulted in the dramatic reduction in all of the major macroeconomic indicators of the economy as shown in **Table A.I.1** (see annex) and in the increased incidence of poverty in the society.

In addition there were sharp increases in the size of the public sector deficit and in the external indebtedness of the economy. These deficits were financed by the extensive use of external funds as shown in **Table A.I.2.** The medium and long-term external debt increased from US$406 million in 1975 to US$2063 million in 1992. Payments on these debts which stood at 17% of the earnings on merchandise exports in 1980 grew to 56.7% in 1990 (see **Table A.I.3**).

Government implementation of the ERP led to the rescheduling of US$630 million of US$1,050 million in external payment arrears at the end of 1989 under Paris Club arrangements. More importantly, the major impact of the ERP has been the stability and narrowing of the margin between the official and unofficial exchange rates in 1991. The official exchange rate declined from a period average of G$2=US$1 in 1970 to G$125=US$1 in 1992 (**Table A.I.4**).

1.1.3 The Agricultural Sector's Role In The Economy

The agricultural sector plays a major role in the economy. The contribution of Agriculture, forestry and fishing to GDP fluctuated within the range of 23 to 26 percent over the period 1970-1990. Within this sector, sugar cane cultivation plays a dominant role (**Table A.I.5**).

The Guyana Sugar Corporation (Guysuco) which controls the sugar industry, is a state owned vertically integrated operation. It is currently being administered by Booker-Tate PLC, under a management contract as part of the Guyana Government's rehabilitation programme of the industry. Guysuco owns 80% of the sugarcane fields and all of the milling operations done on eight (8) sugar estates. The Corporation employs approximately 26,000 persons or 10% of the national labour force.

In sharp contrast to the sugar industry, many of the other agricultural activities are undertaken by small-scale farmers. Rice, Guyana's second major agricultural crop, is grown mainly on an estimated 15,000 rice farms of varying sizes across the country. The difficult production conditions and the disabling socio-economic environment of the 1980s forced many rice farmers to abandon rice cultivation until 1991 when many returned to this occupation. Similar conditions also affected the non-traditional agricultural sector which supplies a variety of items to the domestic food subsector as shown in **Table A.I.6.** The agricultural sector contributes approximately 50 percent of the annual average value of all exports. (see **Table A.I.7**). The non-traditional agricultural sector, which contributes approximately 10 percent of value added in agriculture, is an area of significant productive and export potential although actual exports are insignificant (**Table A.I.8**). This non-traditional sector which is often overlooked provides essential inputs to various manufacturing activities in the economy.

Since the implementation of the ERP and its stress on traded versus non-traded goods, the incentive structure has been biased against the domestic food subsector resulting in the decline of production levels. The Ministry of Agriculture in its recent annual report (1992) has acknowledged that "... the falling off in the importance of 'other crops' was due entirely to the increasing importance of sugar and rice in total output." This underscores the continued marginalisation of the domestic food sector and the neglect of its contribution to employment, increased food security and the capability of the sector in playing a vital role in economic development.

1.2 THE COASTAL PLAINS

Guyana has four main physiographic regions: the coastal plain; the interior-hinterlands; the sloping sandy plateaus and the hilly uplands. The coastal plain is the most densely populated and over 90 percent of the population live and make their livelihood in this region. The length of the coastlands is approximately 430km extending from the North West District to the Corentyne River in Berbice. Most of the coastlands lies at a level of 0.5m to 1.0m below the sea at spring tide. A combination of mangroves, dikes, dams, sluices and concrete walls provide "protection" against the sea.

There is urgent need for the rehabilitation of the sea and river defences in the coastal regions. The total cost of complete rehabilitation is estimated to be between 200 and 300 million (US$) and perhaps even more. Emergency work which will consist of the repair of breaches, where they are most urgently needed, would cost an estimated 13 million (US$). IDB and other donors have already taken steps to provide partial funding for this purpose.

Agricultural development on the coastal plain is severely constrained by the poor drainage and irrigation system resulting from the lack of timely maintenance and inefficient management. It is estimated that there is about 480,000 ha of arable land in the coastal area. The World Bank preliminary 1991 estimates show that approximately 150,000 ha of the arable land is irrigated. There is presently in progress a number of projects aimed at rehabilitating the D&I infrastructure. Approximately 25,000 ha has been rehabilitated and another 10,000 ha was expected to be completed by the end of 1993.

Other major constraints to agricultural development have been the skewed pattern of land distribution and the nature of the land tenure arrangements. According to the 1978 Rural Farm Household Survey, which provides the latest available information on land administration and distribution, 74% of all farms are under 15 acres, occupying 14% of the total farmland. This survey also indicates that the state owns 50% of the total farmland and controls 50% of all farms through leasehold arrangements. These land leasing and share-cropping arrangements are 'footloose' and promote inefficiency, insecurity and discontent among small-scale farmers.

1.3 PHYSICAL FEATURES OF THE SURVEYED AREAS[2]

1.3.1 Background

The Inter-American Institute for Cooperation on Agriculture (IICA), with assistance from the Ministry of Agriculture (MOA), the National Data Management Authority (NDMA) and the Institute of Development Studies (IDS), at the University of Guyana, was asked to execute a Socio-Economic Survey in four (4) selected areas[3]

These four Survey areas located on the East Bank of Demerara (EBD), East Coast Demerara (ECD) - Region 4; the Mahaica-Mahaicony-Abary (MMA) Frontlands - Region 5, and the Black Bush Polder Frontlands (BBP) - Region 6, cover eighty-four (84) villages and account for approximately 79,403 acres

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2 A detailed profile of each surveyed area is found in Annex C

3 See maps of these areas in Annex B

of farmlands occupied by 10,111 farm households. These areas are located on the coastal plain and are easily accessible by the public road network which runs along the coastal plains. The farmlands in these areas are flat and bounded by the Water Conservancy in the South and the public road network on the north. Large areas of swamps can be found in each area because the coastlands are below sea level. In many instances, the swamps have extended because of consistent flooding, the result of poor drainage facilities.

1.3.2 IFAD's Mission Selection Rationale Of the Surveyed Areas[4]

IFAD has a well established association with agriculture development projects in Guyana dating back to 1978. The rationale behind IFAD's selection of the four Survey areas is based on several mission reports that observed the liberalisation of economic policies in Guyana and the special attention that is required to improve small-scale farming productivity and the living conditions of the rural population.

As such, IFAD recognises that agricultural progress depends on the removal of existing bottlenecks in the sector, and has prioritised the rehabilitation of the physical infrastructure, specifically the necessity for investment in the drainage and irrigation systems and the water supply networks.

IFAD's preliminary proposal for the rehabilitation of the drainage and irrigation system advocates a comprehensive approach that involves the participation of farmers, the government and international agencies in the design, construction and maintenance of the system. A central proposition in IFAD's proposal is that the Government of Guyana should absorb two-thirds of the required rehabilitation expenditures and international donors the remainder. On this basis it is estimated that in a five year period approximately 3,000 ha. of agricultural lands can be rehabilitated per annum. In the MMA and BBP, approximately 2,000 ha. of agricultural lands can be rehabilitated per annum to reduce the incidence of flooding and to improve farm productivity, security and investment opportunities.

1.3.3 Climate and Soil

The climate experienced in the surveyed area is typical of the coastal region of Guyana; hot with slight temperature variations throughout the year. Generally, the northeast winds from the Atlantic Ocean cool the coast which has an annual average temperature of 27°C. The riverain areas tend to be

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[4] This section of the study is based on Visser, J.H (1993): The Republic of Guyana, Agricultural Support Services Programme, Joint IDS/IFAD Identification Mission -Irrigation Engineer's Report, April.

cooler and have an annual temperature of 20°C. The coastal region traditionally has two dry and two rainy seasons. The annual average rainfall is 2,500mm.

The soils in the four Survey areas are largely a mixture of pegasse and clay. These soils require special treatment and management practices for the cultivation of high yielding food crops. They are most suited to the cultivation of sugarcane and rice.

1.3.4 Irrigation and Drainage Infrastructure

The drainage and irrigation infrastructure in the four surveyed areas are made up of an extensive network of canals. The water that flows in many secondary canals is controlled by headgates, while few control mechanisms exist in the main distribution canals that are linked to the sea/ocean via sluice gates (kokers). Many farmers access water from secondary irrigation canals through wooden boxes.

The drainage and irrigation system has suffered from the lack of adequate maintenance as a result of the poor state of public finances and weak institutions. Many sluice gates are in disrepair. Traditionally, these gates were linked to pumping stations but because of inadequate maintenance many stations have been dismantled. In addition, the secondary canals and associated drains suffer from weed infestation and siltation. The current state of drainage and irrigation infrastructure has contributed significantly to the inefficiencies in the agricultural sector in Guyana.

1.3.5 Access Roads

Each village in the surveyed areas has its own access roads which serve as a link between the main public roads and farming areas. All of these roads require some amount of rehabilitation work. Most of these access roads are located either along and/or on the embankments adjacent to the drainage and irrigation canals.

1.4 SOCIAL ASPECTS OF THE SURVEYED AREAS

1.4.1 Population: Size, Distribution and Composition

The total population of the Surveyed area is estimated at 70,169 persons of which 49.8 percent are males and 50.2 percent are females. The combined population of the EBD survey area (5,228 persons) and the ECD area (16,355 persons), both of which form part of Region 4 is approximately 10 percent of the total population of that Region.

The population of the MMA Survey area (31,102 persons) represents about 54 percent of the population of Region 5, while approximately 12 percent of the population of Region 6 (18,484 persons) resides in the BBP survey area.

The population of the surveyed area is a fairly young one, with more than 76 percent of the population under the age of 40. The potential working population accounts for about 67 percent of the population and is evenly distributed between males and females.

The farm households account for about 76 percent (53,073 persons) of the total population of the Surveyed area.

1.4.2 Economic Structure and Employment

Economic activity in the surveyed area is primarily related to agricultural production. In the ECD, MMA and BBP areas, paddy production is the dominant agricultural activity, however, paddy is not grown in the EBD area. Non-traditional crops such as coconuts, fruits, vegetables and root crops play a significant role in providing income and employment for persons in these areas.

Sugarcane production is carried out on large plantations operated by the Guyana Sugar Corporation. Private small farm sugarcane cultivation is not practiced in the Surveyed area. The sugar sub-sector provides employment for about 9 percent of the working population in the surveyed area.

Livestock production is also an economic activity of importance in the areas under consideration. Livestock activity includes cattle, sheep, goat, swine and poultry production. The MMA area has the largest concentration of cattle, cattle rearing is however an activity secondary to rice production, as a result most of the cattle are located in the marginal 'backlands'. A large sheep population is also located in the MMA area. Most of the sheep are reared around the homesteads on the frontlands.

Poultry rearing is undertaken in all of the survey areas, however this livestock activity is predominantly carried out in the EBD area.

The non-farm sector also provides employment for a large proportion of the population. In the EBD area, processing, light engineering, mechanical repairs and saw-milling are some of the principal non-agricultural activities.

The non-farm sector also contributed significantly to employment in the other areas, providing jobs in commerce, light industry, processing, furniture manufacturing, mechanical servicing and a number of other secondary and tertiary activities.

1.4.3 Social Infrastructure and Services

In the surveyed area social infrastructure and services are in need of urgent attention. Guyana's economic difficulties and the declining budget shares allocated to the social sectors (health, education, housing, etc.) during the 80's, meant that the Government was unable to maintain quality levels while fully subsidising the use of these services.

In the education sector, decline is apparent in the severely dilapidated buildings; books and equipment are either not available, broken or obsolete. The poor working conditions, coupled with low salaries, have encouraged skilled and qualified personnel to move out of the education sector.

The quality of health care provided showed a marked decline over the past decade. This deterioration has been most severe in small, urban and rural areas like those under consideration in this report. Health facilities in these areas are severely understaffed and lack even the most basic drugs and diagnostic equipment.

A more detailed study of these social needs is done in Chapter 3 of this report.

1.5 SURVEY METHODOLOGY

1.5.1 Background

The purpose of the survey was to generate information on the present land tenure situation, farming systems and practices and the social and economic well-being of farmers. The questionnaire was therefore structured in such a way as to facilitate the collection and relatively easy processing of relevant data. The questionnaire consisted of 4 sections: general; farm; crops, and social services.

Many of the questions in the questionnaire were of the multiple choice nature, where the interviewers were asked to mark the correct answers for each question, out of several options offered. Some questions required either a positive or negative answer, while others asked for specific figures, such as a monetary unit or an acreage.

The administering of the questionnaire was done with the assistance of 13 crop reporters and 5 extension workers from the Ministry of Agriculture. The activities of these interviewers were monitored by four supervisors, one for each of the surveyed areas. The field activities of the survey were coordinated by one of IICA's staff members (Cromwell Crawford) and a local consultant (Charles Carmichael).

1.5.2 Sampling

The design of the Survey required a two-step probabilistic sample. In the first step, Enumeration Districts (EDs) were selected and in the second, specific households were chosen at random within the selected EDs.

Enumeration Districts are the areas used by the Statistical Bureau of Guyana, for census and sampling purposes. In a given area all the EDs have roughly the same number of households, this was around 100 households in the areas selected for the IFAD/IICA survey.

The Statistical Bureau in a recently conducted expenditure and living standards survey had compiled a large sample of EDs from most of the coastal regions. It was therefore possible for the Statistical Bureau to provide IICA's survey team with a selection of EDs in each of the four survey areas. Complete listings of households and detailed maps were not available for all the EDs. In some instances only the number of households and rough maps showing the EDs boundaries were provided.

On the basis of the size of the population and the number of households in each survey area, the sampling experts at the Statistical Bureau recommended a sample ranging from between 700 and 760 households. The size of the samples chosen for each survey area were 100, 176, 240 and 240 households for the East Bank Demerara, East Coast Demerara, MMA and the Black Bush areas respectively, or a total of 756 households.

The selection was done in a systematic/random fashion, as follows:

(a) It was first decided how many households were to be interviewed in each ED (ranging from ten to twenty). The sampling interval for each ED was then estimated as the reverse of the sampling probability for the EDs (disregarding decimals). For instance, if an ED contained 124 households, and the purpose was to select only ten households, the sampling probability would be 10/124=0.0806, or about eight percent. The reciprocal of this probability would be 124/10 = 12.4. Thus (rounding off the fractional part) the selection interval comes to 12. This implies selecting every twelfth household on the list.

(b) Then one of the cases in the first interval was chosen as a random starting point. For instance if the selection interval was 12, a random number between 1 and 12 was selected, and the selection started there. If the chosen number was, say 5, then the selected households would be: the 5th, the 17th, the 29th, the 41st and so on, including every twelfth household in the list.

1.5.3 Expansion factors for estimation

To estimate values for the total population of households in the surveyed area, EXPANSION FACTORS were used during data processing. In essence, expansion factors are akin to the idea of the sampling interval, discussed before. An expansion factor is the reciprocal of the probability of a household to be selected, or in other terms, the odds against that household being selected. All the households interviewed in a given ED were given the same expansion factor. If a given household has one chance in 100 of being selected, the expansion factor would be 100.

Suppose a given area such as East Coast Demerara, contains N Enumeration Districts, from which a sample of n is selected; assume further that in a given ED, a total of M households exist out of which a sample of m households is effectively interviewed. The probability of selecting a given ED is n_j/N_j. The chance of selecting a given household within a selected ED is m_{ij}/M_{ij}. The expansion factor is the product of the reciprocals of these selection probabilities. For every household in the i-th Enumeration District of the j-th Sample Area, the expansion factor will be:

$$F_{ij} = \frac{N_j}{n_j} \times \frac{M_{ij}}{m_{ij}}$$

For example, if the sample for the jth area comprises 5 EDs out ofa total 30 EDs existing in the area, and in a given ith ED a sample of 10 out of 120 households was obtained, the expansion factor for all the households in that ED should be:

$$F_{ij} = \frac{30}{5} \times \frac{120}{10} = 6 \times 12 = 72$$

This implies that in this hypothetical case, each household in the sample had a chance of 1 in 72 of being selected, and thus the odds against it being selected are 72:1. Each household in the sample is in fact supposed to represent 72 households existing in the area covered by the survey.

In the computer files where the information was stored, an additional variable was entered for each household, containing the value of the corresponding expansion factor. Thus the statistical software used to classify and tabulate the results automatically expand the results to the size of the survey area instead of giving only the sample totals.

1.5.4 Data Codification, Processing and Analysis

The data collected in the questionnaires was codified before being entered into the computer for processing. Codification was simplified by the fact that the questionnaire was structured in such a manner that facilitated the direct entering of most of the data into the computer files. The codification process was therefore one of looking for inconsistencies, incompleteness, misinterpretations and where necessary assigning codes to crops and units of measurement. During the process of codification 12 questionnaires were rejected, the final sample was therefore 743 households.

The codified data was entered into Dbase files and later analysed with the aid of the SPSS Programme. The tables generated as a result of the processing of the data provided valuable information for this report.

CHAPTER 2

THE FARM

2.1 FARMLAND AND FARM SIZE

In this report farming households are defined as those where the cultivation of crops or the rearing of livestock and commercial fishing are undertaken. Households that are not involved in any of these agricultural activities are referred to as non-farm households.

Table II.1 shows the number of farm households in each of the surveyed areas and the land area occupied by these households. The total farm land of 79,403.5 acres accounts for about 98 percent of the total land in the surveyed area. This is approximately 7 percent of the farm land in the coastal areas of Guyana.

Approximately 78 percent of the farm land in the surveyed area is occupied by farms 10 acres and more in area, while only 2.2 percent is occupied by farms under 0.5 acres, **Table A.II.1** (see annex). An analysis of **Table A.II.2** reveals that approximately 15 percent of the total number of farms surveyed are in the farm size group of 10 acres and more, while about 44 percent are under 0.5 acres in area. This in fact shows that there is an obvious disproportion in the distribution of farmland with just about 15 percent of the farms utilizing almost 80% of the available farmland.

In the EBD surveyed area this disproportion is even more obvious, here approximately 56 percent of the farms (mainly small farms under 0.5 acres) occupy less than 2 percent of the farmland. This farm size and land distribution pattern has been largely influenced by the colonial state policy which restricted the size and number of plots owned by former slaves and indentured workers. The agricultural policy pursued during the post independence period did not effectively restructure the land distribution system, thus the dual structure of a few large farms/plantations and numerous small farms is still predominant.

This disproportion emphasizes the need for a land reform policy that would make more land available to the relatively large number of small farmers. This inequality in the distribution of farm land, significantly contributes to the incidence of poverty in rural communities.

Table II.1: Total land area, area occupied by farms and farm households

Survey Areas	FARM HOUSEHOLDS		TOTAL LAND AREA (Acres)		AREA OCCUPIED BY FARMS (Acres)	
	No.	%	No.	%	No.	%
EBD	502	5.0	5006.6	6.2	4821.3	6.0
ECD	2399	23.6	10735.3	13.3	10617.2	13.4
MMA	4058	40.2	35460.4	44.0	34621.0	43.6
BBP	3152	31.2	29478.0	36.5	29344.0	37.0
Total	10111	100.0	80680.3	100.0	79403.5	100.0

2.2 LAND TENURE

Basically four types of tenure modes are identified in the Surveyed area:

1) freeholds;
2) private leaseholds;
3) government leaseholds; and
4) squatter occupied lands.

Freeholds refer to lands owned by individuals who hold title deeds to the properties. Private leaseholds are those lands leased from private land owners. Government leaseholds are of three types:

a) State lands formerly owned by the Crown and which can be leased out for a period up to 25 years.

b) Government lands which are governed by the Land Department Act Ch. 59:01, and provides for leases up to 20 years.

c) MMA/ADA Lands governed by the MMA/ADA Act and provides for leases up to 2 years.

Table II.2 shows the distribution of farm land by tenure modes for the surveyed areas.

Freeholds accounts for 33.2 percent of the farmland in the entire surveyed area (26,370 acres). This type of land ownership is the predominant type in the EBD area, where about 73 percent of the farmland is freehold. In the other areas the percentage of freeholds are closer to the average for the entire surveyed area.

Approximately 65 percent of the farmland is Government leaseholds some of which are squatter occupied lands. Some 48 percent of this land is located in the MMA area, where the MMA/ADA Government land development scheme has greatly improved drainage and irrigation, access dams and roads.

Table II.2: The distribution of freehold, private leasehold and government leaseholds and squatter occupied lands

Surveyed Areas	TOTAL AREA OCCUPIED BY FARMS	TENURE MODES						TOTAL
		Freehold		Private leasehold		Govt. leaseholds & squatter occupied lands		
	acres	acres	%	acres	%	acres	%	%
EBD	4821.3	3523.8	73.1	0.0	0.0	1297.5	26.9	100.0
ECD	10617.2	3805.8	35.8	199.0	1.9	6612.4	62.3	100.0
MMA	34621.0	8590.7	24.8	1270.4	3.7	24759.9	71.5	100.0
BBP	29344.0	10449.8	35.6	130.0	0.4	18764.3	64.0	100.0
Total	79403.5	26370.0	33.2	1599.4	2.0	51434.1	64.8	100.0

Private leaseholds are not so common in the surveyed area and accounts for only 2 percent of the farm lands. A possible explanation for this may be the fact that private leases are relatively costly as compared with Government leases[5]. The generally poor functioning of agricultural support services, particularly drainage and irrigation, increases the risk of low farm productivity or in some instances the total crop loss. Faced with such uncertainty many farmers are unwilling to lease land for high rental rates. The EBD area is a typical example of this situation. No case of private leasehold was identified in this area during the survey. Properly functioning drainage and irrigation facilities in this area are almost non-existent, as a result many areas are constantly flooded. Many of the farmers interviewed recalled having used private leaseholds for farming in the past, but with the deterioration of the drainage and irrigation system and increased crop losses caused by flooding, this practice was abandoned.

[5] Rental rates for private leaseholds may vary from about $2000-$3500 (Guy) per acre per annum while rental rates for Government leases are less than $10 per acre per annum.

2.3 LAND USE

The land use pattern identified in the surveyed area is a function of a number of factors: climate, soil type, topography, culture and the state of drainage and irrigation infrastructure.

2.3.1 Paddy

A study of **Table II.3**, which shows the land use structure in the surveyed area reveals that rice is cultivated on about 40 percent of the total farm land. The MMA and ECD are the major rice producing areas and together account for about 85 percent of the acreage under paddy fields.

Climatic conditions along the coast are ideal for rice production. The bimodal pattern of rainfall enables the production of two crops per year.

The marine clay soil found on the low coastal areas is quite suitable for wet (lowland) rice production. The clayey structure of the soil enables water to be retained on the land surface during the early periods of the planting season.

Table II.3: Total acreage and percentage in each land use by surveyed areas

Land use	EBD		ECD		MMA		BBP		TOTAL	
	acres	%	acres	%	acres	%	acres	%	acres	%
Paddy fields	0.0	0.0	5061.7	47.7	22123.8	63.9	4679.9	15.9	31,865.4	40.1
Other crops	921.2	19.1	3517.5	33.1	2458.2	7.1	2992.1	10.2	9,889.0	12.5
Fallow land	2804.5	58.2	876.0	8.3	1581.0	4.6	18749.0	63.9	24,010.5	30.2
Planted pasture	320.0	6.6	33.0	0.3	4.0	0.0	247.0	0.8	604.0	0.8
Natural pasture	0.0	0.0	29.0	0.3	5150.0	14.9	1279.0	4.4	6,458.0	8.1
Non-agricultural land	521.6	10.8	163.0	1.5	2129.0	6.1	201.0	0.7	3,014.6	3.8
Homestead	254.0	5.3	937.0	8.8	1175.0	3.4	1197.0	4.1	3,563.0	4.5
Total	4821.3	100.0	10617.2	100.0	34621.0	100.0	29345.0	100.0	79,404.5	100.0

Proper drainage and irrigation facilities are vital for successful rice cultivation. The D&I infrastructure in the ECD and MMA areas are relatively better than in the other areas (see **Table II.4**), thus contributing to the suitability of these areas for rice production.

No rice is presently being cultivated in the EBD area. This area, though not completely suited for rice production, previously contributed to rice production in Guyana. However with the deterioration of D&I services the production of this crop was phased out. Another factor that weighed against rice production in the EBD area is that paddy fields in these riverain areas were susceptible to the occurrence of 'Blast' (Pyricularia Oryzae). The relatively high atmospheric humidity in these areas is conducive to the spread of this fungal disease.

The average size of paddy fields for the entire surveyed area is 23.3 acres (**Table A.II.3**). The average size of paddy field for specific areas however ranged from 10.1 acres in BBP to 42.8 acres in the MMA/ADA areas. The previous restriction of 30 acres on the size of plots in the MMA Land Development Scheme has now been removed, providing an explanation for the relatively larger paddy fields in this area.

2.3.2 Other Crops

'Other Crops', which includes vegetables, fruits, legumes and root crops are grown in all the surveyed areas. The EBD and ECD areas both significantly contribute to the production of these crops. Some 19 and 33 percent of the respective farmlands in these areas are used for the cultivation of non-traditional crops (**Table II.3**). The EBD area previously made a greater contribution to the production of these crops, particularly root crops, however with the increased flooding in this area the quality and quantity of agricultural produce grown here were greatly reduced.

The average size of 'Other Crops' farms in the EBD is 3.7 acres and 4.4 acres in the ECD area. This is well above the overall average of 1.8 acres for the entire surveyed area. (see **Table A.II.3 in annex**).

2.3.3 Fallow Land

Approximately 30.2 percent of the farmland in the surveyed area is fallow land. In the survey, fallow land was defined as land which was not cultivated but which has previously been used for production and would probably be used in the future.

The BBP and EBD areas together accounts for about 90 percent of the fallow land. Some 18,749 acres of farmland in the BBP is fallow. This is more than twice the area of land presently used for crop production in these areas (see **Table II.3**). In the past, the BBP frontlands played a significant role in rice production, however poor maintenance and management of the D&I infrastructure contributed to the flooding and the creation of swamps in many parts of the low coastal frontlands. In many

areas the salty sea water has caused the further deterioration of the quality of soil, requiring melioration measures to be undertaken before this land can again be used for agricultural production.

2.3.4 Planted Pastures

Efforts are being made by the National Dairy Development Program (NDDP), the Caribbean Agricultural Research and Development Institute (CARDI), and the Inter-American Institute for Cooperation on Agriculture (IICA) to promote the use of the Antelope grass in the coastal areas, as part of the drive to improve livestock production. Antelope grass is ideally suitable for the soil and climatic conditions of the coastal regions.

Planted or improved pastures occupied 0.8 percent of the total farmland (**Table II.3**). A possible explanation for the low occurrence of improved pastures on these frontland coastal areas is the fact that most of the cattle found in these regions are grazed on the marginal quality 'backlands' while the frontlands are used for crop production.

2.4 DRAINAGE AND IRRIGATION

It is widely recognised that the deteriorating state of Drainage and Irrigation Systems in Guyana represents one of the major barriers to increased agricultural production in the coastal areas.

Table II.4: State of drainage and irrigation infrastructure in the surveyed area by number of farms showing varying conditions of D&I infrastructure (%)

	EBD	ECD	MMA	BBP	TOTAL
Drainage system					
- working properly	3.2	11.4	29.0	2.5	15.4
- not working properly	38.2	46.4	50.1	55.6	50.4
- not working	38.5	33.0	11.3	36.5	25.5
- non-existing	20.1	9.2	9.6	5.4	8.7
Total	100.0	100.0	100.0	100.0	100.0
Irrigation system					
- working properly	1.4	18.3	14.8	2.9	11.3
- not working properly	28.5	42.1	16.0	54.6	34.7
- not working	15.7	26.6	6.2	37.1	21.1
- non-existing	54.4	13.0	63.0	5.4	32.9
Total	100.0	100.0	100.0	100.0	100.0

Table II.4 shows the state of D&I infrastructure in the surveyed areas. The number of farms reporting the proper functioning of the drainage system varies from 2.5 percent in the BBP area to 29 percent in the MMA area, an overall average of 15.4 percent for the entire surveyed area. The Irrigation system is even less reliable with only 11.3 percent of the farms reporting functioning systems. The state of Irrigation is particularly serious in the EBD area where only 1.4 percent of the farms have an irrigation system that functions properly.

The condition of the Drainage and Irrigation System in the MMA area is relatively better than in the other areas. However a number of problems hinder the efficient performance of the D&I System. These are:

- an irregular and poor quality maintenance program;
- improper management resulting from the lack of competent staff;
- the non-payment of D&I rates by farmers;
- damage by cattle and other livestock;
- the proliferation of aquatic weeds in canals; and
- increased water loss through increased evapo-transpiration.

The survey generated information about the likely response of farmers to improved Drainage and Irrigation facilities, this is shown in **Table A.II.4.** (in Annex). A large percentage of the farmers from each area expressed a desire to expand the area of land under crop production. An equally large number of farmers considered improved D&I as a means of obtaining more harvests per year. However, a relatively small percentage (under 6 percent) regarded the expansion or improvement of pastures as a favourable option. These were mainly the owners of large farms (above 10 acres).

2.5 ON-FARM PRODUCTION

Agricultural production is the single most important sector of Guyana's economy. Agricultural products accounted for about 35 percent of GDP, 51 percent of total exports (including non-factor services) and employed about 30 percent of the working population in 1992.

Sugar and rice are the most important crops cultivated in terms of area, value of production and contribution to export earnings.

Most sugarcane production is currently under the parastatal GUYSUCO (Guyana Sugar Corporation) which since 1991 has been run under a private sector management contract with Booker Tate.

Sugarcane production is generally organized in large scale units. The target group in this study is the small farmer, very few of whom are involved in sugarcane production. Consequently, even though this crop is considered to be the single most important agricultural crop, considering its contribution to GDP and total exports, production of this product does not receive protracted attention in this report.

It should however be mentioned that the sugar sub-sector employs about 30 percent of the working population engaged in agriculture and as such has an important socio-economic impact on the population in rural communities. This aspect of the sugar sub-sector would be discussed later in this report.

2.5.1 Paddy Production

With the adoption of the Economic Recovery Program in 1988 the Government of Guyana began to implement the measures needed to reverse the stagnation and decline that characterized the rice sub-sector during the preceding decade. Rice prices were raised substantially in 1989 and all price controls were removed in 1991. These changes triggered a 46 percent increase in the area harvested and a 60 percent increase in output for the period 1990-1991.

2.5.1.1 *Production Technology*

The rice sub-sector is largely dominated by the small farmer, with about 70 percent of paddy farmers utilizing plots under 15 acres in area.

Paddy production technology is similar throughout the surveyed area, except on some very large holdings where aerial planting and spraying is carried out.

Farmers in general prepare the land by tractor and harvesting is done with combines. The use of these machines are often provided on a hired basis, and often might not be available to farmers when required, with resulting negative effects on production. **Table A.II.5** in the annex shows the total number of tractors and combines, per survey area, in relation to acreage for the surveyed area.

The use of fertilizer and other agrochemicals is widespread. These inputs are not produced in Guyana and are therefore imported. The resulting foreign exchange component of production cost is therefore relatively high. Farmers as a result, may use less than the optimum dosage of these inputs, which may consequently be reflected in lower yields.

High cost and low returns in paddy production have probably been responsible for the emergence of a form of 'share cropping' in many areas. Small farmers unable to meet production costs themselves would rent out their land to larger farmers in return for cash or a few bags of paddy. The survey did not generate the data required to assess the extent of this practice.

Despite the high input component, paddy production in Guyana has a comparative advantage. For a small farmer, hiring machinery, per acre cost of production for the first crop in 1993 was the equivalent of US$400 per hectare. Irrigated rice production cost in some Latin American countries range from US$600-US$800.[6]

Several varieties of paddy seeds are used in the surveyed area (Rustic, Diwani and Guyana 91). The Rustic variety was introduced in Guyana in the early 1970's and is most widely used. The average yield of this variety for the first crop in 1993 was 22.6 bags per acre. The variety Guyana 91 which was introduced by the National Agricultural Research Institute in 1991, produced an average yield of 27.8 bags per acre for the same crop. The use of this variety was however not widespread.

2.5.1.2 *Productivity and Problems of Production*[6]

Even though Guyana has a comparative advantage in paddy production, low productivity almost completely offsets this advantage. The average yield of 3.5 MT/ha (22.2 bags per acre) is well below the regional average of 5-6 MT/ha.

The more modern production systems operated by the larger producers achieved an average production of 4.5MT/ha for the 1993 first crop.

The importance of productivity and paddy quality can be illustrated by comparing the average net returns earned by small and large farmers for the first crop in 1993.

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[6] Rice in Guyana - Present Situation and Future Policy - Prepared by R. Stringfellow. (Extensive reference is made from this document in this section of the report)

Assuming that the average cost of production was G$20,000 per acre (US$400 per hectare) and an average yield of 22.2 bags of C grade paddy per acre was obtained from the small farms, priced at $950 (Guy) a bag. Net return per acre would have been $1090 (Guy), almost 5.5 percent of total cost.

Larger more efficient producers obtained an average yield of 29 bags of Grade A paddy, which carried a price of $1,150 (Guy) per bag. These farms would have generated net returns of $13,350 (Guy) per acre, which is approximately 67 percent of the assumed average cost of production.

Paddy production in the surveyed area is generally inefficient and the quality of rice produced is relatively low. Some of the reasons for this are explored below:

1) At present a significant amount of the rice produced contains a high proportion of red rice. Red rice is actually a wild variety of rice which can be introduced into the fields through contaminated seeds. This low quality rice does not conform to international trading standards.

2) The lack of new varieties in recent years has meant that pest and disease control have become more difficult. This has had an impact both on paddy yields and quality.

3) Paddy production is very sensitive to the correct timing of operations which is dependent on the availability of the required machinery. Given the highly mechanised nature of rice production in Guyana, farmers who own their own equipment are able to plan operations at the optimal time, but those small farmers dependent on others are in a much more vulnerable position, which is reflected in lower productivity.

4) Efficient water control is essential for successful paddy production. In many parts of the surveyed area the D&I system is in a poor state (see **Table II.4**), as a result, efficiency of water use is low and yields are severely affected.

5) Most small rice farmers have difficulties obtaining credit from financial institutions as a source of working capital. This is primarily because most banks do not accept short term leaseholds (25 years and less) as a form of collateral security.

Many small farmers are therefore dependent on payment from one crop to finance the planting of the following one. It is sometimes possible for the miller to advance the inputs the farmer needs. Without this arrangement and where millers are slow to make payments, the farmers face a serious cash flow problem, which may prevent them planting a second crop.

2.5.1.3 *Milling and Marketing of Rice*[7]

A recently completed survey undertaken by the Guyana Rice Millers and Exporters Association (GRMEDA), with the support of the Ministry of Agriculture, established that there are 75 rice mills presently in operation in the coastal regions, with a total milling capacity of 161 tons per hour.

Information related to the exact number and distribution of rice mills in the surveyed area was not generated in this survey. However, it is known that a number of rice mills are located in the ECD, MMA and BBP areas. Most of the rice farmers in these areas sell their paddy to millers, who grade, dry and mill the paddy. The majority of the mills are small, with a capacity of 1 ton or less. There are however a few large mills with a capacity of 5-10 tons.

Only the larger mills are able to produce rice of exportable quality. Quality standards are particularly high for the European market which allows only a small percentage of broken rice grains. The bigger mills use sorters to take out broken rice grain and a few have electronic colour sorters which can take out red and discoloured grains.

The larger mills also have better storage and mechanised drying facilities which allow for more efficient use of milling capacity and ensure a higher quality product.

Smaller mills have to rely on solar drying; some farmers even resort to drying paddy on the main public road. These methods of drying are unreliable, given the unpredictable nature of the weather in Guyana, and more often than not result in a poor quality end product.

Domestic consumption of rice is estimated to be around 50,000 MT/ per annum. It is generally the lower quality rice, which is unsuitable for export, that is sold on the local market. It was previously mentioned that Guyana has a competitive advantage in rice production. This advantage is however eroded by poor quality and the high transport, storage-loading and freight costs, incurred while exporting rice abroad. In addition to these difficulties, Guyana is presently facing competition in its protected

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7 Rice in Guyana - Present Situation and Future Policy, Prepared by R. Stringfellow. (Extensive reference is made from this document in this section of the report)

CARICOM market. U.S.A. rice exported to Jamaica under the PL480 Programme is undermining Guyana's rice exports to that CARICOM country. The Jamaican market is of particular importance to Guyanese exporters, and the Guyana Government must therefore make all possible efforts to keep this market open.

2.5.2 Other Crops

The 'other crops' grown in the Surveyed area can be classified into seven broad categories:

GROUND PROVISIONS		All root crops such as eddoes, yams, sweet potatoes and cassava.
VEGETABLES	-	Bora, pak choy, boulanger, cabbage, ochro, squash, pumpkin, cucumber, tomatoes, watermelons, etc.
FRUITS	-	Limes, oranges, grapefruits (citrus), mangoes, bananas, pineapples, sapodilla, breadnut, starapple, genip and others.
SEASONING	-	Eschallot, chives, celery, peppers, etc.
EDIBLE OIL CROPS	-	Coconuts.
GRAIN LEGUMES	-	Blackeye peas, minica and others.
GRAINS	-	Corn.

These crops are grown on about 13 percent of the farmland in the Surveyed area, (**Table II.3**). Generally speaking the structure of farming in 'other crops' is characterized by three types of involvements: small farmers, government enterprises and development projects. In the surveyed area it is the small farmer that is primarily involved in 'other crops' production. Small farmers with less than 10 acres of land produce almost all of the fruits, vegetables, legumes and ground provisions grown in the surveyed area.

Coconut palms are generally grown on large plantations or estates. Approximately 10 percent of the farms in the surveyed area are involved in coconut cultivation. These are mainly the farms in the coastal areas, (ECD, MMA and BBP).

Ground provisions are most widely grown in the EBD than in any other area. This is probably due to the fact that pegasse soil found in this area has a lighter, more appropriate structure than the marine clayey soil found on the coastal areas.

The EBD area has a large concentration of Afro-Guyanese. Ground provisions are known to be closely associated with African culture and cuisine, and is widely used in this area. There seems therefore, to be some relationship between cultural practices and the cultivation of ground provisions in the EBD area. This area is also the closest to the principal market of Georgetown.

'Backyard' cultivation of 'other crops' is practised in all the areas. Most of the farm households have at least one coconut palm and some fruit trees (cherries, genips, mangoes, citrus, sapodilla or bananas. A wide variety of vegetables such as bora, boulanger, ochro and pumpkins is also grown in the kitchen gardens. The produce of these gardens is intended primarily for household consumption, with surplus being sold or given to relatives and neighbours.

2.5.2.1 *Production Technology*

In contrast to paddy production, most 'other crops' are cultivated under traditional practices. The use of mechanization is quite limited. Land preparation is done with traditional gardening tools, (shovels, forks, hoes, etc.). A minimum quantity of agrochemicals is used, mainly for vegetable production, (see Annex **Table A.II.6**). It has been estimated that less than 10 percent of the fertilizers imported is used in the production of 'other crops'.

The lack of adequate and reliable extension services means that many farmers do not get the required technical advice on crop management. As a result, agrochemicals are very often used incorrectly.

Farmers also do not have access to the planting material and appropriate seeds necessary for high yields of quality produce.

Most farmers do not give adequate attention to harvesting and post harvest handling of produce. Harvesting methods are generally traditional. Fruits are picked with a flexible pole, by hand or by shaking the tree. Ground provisions are dug up with a shovel or fork. Speed and lack of concern in applying these harvesting practices invariably result in damage to the crops. Poor post harvest handling also contributes to damage and losses, particularly the poor quality packaging material used and the shocks, vibration and delays caused by the poor quality of farm roads.

2.5.2.2 *Productivity and problems of production*

In all of the surveyed areas yields of 'other crops' are particularly low. **Table II.5 and Table A.II.7** show the average yield per acre for selected crops grown in the surveyed area. These yields are low when compared with yields of 'other crops' in other developing countries, based on the research of the International Food Policy Research Institute (IFPRI). Average yields for vegetables are higher in other countries in Latin America where High Yielding Varieties (HYV's) have been adopted. Guatemala, for example, has adopted certain HYV's for vegetables and fruits and has shown better yields than in Guyana, about 4.0 ton per acre. Yields of about 0.5 tons per acre is obtained for corn grown in Guyana, whereas in Punjab India, yield on the more efficient farms are around 2.5 tons per acre and in Zaire average yields are around 1.1 tons per acre. The average yield of root crops in the surveyed area is estimated at approximately 3.5 tons per acre. In many developing countries, such as Ghana and Zaire, where HYV's are used, yields of about 5.0 tons per acre are achieved.

Table II.5: Average yield of selected 'other crops' in Surveyed area.

CROPS	AVERAGE YIELD PER ACRE (TONS)
Coconuts*	3000
Corn	0.5
Grain Legumes	0.4
Peanuts	0.6
Root Crops	3.5
Plantains	4.0
Citrus	5.0
Pineapple	4.5
Other Fruits	2.7
Vegetables	2.3

* Coconut yield is given in number of nuts per acre

The use of poor quality planting material combined with inadequate crop management practices, including harvesting and post harvest handling, seems to be the major factors contributing to the low productivity of 'other crops'.

The problem of poor planting material arises for a number of reasons, namely:

- nursery propagators are poorly trained;
- the inability of Government nurseries to meet the farmers demand for planting material of fruit crops of high quality;
- poor quality germplasm, (especially for fruits), due to a deteriorated collection, lack of knowledge of the characteristics of germplasm, and non-resistance to pest and diseases;
- good quality legume and vegetable seeds are not available in the required amounts.

Inadequate crop management practices are primarily due to:

- low efficiency of the Research-Validation-Extension-Information System;
- the lack of trained extension workers;
- agricultural inputs (chemicals, spare parts, equipment, etc.) not being readily available in production areas;
- inaccessibility to agriculture credit;
- low level of mechanization, and dependency on manual labour.

Apart from the above mentioned constraints to production, the 'other crops' sub-sector is also affected by the high risk of crop losses from praedial larceny. In the coastal areas (ECD, MMA and BBP) coconut production is particularly affected by this problem. A number of farmers reported the complete loss of the crop as a result of larceny. Many farmers in an effort to save part of their crop would harvest the coconuts before they are fully mature. These 'young' coconuts do not make the best copra, and it requires 3-4 nuts to make one pound of copra, whereas 2 'bone dry' or mature nuts can produce one pound of copra.

2.5.2.3 *Marketing of 'Other Crops'*

The 'other crops' produced in the surveyed area, are marketed through a number of channels. **Table A.II.8** shows the main buyers of selected 'other crops' in the surveyed area. A large proportion of the produce from these areas are bought by hucksters or middlemen, who in turn would retail it in the populated centers (Georgetown and New Amsterdam).

Many farmers have stalls in the local market or close to their homestead, where produce is sold directly to the consumer. The prices of 'other crops' are decontrolled and determined primarily by the supply and demand situation.

On small farms, with a few fruit trees such as genip, mangoes and cherries, there is the practice of agreeing with hucksters to 'rent a tree'. This means that the hucksters would pay a sum of money for the entire fruit crop of a particular tree or number of trees. They would then be able to harvest the fruits from time to time for the agreed period.

Until 1985 the Guyana Marketing Corporation (GMC) was responsible for purchasing 'Other Crops'. The GMC functioned as the market of last resort. However, due to the poor handling of products, the varying levels of quality and the lack of processing and transport facilities, losses for the GMC were great. In 1986 the 'New" Guyana Marketing Corporation was established to provide market facilitating services for producers of non-traditional or 'Other Crops'. The functions of the NGMC includes market information and intelligence, technology transfer and a commercial unit to provide one stop customs documentation for exporters of 'Other Crops'. It does not purchase or handle produce.

Table A.II.9 provides us with information on the main marketing problems facing 'other crops' producers. Four specific problems are identified, inadequate prices; payment delays; expensive transport; and market gluts with the percentage of producers reporting each problem.

Agro-processing is not a significant activity in the surveyed area and is limited to the small scale production of jams, jellies, peanut butter, coconut oil, cassareep, starch and various pickles and conserved fruits and vegetables.

Edible coconut oil is produced by two large processors in Guyana, the National Edible Oil Company (NEOCOL) and Resaul Maraj Company. It is interesting to note that even though the coastal areas of the surveyed area, particularly the BBP area, accounts for most of the coconut producing land on the coast, only a small percentage of the copra produced in these areas is sold to the two large edible oil producers. NEOCOL presently operates at less than half of its capacity and 85 percent of the copra processed at this factory comes from the Pomeroon area.

The main reason why coastal farmers are not selling their copra to NEOCOL is because the price offered is not an attractive one. The high incidence of praedial larceny forces farmers to harvest coconuts before they are fully mature. As compared with the Pomeroon farmers, where 'bone dry' mature nuts are produced, it costs the farmers in the surveyed area more to produce one pound of copra. This disadvantage is further enhanced by the fact that copra from the Pomeroon is normally shipped to the factory at a lower transport cost, while copra produced in the coastal areas would have to be transported overland, at a greater cost. Consequently, most coconut producers in the surveyed area find it more economical to produce a crude coconut oil, for which there is a local demand, and utilize the residual material, as livestock feed.

2.5.3 Livestock Production

Livestock production is an important agricultural activity in the surveyed area, making a significant contribution to the dietary requirements and income of the population. **Table II.6 and Fig. II.1** show the distribution of the livestock population.

Table II.6: Distribution of livestock population in surveyed area

Live-stock	EBD		ECD		MMA		BBP		TOTAL	
	no.	%	no.	%	no.	%	no.	%	no.	%
Cattle	1,612	4.3	3,259	8.5	18,835	49.7	14,216	37.5	37,922	100.0
Swine	88	0.7	2,247	19.1	3,104	26.4	6,340	53.8	11,779	100.0
Sheep	32	0.1	2,070	6.2	21,776	64.6	9,814	29.1	33,692	100.0
Goats	116	0.8	1,901	12.9	9,310	63.3	3,382	23.0	14,709	100.0
Equine	16	0.6	371	13.8	743	27.6	1,558	58.0	2,688	100.0
Chicken	44,454	42.5	28,490	27.2	29,016	27.7	2,771	2.6	104,731	100.0
Other poultry	9,023	9.0	16,213	16.1	26,559	26.4	48,784	48.5	100,579	100.0

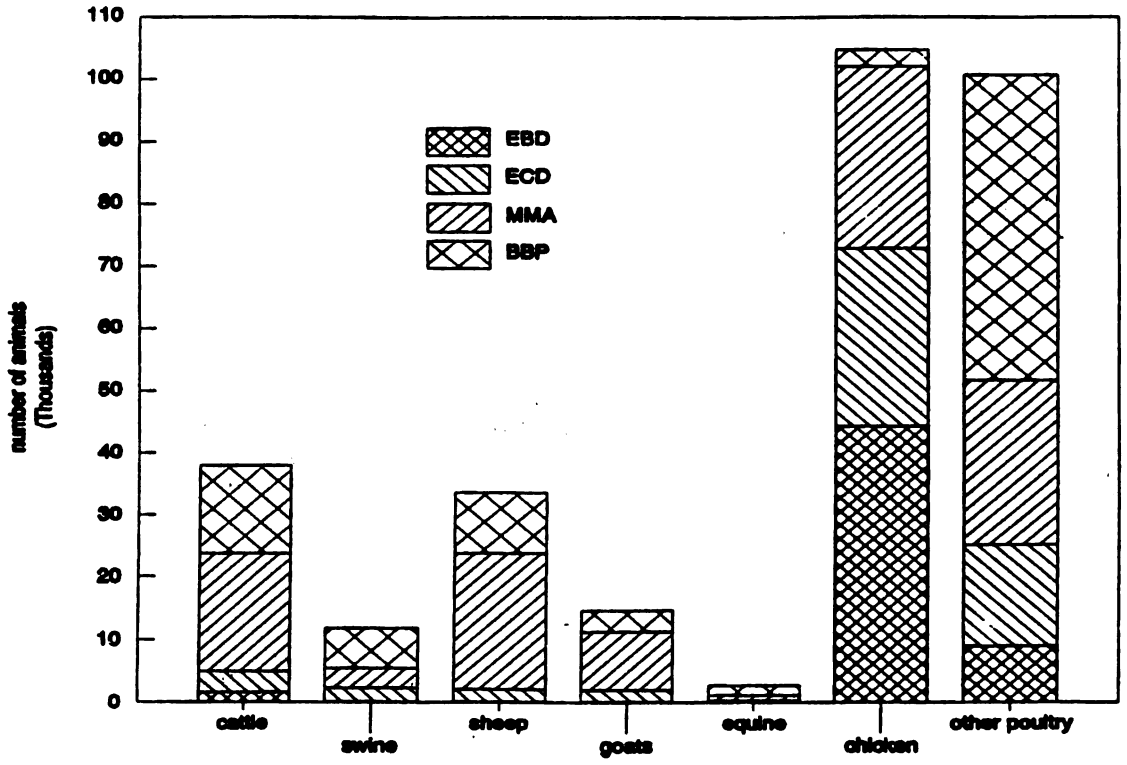

Figure II.1: Total number of cattle, swine, sheep, goats, equine, chicken and other poultry in the four surveyed areas

Cattle production is the most important livestock activity in the surveyed area. Cattle are reared both for beef and milk production. There is, however, no strict classification of animals as beef or dairy type. Some 50 percent of the cattle population (18,835 heads) are concentrated in the MMA survey area. This area forms part of Region 5 which is in fact the Region with the largest cattle population in Guyana, (approximately 110,000 heads). Most of the cattle in this region are kept in the 'backlands'. The survey was conducted on the MMA frontlands where the cattle population is smaller.

The BBP area is also a major cattle producing area. Region 6, of which the BBP frontlands is a part, was once the Region with the largest cattle population, however information from the 1993 Cattle and Milk Production Survey shows that this area now ranks second.

Almost 65 percent of the sheep population is located in the MMA area. In contrast to cattle, sheep are reared primarily on the frontlands, closer to the farmers' homesteads. Sheep production in this region has benefitted significantly from CARDI's CIDA sponsored "Sheep Production and Marketing Project". In this and most of the other areas it is the Barbados Black Belly, and the 'Corentyne white' breeds of sheep that predominate.

The BBP area is also noted for sheep production. This area has a large Indo-Guyanese population for whom mutton is an important ingredient of dishes used during festivals. The 'Corentyne white' breed of sheep is found widely in this area.

Swine production is given relatively less attention. Due to cultural bias, pork meat constitutes a relatively small portion of the total meat consumption in Guyana. The BBP area has the largest concentration of swine (53.8 percent). Pigs are reared mainly in the households of persons of Afro-Guyanese descent. The MMA and ECD areas also contribute significantly to the swine population. Some 26 and 19 percent of the swine population is found in these respective areas.

Chicken production is a livestock activity of great significance in the EBD area. Over 42 percent of the chickens in the surveyed areas are found here. The MMA and the ECD areas also make a noticeable contribution to chicken production with about 54 percent of the chicken population evenly divided between these two areas.

The BBP area is more associated with the production of ducks (other poultry) than chicken. Creole duck meat is popular in the Indo-Guyanese communities in this area. About 49 percent of other poultry is found here.

Tables A.II.10, A.II.11 and B.1.6 in annex provide further information about the distribution of livestock by farm size and the average number of livestock on farms of varying sizes. In the MMA and BBP areas, which together accounts for about 88 percent of the cattle population in the surveyed area, most of the cattle are reared on farms of 10 acres and above, while the average number of cattle on these farms varied form 31 heads in the BBP to 57 heads in the MMA area.

The available information in the tables shows that in general sheep production is not carried out predominantly by any particular farm size group. In each of the surveyed areas production is dominated by a different farm size group. In the ECD, 56 percent of sheep are found on farms of 0.5-9.9 acres; in the MMA area it is the farms of under 0.5 acres that are most active in sheep production (59%), while in the BBP area it is on farms of 10 acres and above that approximately 65 percent of the sheep are found.

This pattern of distribution is probably explained by the fact that sheep rearing is not generally associated with land ownership. On farms of under 0.5 acre, sheep are reared in pens close to the homesteads, and grazed on communal pastures, and along the dams and trenches ('lego system'). It is interesting to note that in the MMA area the average number of sheep reared on these farms is 62 heads. This relatively large number of sheep, owned by 'landless' livestock farmers, poses a problem to crop farmers and large cattle farmers with land, since the sheep normally roam and graze on lands belonging to these farmers. This problem is particularly enhanced by the lack of communal pastures in this area.

Swine are predominantly reared on farms of 0.5-9.9 acres. The average size herd in this farm size group is about 13 animals. This includes 2 or 3 breeding sows, piglets and gilts.

Chicken production is primarily a large scale business activity in the EBD area. The average number of birds on large farms was about 1,008. In most of the other areas chicken production is conducted mainly for home consumption, and probably occasionally for sale in the local market. The number of birds on farms in these areas varies from 17 (ECD) to 27 (MMA) per farm.

2.5.3.1 Organization of Farm Production

Generally speaking, livestock production systems in the surveyed areas are extensive in nature, based on very low levels of farm inputs, management and capital. Livestock production is generally undertaken by farmers who alternate between crop and livestock farming according to the season and economic and other market conditions.

Cattle

The cattle reared in the surveyed area are dual purpose animals used for both milk and beef production. On most of the farms production is characterized by:

- poor genetic quality of animals;
- little or no attention given to animal health and herd management;
- the lack of improved pastures;
- inadequate supplementary feeding;
- low levels of investment in infrastructure and equipment;

- low productivity, and

- little or no record keeping.

Production systems are generally extensive, with animals grazing on the embankments along canals and roads, communal lands, or on the rice stubbles in harvested paddy fields.

Table A.II.12 in the annex provides information on grazing and feeding practices in the surveyed area.

Artificial insemination is used occasionally, when available, however it is the natural method of fertilization that is most widely used.

Animals are milked once or twice daily, depending on the season of the year. Animals kept close to the homesteads are kept in stalls and corrals. On a number of larger farms animals are left to roam on the natural pastures and fallow lands.

A form of intensive production is practiced on a few farms in the surveyed area. On these farms better health and farm management measures are employed. Animals may be grazed on improved pastures and supplementary feed comprising of rice bran, wheat middling and molasses is given to animals. The quality of the herd is generally better, and there is some amount of genetic differentiation between milk and beef animals. Production levels on these farms are relatively better. A few such farms are located in the MMA survey area.

Sheep and Goat

Sheep and goat rearing systems are traditionally low input extensive systems. Animals are left to graze on communal lands, and roadsides and receive little or no veterinary care. Housing is provided more out of a precaution against larceny than as a critical input for improved husbandry. The CARDI/CIDA Project in the MMA area has helped farmers in that area to understand the need to improve the sheep rearing system. Farmers are taught to construct sheep pens from indigenous materials. Most of these pens have elevated floors, which would help to reduce the incidence of foot rot, a problem in the coastal region. The 'Cut and Carry' System of pasture utilization is also used as a part of the system. Many farmers are keen to employ the newly proposed methods of sheep rearing, and it is hoped that the success of sheep rearing in this Region would be transferred to other Regions.

Swine

In most of the surveyed area, swine production is a 'backyard' activity, with animals being reared close to homestead. Animals forage for feed and are fed household waste and by-products.

In most of the coconut producing areas, there is a large swine population. This is so mainly because farmers find it economical to fatten pigs on the residual material from crude coconut oil production.

Poultry

Two basic systems of poultry production are identified in the surveyed areas. First there is the 'backyard' type operations where poultry is reared essentially for household consumption, and secondly, there are the commercial poultry farms based on modifications and adaptation of North American systems and as such are dependent on the purchase of inputs (ranging form hatching eggs to feedstuff) from aborad.

Backyard poultry rearing is carried out predominantly with 'creole' birds, which are, move often than not, fed with household waste by-products mixed with some amount of rice bran and broken rice.

On the commercial farms a better quality feed is required. This is provided partly by locally produced feedstuff and foreign inputs. Local feedstuff such as copra meal, wheat middling and rice bran are not always available in sufficient quantities, posing a serious problem to many poultry producers.

2.5.3.2 *Productivity and the Problems of Production*

Productivity within the livestock sub-sector is generally low. This is mainly due to the sub-standard farm management practices that characterize this subsector.

Table II.7 shows some indicators of Livestock Health Performance: calving rate, showing the percentage number of cows calving in a particular year; calf, lamb and piglet mortality, indicating the percentage of death among animals born in a particular year.

Calving rate in all the surveyed areas, excluding the BBP, is low. A number of factors possibly contributed to this situation, namely:

- low fertility of cows;
- use of bulls whose performance and fertility is not confirmed;
- the poor nutritional status of cows; and
- poor prenatal care of cows;

Calf mortality is fairly high in the EBD and BBP area, but extremely high in the ECD area. This is a reflection of the poor calf management practices employed on most farms in the surveyed area.

The average Lamb and Piglet mortality rates of 15.8 and 34.8 percent respectively are moderately high, but not surprising when consideration is given to the existing farm management practices.

Table II.7: Indicators of Livestock Performance (Percentage %)

Livestock Group	Indicators of Health Performance	EBD	ECD	MMA	BBP	TOTAL
CATTLE	Calving Rate	59.5	66.5	62.1	81.4	70.2
	Calf mortality	9.7	25.3	3.2	9.9	8.2
SHEEP	Lamb mortality	-	-	16.1	19.1	15.8
PIG	Piglet mortality	33.3	34.0	32.8	36.5	34.8

Table A.II.13 in the Annex show some of the characteristics of milk production in the surveyed area. Average annual production per cow for the total surveyed area is 168.6 gallons. EBD had the highest average annual production with 285.2 gallons per cow. This Region however has the smallest cattle population. The MMA area where most of the cattle is concentrated has the lowest average annual milk yield per cow, 155.0 gallons.

This generally poor milk performance is primarily the result of the genetically poor quality of the herd and inadequate nutrition.

From the information generated in the survey it is possible to identify a number of problems which impact negatively on livestock production. These are:

1) Unavailability of adequate and utilizable land for the landless livestock owners;

2) Disorganized and inefficient marketing system;

3) Inadequate support services, including Extension Activities and Veterinary Services;

4) Animal nutritional deficiencies caused by the inadequate availability of minerals, supplementary feeds, vitamins, etc.;

5) Low producing breeds;

6) Praedial larceny;

7) Unavailability of easily accessible credit; and

8) High rates of disease and parasites.

2.5.3.3 *Marketing of Livestock Products*

In the absence of an organized system for marketing livestock products, most farmers in the surveyed area are forced to make individual arrangements for the sale of their produce. Farmers may sell their live animals to middlemen, who transport the animals to the abattoir for slaughtering and inspection. Some individual farmers transport their animals, (mainly swine and cattle) to the abattoir, cutting out the middleman at that level. These farmers may either retail the meat themselves or sell to wholesaler.

Large poultry farmers supply restaurants and supermarkets directly with poultry meat and eggs. A few large poultry dealers have their own outlets where their products are sold.

The marketing of milk in the surveyed area is affected by a number of difficulties, namely:

- non-availability of milk collecting stations in key cattle producing areas;
- the difficulty of obtaining milk churns;
- low farmgate price paid for milk;
- unreliability of electricity supply;
- danger of contamination of milk during the marketing process;
- outdated milk processing plants.

The channel of distribution most often used in the areas under consideration is the one in which a milk collector, collects milk from a number of farmers, and transports it to the Milk Processing Plant or other buyers. Most milk collectors do not have cooling facilities. The risk of spoilage is therefore high.

The farmgate price offered by many milk collectors does not motivate farmers to produce milk. In fact, many farmers are known to milk only part of their herd, once daily, since they estimate that the return from milk sales is not worth the effort.

2.5.4 Fishing

Fishing activities were identified in the Survey areas bordering the Atlantic Ocean, (ECD, MMA and BBP). These activities are most widespread in the ECD area, where approximately 12 percent of the households reported involvement in commercial fishing (**Table II.8**). Most of the fishing done in this area is marine fishing. Small-scale/artisanal fishing is undertaken by vessels varying in length from 26 to 76 feet, propelled by sail, outboard or inboard engines and using fishing gear that includes Chinese Seine, and Circle Seines.

Table II.8: Percentage number of fishing households, boat ownership and size, and contribution of fishing income to total farm Income by surveyed areas.

FISHING ACTIVITIES	EBD	ECD	MMA	BBP	TOTAL
Percentage No of households involved in commercial fishing	0.0	12.3	2.2	4.7	5.2
- RIVER	0.0	1.8	0.0	0.4	0.5
- SEA	0.0	10.5	2.2	4.3	4.7
Percentage No of fishing households owning a boat	0.0	100.0	42.2	49.3	76.1
Average length of fishing boat (ft)	0.0	27.2	75.9	34.1	33.2
Percentage contribution of fishing income to total farm income.	0.0	8.0	3.7	5.4	7.6

The larger vessels are equipped with ice boxes and go on fishing trips for longer periods. Smaller vessels have no ice boxes and their operations are either tidal or diurnal.

Approximately 76 percent of the households involved in fishing owned their own fishing boat. In the ECD area all of the households involved in fishing owned a boat.

Most of the fishermen in the surveyed area are members of cooperatives. These organizations enabled small fishermen to obtain assistance from CIDA (Canadian International Development Agency) and the Government to facilitate infrastructure development (building of wharves, ramps, workshops, fuel depots, storage bins, etc.) and the purchase of engines and other imported equipment.

The contribution of fishing to the total farm income of the surveyed areas varies from 3.7 to 8 percent. The average for the surveyed area was 7.6 percent.

The fish and shrimp landed in the surveyed area are marketed by various means, the principal ones being the following:

1) Vendors purchasing from boat owners and resale by cart or bicycle in the community;

2) Vendors purchasing from boat owners for sale in municipal markets or at roadside markets;

3) Sale of fish and shrimp at outlets and supermarkets in Georgetown;

4) Middlemen purchasing large quantities of fish from vessel owners in outlying areas and transporting them to the processing plants;

5) Processing plants sending out trucks to purchase fish or shrimp from fishermen;

6) Cottage industry processors purchasing fish and shrimp from vessel owners for salting and/or smoking and drying, and

7) Sale of salted and/or smoked and dried fish and shrimp by vendors in markets; at outlets and supermarkets; and by middlemen in the hinterland areas.

2.6 FARM LABOUR FORCE

The nature of agricultural production in the surveyed area often demands the employment of a fairly large labour force either on a permanent or seasonal basis.

Even though paddy production in most of the area is highly mechanized, certain operations (for example planting and fertilizing) require the use of manual labour.

The use of traditional cultivation practices makes the production of 'other crops' quite labour intensive. In most of the surveyed areas, manpower is provided by the members of the farm households themselves. An average of about 5 persons live in each household. Most of the small and medium size farms therefore fulfill their own requirements for labour.

Apart from the labour provided by the farmer and his family, additional permanent and casual labour is occasionally employed.

About 9 percent of the households in the surveyed area employ permanent workers, while approximately 18 percent employ seasonal workers. Exchange of labour is practiced by about 6 percent of the farm households (see **Table II.9**). Exchange of labour refers to the practice of farmers agreeing to work for each other for a stipulated period without financial compensation.

Table II.9: Percentage of households employing permanent and casual workers and engaged in exchange of labour

SURVEYED AREAS	TYPE OF FARM LABOUR		
	PERMANENT WORKERS	CASUALS	EXCHANGE LABOUR*
EBD	17.1	27.9	7.8
ECD	7.7	20.6	7.5
MMA	5.4	13.2	5.8
BBP	11.7	20.9	5.9
Total area	8.5	17.9	6.3

Table A.II.14 (see Annex) shows the percentage of farm households employing permanent and casual workers and involved in labour exchange by farm size and area. On an average the larger farms (10 acres and more) employ a larger amount of permanent and casual labour, but are less involved in labour exchange. It is interesting to note that all the large farms in the EBD area employ permanent and casual labour. As previously mentioned this area is noted for its 'other crops' production which is generally carried out under traditional agricultural methods of production. Production on large farms therefore requires the utilization of a large labour force to carry out manual operations, such as land preparation, planting, fertilization, weeding and harvesting, thus explaining the high employment of permanent and casual labour in this area.

For the surveyed area in general, farm households occupying under 0.5 acres of land, have the least demand for both permanent and casual labour. However the number of such small farms employing casual labour in the ECD area is well above the average for the surveyed area. Casual labour is most likely utilized on small farms involved in coconut production, commercial fishing and vegetable production.

The average number of permanent workers employed on farms in the surveyed area is 2.3 workers (**Table II.10**). This varies from 1.5 worker in the BBP to 3 workers in the EBD area.

Table II.10: The average number of permanent and casual workers employed on farms and their mean wage, by surveyed area

Manpower/Wages	EBD	ECD	MMA	BBP	TOTAL
Average permanent workers (number)	3.0	2.9	2.0	1.5	2.3
Average casual labour (man days/farm/year)	63.1	393.3	174.0	22.6	176.1
Mean monthly wage for permanent workers (G$)	8,000	3,769	6,140	7,358	5,656
Mean daily wage for casual labour (G$)	405	381	283	454	375

The number of man-days of casual labour utilized in a year is lowest in the EBD (63.1) and highest in the MMA area (393.3). 'Other crops' production as is carried out in the EBD area, demands labour all year round, since a number of root crops, vegetables and fruits are grown at different times throughout the year. The need for workers to undertake the various production activities is therefore constant. It is therefore more economical to employ permanent labour since the daily wage rate for casual labour is higher.

Workers in this area are generally paid better wages than in the other areas. A number of reasons may account for this. Firstly, the EBD is in closer proximity to the capital city, Georgetown, than any of the other areas. Wages in this area tend to be influenced by those paid in the urban center. Secondly, over 50 percent of the working population in this area belong to non-farm households, and are involved primarily in off-farm production activities. The demand for farm labour in this area is relatively high, but the labour supply is relatively small. Many young persons from the EBD area consider it more profitable to be involved in some form of commercial activity in the city than to seek employment on farms in the area.

The ECD and MMA areas utilize a large number of man-days of causal labour per year, (393.3 and 174.0 respectively). The explanation for this lies in the nature of agricultural production in these areas. The main agricultural production activity is paddy production. The demand for labour for paddy production is seasonal, peak seasons being during the planting and harvest periods. It is therefore more practical and economical to utilize casual labour during the peak seasons, than to employ a large permanent workforce.

Both the average number of permanent workers employed and average number of man-days of wage labour utilized in agricultural production in the BBP area are significantly below the average for the surveyed area. This situation is possibly explained by the relatively higher involvement of household members in agricultural production. The average households size in this area is above the average for the surveyed area (5.12). About 27 percent of the farm households have 7 to 9 members. Each farm household is therefore a potential source of adequate labour supply.

2.7 FARM TECHNICAL ASSISTANCE - EXTENSION SERVICE

A properly functioning Agriculture Extension Service System is a vital prerequisite for successful agricultural production in the surveyed area. Farmers in these areas are gradually moving away from their traditional agricultural practices, and increasing technical assistance is therefore required. The introduction of new, more sensitive, hybrid varieties of crops requires a higher level of crop management.

This fact is illustrated by the case of rice farmers in the surveyed area. The recently introduced new variety of rice, Guyana 91, even though it is known to give higher yields and better quality of rice, is not widely used by farmers. Most farmers continue

to use the Rustic variety with which they are familiar. The Guyana 91 variety is usually more sensitive to agronomic practices. The expansion of the use of this variety would therefore require a better functioning extension service system.

The information generated by the survey and follow up interviews with farmers revealed the fact that many 'other crops' farmers were not educated in the basic use of agrochemicals, nor management techniques such as the pruning of fruit trees.

Livestock production is an area where an even greater need for technical assistance is required. The survey revealed that farmers require advice on a number of matters related to animal husbandry, namely:

- calf management;
- care of pregnant cows;
- proper hygiene measures;
- milk handling;
- heat detection;
- animal nutrition, and
- pasture management.

It is hoped that with the reintroduction of centralized agricultural extension under the supervision of the Ministry of Agriculture, the link between research and extension would become stronger and agricultural production would benefit.

Tables A.II.15 and **A.II.16** (see annex) show the percentage of livestock and crop farmers requesting and receiving technical assistance in the surveyed area. Information concerning the source and quality of assistance is also given.

A little more than a quarter of the livestock farms and approximately 36 percent of the crop producing farms in the surveyed area requested technical assistance. Most of these were in the MMA area. Extension Service is better in the MMA area as a result of the fact that the MMA/ADA development project can occasionally provide extension workers with transportation, either to visit farmers or to transport farmers to an agreed meeting point where technical advice and management hints would be given.

The Ministry of Agriculture and NDDP (Livestock only) provided most of the technical assistance requested. Most of the farmers receiving extension service thought that the quality of the assistance was good. One might therefore conclude that the cause of inadequate transfer of technology is more a problem of access than with the quality of extension service rendered.

Farmers received quite a bit of technical assistance from interaction with each other. In most of the areas this was identified as an important source of technical assistance. This seems to indicate that the development of functioning farmers associations would be an excellent means of passing on technical assistance to farmers.

Approximately 50 percent of the total number of farms in the surveyed area requesting technical assistance received it.

A larger number of crop farmers requested and received technical assistance than did livestock farmers (36 and 52 percent respectively). Most of these farmers were again from the MMA area. Most of the technical assistance was provided by the Ministry of Agriculture (52.1 percent). Some 64 percent of the farmers reported having received good technical assistance.

A number of factors contribute to the inefficiencies in the Extension Service System. These can be summarized as follows:

- poorly trained extension workers;
- inadequate remuneration of extension workers;
- research is not streamlined to meet the specific needs of farmers; and
- the lack of equipment and vehicles to reach the farmers.

2.8 FARM CREDIT AND FINANCE

In order for the agricultural sector to achieve a higher level of development and competitiveness, substantial investments in fixed capital (infrastructure, machinery and equipment) and working capital (inputs such as planting material agrochemicals, animal feeds, etc.) would be required. The present level of production does not generate enough savings for most farmers to reinvest on their farms.

Farm credit is a necessary prerequisite for agricultural expansion. The provision of credit should therefore be seen as an investment for social development as much as economic development.

The national and private Banks, the Institute of Private Enterprise Development (IPED) and a number of informal sources (millers, friends, relatives, etc.) are the main domestic source of credit to the agricultural sector. The response of these domestic financial markets to the demand for credit by the agricultural sector is, however, not very encouraging. This is due to a number of reasons, namely:

1) Traditionally, the banks have not been closely associated with the agricultural sector. Most of them are based in the urban communities with no branches in rural communities, making them inaccessible to most of the rural population.

2) The banks appear to be reluctant to lend to agriculture because in their assessment the risks are too high. The risk of loss of production as a result of poor climatic conditions or poor D&I is always present in agriculture but

particularly so in Guyana due to the deteriorated nature of agriculture related infrastructure.

3) Access to credit by a large number of small and medium size farmers is limited by the fact that most banks would not accept their short term leases as collateral.

The information in **Table II.11** shows that only 12 percent of the farm households requested credit in the last crop year. The low demand for credit on the part of farmers can be interpreted to mean that, in the estimation of most farmers, the existing agricultural infrastructure and support services are so inefficient that the risk involved in accepting a loan to invest in agricultural production is too high.

In addition, many farmers with short-term leases, knowing the banks position with regards to the use of such leases as collateral, might not have thought it worth the effort to apply for a loan.

Table II.11: Credit requirement of farm households in Surveyed area

CREDIT REQUIREMENTS	EBD	ECD	MMA	BBP	TOTAL
Total no. of farms	502	2399	4058	3152	10111
No. of farms that requested credit	95	652	176	268	1191
Percentage of farms that requested credit (%)	18.9	27.2	4.3	8.5	11.8
No. of farms that received credit	42	409	176	51	678
Percentage of farms that received credit in relation to the no. of farms that requested credit (%)	44.2	62.7	100	19.0	56.9

Table II.12 indicates that on an average, the demand for credit was fairly evenly distributed among the farms of various sizes, 27, 38 and 34 percent respectively from small to large farms. In respect to credit received, however, 48 percent of the credit was received by the larger farm of 10 acres and above while only 27 percent by farms in the 0.5 to 9.9 acres size and 25 percent by farms under 0.5 acres.

Table II.12: Percentage number of Farm Households requesting and receiving credit in each farm size grouping.

SURVEYED AREAS	CREDIT REQUESTED/ RECEIVED	Number and % of farm households requiring and receiving credit in each farm size group							
		Under 0.5 acres		0.5-9.9 acres		10 acres and above		TOTAL	
		No	%	No	%				
EBD	REQUESTED CREDIT	32	33.7	47	49.5	16	16.8	95	100
	RECEIVED CREDIT	10	23.8	16	38.1	16	38.1	42	100
ECD	REQUESTED CREDIT	161	24.7	275	42.2	216	33.1	652	100
	RECEIVED CREDIT	75	18.3	121	29.6	213	52.1	409	100
MMA	REQUESTED CREDIT	82	46.6	-	-	94	53.4	176	100
	RECEIVED CREDIT	82	46.6	-	-	94	53.4	176	100
BBP	REQUESTED CREDIT	52	19.4	134	50.0	82	30.6	268	100
	RECEIVED CREDIT	-	-	51	100.0	-	-	51	100
TOTAL	REQUESTED CREDIT	327	27.5	456	38.3	408	34.2	1191	100
	RECEIVED CREDIT	167	24.6	188	27.7	323	47.6	678	100

Table II.12 shows that 53.4 percent of the farmers receiving credit in the MMA area owned farms of 10 acres and above. Approximately 57 percent of the credit offered was financed by relatives, (**Table II.13**). This seems to indicate that the recent upsurge in the rice industry has enabled large farmers in the MMA area to achieve a certain level of financial independence. Indications are that enough capital is accumulated to purchase inputs and even to lend to other farmers. This seems to further indicate that the larger farms probably offered less risk to lenders than smaller farms.

Table II.13: Contribution of various sources of credit to credit requirement of farms

SOURCES OF CREDIT		EBD	ECD	MMA	BBP	TOTAL
No. of farms that received credit		42	409	176	51	678
Contribution of each credit source to the credit requirement of farms (%):	- GAIBANK	0.0	44.4	13.2	0.0	28.6
	- IPED	23.8	23.0	29.7	46.2	25.8
	- Other fin. inst.	0.0	3.5	0.0	0.0	5.1
	- Private lenders	0.0	2.8	0.0	11.5	2.4
	- Relatives	76.2	26.3	57.1	42.3	38.1

Table II.13 shows that most of the loans received were provided by relatives (38.1 percent). Gaibank and IPED also made significant contributions (28.6 and 25.8 percent) respectively. Other financial institutions, including commercial banks, did not contribute much (5.1 percent). In view of the fact that commercial banks are considered to have a high liquidity, these institutions should contribute more to farm credit.

2.9 FACTORS INFLUENCING FARM INCOME

Farm income is calculated as the difference between the total value of agricultural outputs, (cash crops, livestock products, and value of commercial fishing) and estimated farm expenditure.

The level of farm income is determined by a number of factors, namely:

- level of production, productivity and yield;
- quality of agricultural services;
- costs of production (cost of inputs, overhead expenses, labour cost, etc.);
- marketing costs;
- market price of the commodity, and
- government policy.

The low level of farm income in the surveyed areas is negatively affected by most of these factors.

On most of the farms in the surveyed area production levels are relatively low. Low yields of 'other crops' results primarily from improper crop management practices, while poor D&I services and poor quality planting material are generally responsible for low productivity in the rice sub-sector.

Low productivity in the livestock sub-sector is due mainly to poor farm management practices and poor animal nutrition.

The low level of production can also be attributed to the inefficiencies in agriculture support services, such as drainage and irrigation and extension services.

Agricultural production in the surveyed area is generally characterized by low level of inputs such as agrochemicals, machinery, quality planting material, and supplementary feeds and pharmaceuticals for livestock. On the farms where these inputs are used the cost of production is significantly increased mainly as a result of the fact that most of these inputs are imported and therefore very costly. The additional yield that might be obtained from the increased use of these inputs might not always offset the increased cost of production.

The market prices of paddy is generally determined by its quality. On many of the small farms' grade C paddy is produced. The market price for grade C paddy is much lower than that of grade A paddy (approximately 20 percent lower). The net return of small paddy farmers is therefore relatively small (5 percent).

The market prices for 'other crops' are reasonably good. Prices are generally determined by supply and demand and therefore have a seasonal trend. However, this favourable price advantage is offset by losses due to damage caused to the crop by poor harvest and post harvest handling methods. The poor state of access roads to farms also contributes to post harvest losses.

The market price for some livestock products (milk, beef, pork) is not favourable enough to stimulate farmers to produce. The low farmgate price and inefficient marketing system of milk, for example, is responsible for many farmers milking only some of their milking cows, once daily.

There is significant potential for the increase in the level of farm income in the surveyed area. Such an increase would positively affect the incidence of poverty in these areas. Efforts to reduce the level of poverty in rural communities should therefore be focused on improving the performance of the agricultural sector in those areas.

CHAPTER 3

POPULATION, SERVICES AND INCOME

The Socio-Economic Survey generated a significant amount of information about the social and economic aspects of life in the surveyed area. In this chapter this information is used to present and analyse the standard of living among the population in the areas under consideration.

3.1 POPULATION DISTRIBUTION AND COMPOSITION

3.1.1 Distribution of the Population by Area

Table III.1 shows the distribution of the population within the surveyed area and the population density of each surveyed area.

Table III.1: Distribution of population by survey area, and the population density

		EBD	ECD	MMA	BBP	TOTAL
Total number		5,228	16,355	30,102	18,484	70,169
Percentage (%)		7.5	23.3	42.9	26.3	100.0
Total	Acres	5006.6	10735.3	35460.4	29680.3	80680.3
Land	Sq. Mls	7.8	16.8	55.4	46.4	126.4
Pop. Density Persons per (Sq. Ml).		670	974	543	398	555

The population of the surveyed area is estimated at 70,169 persons. The MMA area has the largest population (30,102 persons) and a population density of 543 persons per sq. mile.

The EBD area has the smallest population (5,228 persons), which represents about 7.5 percent of the total population being considered in this report.

The most densely populated area is ECD with 974 persons per sq. mile. Approximately 23 percent of the population of the surveyed area lives in this area.

The BBP frontlands is the area with the lowest population density (398 persons per sq. mile) and has a population that is second only to the MMA area in size.

3.1.2 Distribution of Farm and Non-Farm Population

The farm population is made up of the individuals living in farm households, while the non-farm population live in non-farm households.

Farm households were defined in Chapter 2 as households involved in crop cultivation, livestock rearing and commercial fishing.

Table III.2 shows that approximately 76 percent of the total population live in farm households. The size of the farm population however varies from area to area, from an estimated 49.6 percent of the population in the EBD area to 84 and 89 percent in the ECD and BBP areas respectively.

Table III.2: Distribution of farm and non-farm population by household type by area (%)

SURVEYED AREA	FARM		NON-FARM		TOTAL	
	no.	%	no.	%	no.	%
EBD	2,592	49.6	2,636	50.4	5,228	100.0
ECD	13,736	84.0	2,619	16.0	16,355	100.0
MMA	20,321	67.5	9,781	32.5	30,102	100.0
BBP	16,424	88.9	2,060	11.1	18,484	100.0
TOTAL AREA	53,073	75.6	17,096	24.4	70,169	100.0

The non-farm population is approximately 24 percent of the total population under consideration in this report. The MMA area has the largest non-farm population (9,781 persons), representing 32.5 percent of the population of that area.

An estimated 50.4 percent of the population of the EBD area is not involved in any kind of agricultural activity. The reasons for this low involvement in agriculture were discussed in Chapter 2 of this report.

3.1.3 Distribution of the Population by Age and Sex

The age and sex distribution of the population in the surveyed area has a significant influence on the social and economic requirements of the population.

Tables A.III.1 and A.III.2 in the annex provide information about the age and sex distribution of the surveyed population. On the basis of the information in these tables the size of the economically active and dependent population is estimated in **Table III.3.**

Table III.3 shows the economically active population by the surveyed areas and sex. The economically active or working population is defined as the population that is involved in productive activity. This includes the population in the 15-64 years age group and represents approximately 67 percent of the total population of the surveyed area.

Table III.3: Economically active population (15-64 years) by sex and surveyed area (no. and %)

	EBD		ECD		MMA		BBP		TOTAL SURVEYED AREA	
	no.	%	no.	%	no.	%	no.	%	no.	%
Male	1,620	31.0	5,704	34.9	10,094	33.5	5,933	32.1	23,351	33.3
Female	1,610	30.8	5,477	33.5	10,050	33.4	6,229	33.7	23,366	33.3
Population 15-64 years	3,230	61.8	11,181	68.4	20,144	66.9	12,162	65.8	46,717	66.6
Total population	5,228	100.0	16,355	100.0	30,102	100.0	18,484	100.0	70,169	100.0

In the four surveyed areas the size of the working population ranges from approximately 62 percent of the population in the EBD area to about 68 percent in the ECD area. These figures are proof of the fact that in each area there is a potentially large supply of labour. Information pertaining to the actual utilization of this potential work force is given later in this report (Section 3.4 Employment and Income.

The dependant population is made up of persons in the 0-14 and over 65 years age groups. Approximately 33 percent of the population of the surveyed area can be classified as 'dependants'. Some 29 percent of these are children under 15 years of age. (**see Annex A.III.2**). The significantly small number of persons in the over 65 years age group (about 3.6 percent) is an indication of either a falling life expectancy in these rural areas or an out-migration of the elderly.

Figure III.1 presents a population pyramid for the surveyed area. Similar figures for the four survey areas can be seen in **Annex B, Figure B.III.1 to 4.**

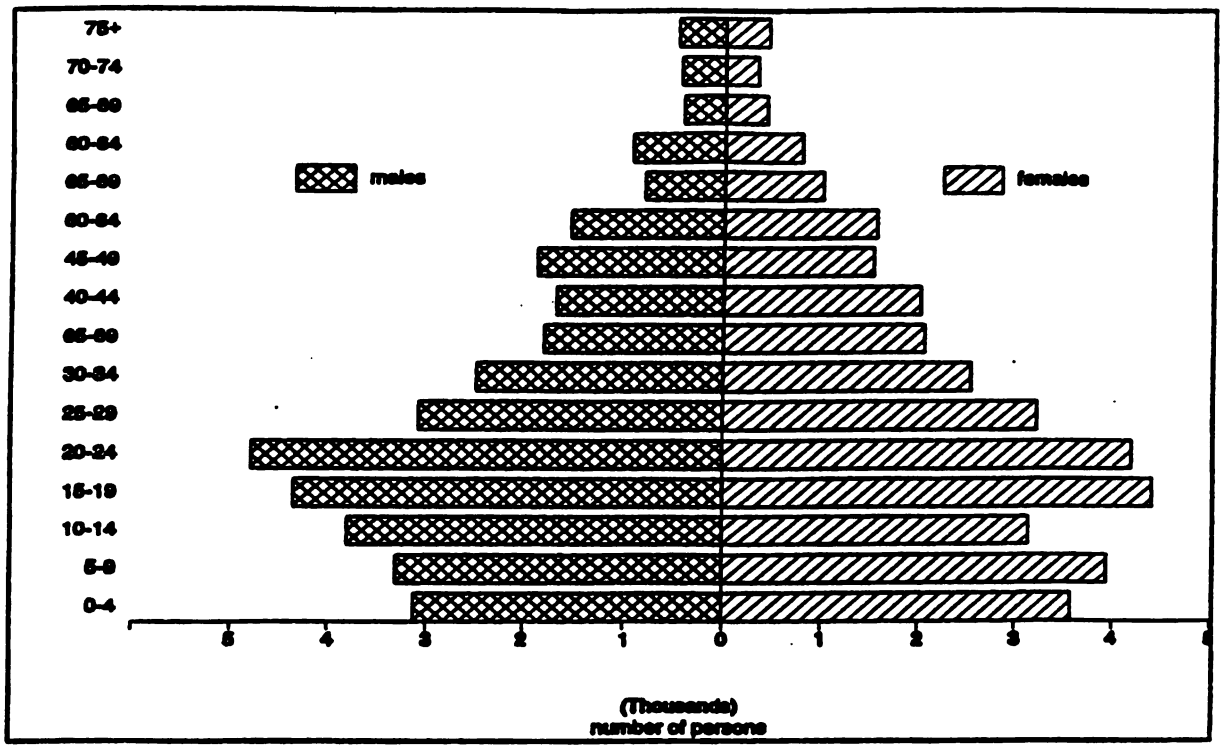

Fig. III.1: Population Pyramid of Surveyed Area

The typical population pyramid for a developing country like Guyana would be one with a broad base that tapers and becomes smaller as you move into the higher age groups. The shape of such a population pyramid can be explained by the high birth and death rates experienced in developing countries.

The narrow base of the population pyramid in Fig III.1 is quite unlike that of the typical pyramid for a developing country. The relatively narrow base of the pyramid, which in fact is the cohort that represents the 0-4 age group, is most probably explained by the high infant mortality rate than is presently experienced in Guyana. This rate was estimated at about 43 per 1000 in 1992 (the highest rate in the Caribbean region after Haiti).

The main causes of deaths in infants are conditions originating in the perinatal period, such as intestinal infections, nutritional deficiencies and other diseases of the respiratory system.

The shape of the population pyramid above the 20-24 age group cohort is more typical of a developing country like Guyana. A deteriorating health sector and the general impoverishment of the population have resulted in a high mortality rate and the fall in the life expectancy from 70 years in 1985 to 65 years in 1992 (68 years for women and 63 years for men).

The cohorts representing the population in the 25-40 years age group are significantly narrower than that of the 20-25 years cohort. This seems to indicate that there is a fall in the size of the population in these age groups, and particularly so for the male population. Outward migration (Rural to Urban migration) is the most likely explanation for the relatively smaller number of persons in the 25-40 age groups, (22 percent of the surveyed population).

The inadequate employment opportunities and the rapid deterioration of the standard of living in rural communities have forced a number of persons to migrate to the cities (Georgetown and New Amsterdam), or even to emigrate overseas, in quest of a better way of life.

In many instances, it is entire families that migrate, which means that a number of children in the 0-15 age groups also leave these rural communities. This offers an additional explanation for the relatively narrow lower section of the population pyramid, which represents the population in the 0-15 age groups.

With respect to the economic development of the surveyed area, the existing trends related to population movement are not positive. Outward migration, particularly of persons in the 25-40 years age group negatively affects the quality and size of the labour force. High infant mortality and an increasingly higher death rate would eventually result in population stagnation or at the worst negative population growth, both affecting productivity in the area.

In general, increasing awareness of the social and economic significance of the female population is resulting in greater focus on the needs and general well being of this section of the population.

In the surveyed area, females account for an estimated 50.2 percent of the population. In all of the four survey areas, with the exception of the EBD area, the female population is slightly larger than the male population.

The potential female working population is as large as the male working population, representing about 33.3 percent of the total surveyed population.

It can therefore be concluded that from the aspect of population size, the female population in the surveyed area is equal to the male population.

3.2 THE COMPOSITION OF THE HOUSEHOLD

The 13,969 households located in the surveyed area are divided into two groups, farm and non-farm households. **Table III.4** shows the distribution of farm and non-farm households by area.

TABLE III.4: Distribution of farm and non-farm households by area (%)

SURVEYED AREAS	HOUSEHOLDS					
	FARM		NON-FARM		TOTAL	
	no.	%	no.	%		
- EBD	502	47.4	558	52.6	1,060	100.0
- ECD	2,399	79.6	614	20.4	3,013	100.0
- MMA	4,058	64.5	2,229	35.5	6,287	100.0
- BBP	3,152	87.3	457	12.7	3,609	100.0
- Total	10,111	72.4	3,858	27.6	13,969	100.0

Approximately 72 percent of the households in the surveyed area are farm households. The BBP area has the largest percentage of farm households (87 percent)

The relatively high percentage of non-farm households in the EBD area (53 percent) is mainly the result of the moving away from farming of a large portion of the population. As previously mentioned this was largely due to the deteriorating drainage and irrigation infrastructure in that area, and the frequent flooding in many of the farming areas.

3.2.1 Family Type and Size

Eight types of families are defined in this study:

1) nuclear, lone couple (NLC);
2) nuclear, young children (NYC);
3) nuclear, children of mixed age groups (NMC);
4) nuclear, grown children (NGC);
5) extended family (EF);
6) female headed, young children (FYC);
7) female headed, grown children (FGC), and
8) other types (OT).

Table III.5 shows that the overall average family size is approximately 5 persons. This average however conceals the wide variability that exists in the sizes of the family in the various family type groups.

TABLE III.5: Average number of persons per household, by surveyed area and type of family

FAMILY TYPE	EBD	ECD	MMA	BBP	Average
NLC	2.00	2.00	2.00	2.00	2.00
NYC	4.69	4.26	4.38	4.38	4.39
NMC	6.26	5.58	6.26	6.73	6.30
NGC	4.13	4.25	3.88	4.24	4.05
EF	7.19	8.25	7.61	6.77	7.58
FYC	5.38	7.08	5.26	6.88	6.17
FGC	4.30	4.20	3.96	4.82	4.22
OT	3.65	4.05	4.00	3.73	3.93
Average	4.93	5.42	4.78	5.12	5.02

The average sizes of extended families (EF), nuclear families with children of mixed age groups (NMC), and female headed families with young children (FYC) are all significantly above the overall average family size for the surveyed area. Overcrowding among such families is not unusual, particularly in extended families where the average size is about 8 persons.

Table III.6 provides information about the distribution of the various types of families in the surveyed areas.

TABLE III.6: Distribution of various types of families in the surveyed area

Percentage of households by surveyed area					
FAMILY TYPE	EBD	ECD	MMA	BBP	Average
NLC	8	4	2	4	4
NYC	22	13	20	23	19
NMC	11	11	10	17	12
NGC	6	14	17	15	15
EF	19	22	13	14	16
FYC	8	9	6	6	7
FGC	11	16	14	11	13
OT	15	11	18	10	14
Total	100	100	100	100	100

The nuclear family with young children is the family type that is most widespread. Approximately 19 percent of the families are of this type. On an average there are about four members in these families, (father, mother and two young children).

The relatively small number of members in this family type group does not ensure a higher standard of living in these families. It should be noted that a number of these generally young couples with children, have not yet been able to accumulate an adequate material base to enable them to adequately fulfill all their family needs. Many of these families may be occupying part of a larger family farm, and involved in farming their own separate plot of land or contributing to production on a larger family farm. This practice is quite widespread in the BBP area among the Indo-Guyanese population.

The occurrence of the extended family is also of significance in the surveyed area. Almost a quarter of the families in the ECD area are of this type. Apart from the regular members of a nuclear family these families may include grandparents, other relatives and non-relatives.

The incidence of poverty in extended families is largely related to the number of 'dependant' members in the family. A large number of children and elderly persons would put some strain on the family budget.

These families are however advantageous in areas where the household may own or is leasing a large area of land, since a larger supply of farm labour would be available within the household.

In some of the surveyed areas, (ECD and MMA), the occurrence of nuclear families with grown children is relatively high. The average number of members in these families is about four persons. A relatively greater degree of economic stability is evident in this family type, particularly among the farm households. These families may often own their own farm land. It is also likely that the grown-up children may also be contributing to the family income.

The nuclear lone couple type of family is not frequently encountered in the surveyed area. This is understandable, since this is a family type more associated with an urban way of life.

3.2.2 Female headed households

Two types of female headed households were identified in the survey, those with young children and those with children and other relatives. These combined account for about one-fifth of all the households in the surveyed area and is most widespread among the farm households (**Table III.7**)

Table III.7: Households headed by women by type and area

		FEMALE HEAD OF HOUSEHOLD					
		YOUNG CHILDREN		CHILDREN & RELATIVES		TOTAL	
		No.	%	No.	%	No.	%
Total	EBD	84	42.0	116	58.0	200	100
	ECD	271	36.4	473	63.6	744	100
	MMA	355	29.1	863	70.9	1,218	100
	BBP	208	35.1	384	64.9	592	100
	Total	918	33.3	1,836	66.7	2,754	100
Farm	EBD	26	49.1	27	50.9	53	100
	ECD	194	42.0	268	58.0	462	100
	MMA	180	27.5	474	72.5	654	100
	BBP	136	29.6	323	70.4	459	100
	Total	536	32.9	1,092	67.1	1,628	100
Non-Farm	EBD	58	39.5	89	60.5	147	100
	ECD	77	27.3	205	72.7	282	100
	MMA	175	31.0	389	69.0	564	100
	BBP	72	54.1	61	45.9	133	100
	Total	382	33.9	744	66.1	1,126	100

Table A.III.3 and **A.III.4** (see annex) provides additional information about female headed households. **Table A.III.3** shows that about 29 percent of these households have 3 to 4 children. In many of these female headed households there are other household members apart from the children. These may be a grandparent or another relative, who may look after the children while their parents are away at work. Some 1,059 (38 percent) of the female headed households are headed by prime age women in the 40-64 years age group, and 95 (about 3 percent) by women in the 15-24 age group. Approximately 38 percent of the households headed by young women (15-24 years) have 3 to 4 children. Elderly women over 64 years, also make a significant contribution as household heads. Some 552 (20 percent) of the female headed households are controlled by women in this age group. In many instances these are grandmothers who are caring for grandchildren whose parents are living and working abroad or in the city.

Female headed households are generally more vulnerable to financial instability than most other households or family types. The average size of these households are very near or above the average family size in the surveyed area (see **Table III.5**). The income generated within these households is in most instances inadequate to provide for the needs of such large families.

Approximately 59 percent of female heads of households are involved in farming. However it can be observed from **Table A.III.4** (see annex) that the average size of land controlled by these households is relatively small. Over 75 percent of the farms headed by females is less than one acre. In the EBD area all such farms were below 0.5 acres. On most of these farms the production of non-traditional crops and livestock rearing is done. Many of the household heads would have to divide up their time between child care, household chores and farming activities. Consequently, the work burden of these women is very heavy.

Farm productivity and thus farm income is relatively low as a result of the reduced attention that is given to crops and livestock production.

The households headed by women over 64 years are most vulnerable to poverty. Most of these elderly women are unable to be actively involved in heavy physical work on or off the farm. Children are found in approximately 53 percent of these households. Some 13 percent of these households have 5 to 9 children as part of the family. It is therefore apparent that unless these households have access to transfers of money, food or clothing from persons abroad or some other source, the members of these families would suffer extreme deprivation.

3.3 SOCIAL INFRASTRUCTURE AND SERVICES

3.3.1 Housing and Basic Services

3.3.1.1 Housing

In the survey, housing conditions were considered adequate if two criteria were met: 1) if the roof was a corrugated zinc and 2) if there were less than 3 persons sleeping in a bedroom.

Table III.8 provides information about the housing conditions and the quality of housing in the surveyed area.

TABLE III.8: Housing; bedrooms per house, number of persons sleeping in house, percentage distribution of households by persons per bedroom and quality of house by area, in percent

INDICATOR		SURVEY AREA				AVERAGE
		EBD	ECD	MMA	BBP	
Bedrooms per house (no.)		2.2	2.2	2.1	2.4	2.2
Persons sleeping in house (no.)		4.9	5.4	4.7	5.1	5.0
Persons per bedroom (%)	< 2.0	52.3	44.4	50.6	56.3	50.8
	2.0 - 2.9	32.9	28.4	20.7	25.3	24.5
	3.0 - 4.9	12.0	18.0	23.6	16.6	19.8
	>= 5.0	2.8	9.2	5.1	1.8	4.9
	total	100.0	100.0	100.0	100.0	100.0
Quality of house (%)	thatched leaf	0.0	0.0	1.5	1.1	0.9
	corrugated zinc	100.0	100.0	97.8	98.8	98.8
	other	0.0	0.0	0.7	0.0	0.3
	Total	100.0	100.0	100.0	100.0	100.0

On the basis of the first criterion an average of about 99 percent of the houses would be considered to be of good quality. However if consideration is given to the general appearance of houses in the area (including the general need for repairs and painting and the age of the houses) many of them would not be considered to be of good quality.

The low level of maintenance and repair work done on houses is also a reflection of the poverty situation in the surveyed area. The necessary financial means is not always available for basic repair such as the replacement of a broken window pane, not to mention more costly work like the replacement of floor boards, toilet and kitchen fittings and the mending of fences around the homestead.

While a roof might be made of corrugated zinc, the poor quality of the zinc sheets (due to rusting) might result in leakage.

In approximately 25 percent of the houses 3 or more persons are sleeping in a bedroom. Overcrowding is more evident in the ECD and the MMA area where about 28 percent of the houses can be considered to be overcrowded.

3.3.1.2 Basic Services

The provision of basic utility services, such as water supply, electricity and sanitation was also assessed in the survey.

Water supply

Water supply is considered to be adequate if it is available in the family homestead and if the water is piped to the homestead, pumped from a well or obtained from a rain water collection tank.

Table III.9 shows the existing conditions regarding water supply in the surveyed areas.

TABLE III.9: Water supply; access, treatment and source by area and percentage of households, in percent

		SURVEY AREA				
		EBD	ECD	MMA	BBP	TOTAL
Access	in house	0.0	12.2	3.1	2.1	4.6
	in yard	47.7	43.7	33.1	38.9	37.7
	outside yard	52.2	44.7	63.7	59.8	57.7
Source	piped	17.2	64.2	76.7	81.3	70.7
	rain	50.0	16.4	1.4	6.8	9.7
	well and pump	24.2	0.0	21.8	9.4	14.2
	river/canal	6.9	18.9	0.0	0.0	4.6
	other	1.5	0.5	0.0	2.3	0.8
Distance from home to water supply (miles):		0.1	0.3	0.2	0.5	0.3
Boils water	always	22.5	14.7	23.7	11.1	18.1
	sometimes	31.2	26.1	41.2	33.2	35.0
	rarely/never	46.3	59.2	35.1	55.7	46.9

Approximately 42 percent of the households obtained water within their homesteads, while the remaining 58 percent fetched water from sources that might be as far as half a mile from the homestead.

For the overall surveyed area about 95 percent of the households obtain water from sources that are considered acceptable (piped from the conservancy, rain collection tanks and wells).

In most of the areas (ECD, MMA and BBP) piped water is the primary source of water supply. This source of water supply is however not very reliable, being negatively affected by the deteriorating state of machinery and equipment at the water pumping stations and the erratic supply of electricity. The water pressure is normally very low and water might be available for only limited periods during the day.

Rain collection tanks are the main source of water in the EBD area. This source of water supply is obviously not very reliable, since a prolonged period of dry weather can result in many households being without a regular supply of water. In this area a number of households get their water supply from wells and canals (24 and 7 percent respectively). Water pumped from wells may be affected by the supply of electricity or the conditions of the equipment at pumping stations, which in most cases are not reliable. The unreliability of these main sources of water supply forces many households to utilize water from unacceptable sources, such as canals. Even though 7 and 19 percent of the households in the EBD and ECD areas respectively, reported canals and rivers as a usual source of water supply, these figures can be much higher during periods when the more acceptable sources of water are not available.

The recent scare of an outbreak of cholera in Guyana has caused much attention to be focused on the problem of safe water supply. The information in **Table III.9** however shows that a large number of households (47 percent) rarely or never boil their water even though the water might not be considered potable. A number of households would however treat water by adding small quantities of bleach. Information as to how common is this practice, was not determined in the survey.

Electricity

The supply of electricity in the home is another basic utility service that is used in this report to assess the standard of life in the surveyed area.

An estimated 68 percent of the households in the surveyed area are supplied with electricity (**Table III.10**). The surveyed areas within close proximity to the capital city, Georgetown (EBD, ECD and MMA) have a larger percentage of households connected to the public electricity supply system. The EBD area, which is about 15 miles outside of Georgetown, has about 81 percent of the households connected to the electricity system provided with power generated from the plant in Georgetown. While in the BBP area, which is furthest away from the capital city, an estimated 46 percent of the households are connected to the electricity supply system. Connection to the electricity supply system, however, does not guarantee a regular supply of electricity. The poor state of generating equipment at the Guyana Electricity Corporation (GEC) Plant

makes it impossible for adequate electricity services to be provided to consumers, black-outs being very common.

Table III.10: Households connected to electricity supply system in Survey area

ELECTRICITY SUPPLY	SURVEY AREAS									
	EBD		ECD		MMA		BBP		TOTAL AREA	
	No	%	No	%	No	%	No	%	No	%
HAS ELECTRICITY	860	81.1	2309	76.6	4622	73.5	1664	46.1	9455	67.7
HAS NO ELECTRICITY	200	18.9	704	23.4	1665	25.5	1945	53.9	4515	32.3
TOTAL	1060	100	3013	100	6287	100	3609	100	13969	100

The absence of electricity supply in the surveyed area is generally reflected in a lower standard of living due to the lack of refrigeration facilities and other electrical home appliances, and the irregular supply of piped or well water.

Sanitation

The method of waste disposal used and the general level of sanitation can be a useful indicator of the standard of living in a particular area. However, the almost total absence of an adequate public garbage collection service in most of the coastal areas, including Georgetown, makes it unrealistic to use the methods of waste disposal as a measure of the standard of living in the surveyed area.

In approximately 92 percent (**Table III.11**) of the households, waste is disposed of by burning in the homesteads. Not many instances of the less acceptable waste disposal method of dumping on embankments and in canals were recorded in the survey (4.5 percent of households). This practice can however pose a severe health risk especially in view of the fact that some of the households in these areas use the canals as a source of water supply.

TABLE III.11: Waste disposal and sanitation of households in survey areas (%)

SANITATION CONDITIONS		SURVEY AREA				
		EBD	ECD	MMA	BBP	TOTAL
Waste disposal	Garbage Service	0.0	0.0	0.0	1.6	0.4
	Yard (Burning)	80.7	93.6	96.4	87.9	92.4
	Roadway	16.2	4.6	0.4	10.0	5.0
	Canal	3.1	0.8	0.0	0.5	0.5
	Other	0.0	1.0	3.2	0.0	1.7
	Total	100.0	100.0	100.0	100.0	100.0
Sewerage	Water toilet	18.0	6.6	9.7	11.0	10.0
	Pit latrine	81.2	92.7	89.6	88.5	89.4
	Neither	0.8	0.7	0.7	0.5	0.6
	Total	100.0	100.0	100.0	100.0	100.0

Some 89 percent of the households in the surveyed area use pit latrines as a sewerage system. In many instances pit latrines do not confirm to strict sanitation measures with regards to the location and level of hygiene. In areas that suffer from periodic flooding, this method of waste disposal can pose a number of health problems associated with the contamination of the water supply.

3.3.2 Health care and education

3.3.2.1 Health Care

The general deterioration of the health sector in Guyana is quite evident in the lack of adequate health facilities in small urban and rural communities like those in the surveyed area. The design of the health care system emphasizes primary health care and consists of five different levels of service, each providing successively more sophisticated services and having a staff composition suited to the level of service provided[8].

At the base of the system is the Community Health Post located in rural and hinterland areas. These are staffed by Community Health Workers and ideally provide preventive health care and simple treatment for selected common diseases. Cases that cannot be treated here are referred to the Health Care Centers, the second level of service. The Centers are located in more populous areas and being

[8] Guyana Public Service Review - World Bank Country Study 1993.

ideally staffed by a Medex (who has one year of specialized medical training) or a public health nurse, plus a nursing assistant, dental nurse and midwife, are able to provide a wider range of services than the Health Posts. At the third level of referral are the District Hospitals which should serve a geographically defined area with a population of 10,000 or more. Although these hospitals principally provide out-patient services, they are meant to have some limited capacity to provide in-patient treatment including basic surgery and obstetric and gynecological care. They should be equipped for simple radiological and laboratory services and be able to provide preventive and curative dental care. At the fourth level of referral are the Regional Hospitals which should provide emergency services, routine surgery and gynecological care, and dental services. These Hospitals were designed to include the laboratory, x-ray, pharmacy and dietetic services necessary to perform this level of medical care. The fifth, and highest, referral level consists of several specialized facilities, the foremost of which is the Public Hospital in Georgetown. Among the other specialized facilities are a geriatric hospital, a chest clinic and a paediatric hospital.

A number of operational problems, such as the lack of technical staff due to low levels of remuneration and the inadequate supply of basic drugs and supplies, have led to the almost complete breakdown of the referral system. As a result, many persons no longer seek preventive care and attend health care centers only for curative care. Persons suffering from various illnesses tend to bypass the first four referral levels and to seek treatment directly from Georgetown Public Hospital. For those who can afford it, treatment from a private facility or travel abroad is the preferred option.

The breakdown of the referral system has thus, greatly increased inequities; it is the poor and rural population who are served by the poorest quality facilities and who are least able to afford the costs of travel to Georgetown to obtain better health care.

Table III.12 provides information on the utilization of various sources of health care for the four surveyed areas. The pattern of service utilization shown in this table is a direct result of the existing breakdown in the referral system. Some 35 percent of the households reported that there is a need to travel to the district hospital or in most cases the Georgetown Hospital for primary medical care, since local clinics and health centers are substandard and unable to provide adequate treatment.

TABLE III.12: Utilization of various sources of health care by the Households in the surveyed area (%)

SOURCES OF MEDICAL CARE	SURVEYED AREAS				AVERAGE
	EBD	ECD	MMA	BBP	
Hospital	61.9	35.2	27.5	38.8	34.6
Clinic or health centre	25.6	50.5	57.5	27.1	45.7
Private doctor	12.5	14.3	15.0	34.1	19.7
Total	100.0	100.0	100.0	100.0	100.0

The services offered by clinics and health centers are utilized by about 46 percent of the households. This figure is low when consideration is given to the fact that the referral system intends clinics and health centers to provide for the primary health care needs of the entire local population. In the MMA and ECD areas the attendance of clinics and health centers are better than in the other two survey areas. This is an indication of the fact that a relatively better quality service is offered at clinics in these areas. The activities of donor agencies, such as SIMAP (Social Impact Ameiloration Programme), in these areas have significantly improved the facilities at clinics and health centers.

Private doctors are a source of medical care available to those who can afford to pay for these services. Approximately 20 percent of the households consulted private doctors for medical care. Even though the number of private doctors in these areas are small in relation to the population, patients receive better medical attention from these sources.

The poor quality facilities at clinics and health centers have a negative effect particularly on pregnant mothers and infants. The quality of antenatal care given to mothers is particularly poor. Recently there has been a marked increase in the incidence of death due to complications during pregnancy (anaemia and hypertension). It appears that many of these deaths could have been prevented if proper medical care was administered on time.

The increasing infant mortality in these areas can be directly associated to the poor quality of medical care available in many small rural communities. In many instances financial constraints may prevent parents seeking better medical attention in the towns, and may force them to rely on remedies that might not be wholesome.

Apart from the lack of adequate health facilities in the small urban and rural communities in the surveyed area, there seems to be evident a general decline in overall health of the population. This is seen in the increased incidence of malnutrition, hypertension, malaria, tuberculosis, intestinal infections, diabetes and heart disease. Maladies generally associated with lifestyle and living standards. The reduction of the life expectancy to about 65 years is also an indication of the fact that the level of health among the population is declining.

3.3.2.2 Education

The structure of the education system in the surveyed area is organized at five levels: nursery school, six years of primary school, four to seven years of secondary school, post-secondary and university education. Schooling is mandatory up to fourteen and a half years, which means that all children should complete primary school and at least two years of secondary school.

As of 1976 all responsibility for education provision was transferred to the Public Sector. Education in Guyana is therefore free of charge from the Nursery level to the University level.

The decline of the education system over the past decade, is to a large extent due to the decreasing resources available to the sector, resulting from the sharp decline in the proportion of GDP being allocated to the education sector. This has had a number of negative effects on the sector:

- the inadequate supply of text books and teaching material;
- a poor teaching/learning environment for both teachers and pupils;
- the loss of a large number of qualified teachers, as a result of the poor remuneration offered to teachers;
- poor attendance and high drop-out rates, and
- unsatisfactory results at the secondary school final examination.

Table III.13 shows the rate of school attendance in the surveyed area. The age range 5-14 years covers the age groups when schooling is mandatory. The information provided in the Table show that approximately 81 percent of the children in the 5-9 age group and 79 percent of children in the 10-14 age group are attending school. This rate of school attendance is fairly high for rural communities. However, this information also indicates that about 20 percent of the children of school age (approximately 2,821 children) are not attending school.

Table III.13: Rate of school attendance by age, sex and survey area (%)

AGE GROUPS	EBD		ECD		MMA		BBP		TOTAL	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
5 - 9	89.9	84.8	74.9	82.7	77.8	77.6	84.5	86.2	80.0	81.9
10 - 14	77.5	73.0	88.0	81.9	82.8	76.7	79.9	71.8	82.6	76.0

The United Nations Development Program (UNDP), Human Development Indicators for 1993, shows that Guyana has a literacy rate of about 96 percent. However the increasingly higher non-attendance rate would definitely have a negative effect on the literacy rate in the near future. Information about the poor attendance rates among those who do attend school was not generated in the survey. It is however known for a fact that this is one of the problems facing the educational system in rural communities. Poor attendance will eventually culminate in high numbers of drop-outs.

A number of factors, economic and social, may be responsible for the non-attendance by school age children.

In farming households, where there is always a need for additional labour during the peak seasons, children are often kept home from school in order to help out on the farm.

In a number of the female headed households, with a large number of small children, it is observed that girls of the ages 10 to 14 are kept at home to look after younger brothers and sisters and to help out in household chores, while the head of the home is away at work. **Table III.13** shows that the school attendance rate for females in the 10-14 age is about 7 percent less than for males.

In a number of households, harsh financial circumstances have forced parents to engage their children in income earning activities, such as domestic work, newspapers selling, the sale of food items produced on the homestead and as apprentices to tradesmen.

Table A.III.5 (annex) provides information about the level of educational attainment in the surveyed area. It is obvious from this information that the gender gap that existed in the level of education attained has been greatly reduced. Almost equal numbers of males and females attained primary and secondary school education. This is quite probably the result of the Government's policy, as of the mid 70's, of free education from the Nursery to University level, and mandatory education to fourteen and a half years. This table also shows that about 9.5 percent of the population received no formal education. This can be interpreted to mean that over 90 percent of the surveyed population are literate.

The level of literacy is important since it would significantly influence the quality of the labour force, as well as the ability of farmers to accept and utilize new technologies.

3.3.3. Participation in Social Organization

There is a fairly wide choice of social activities and organizations in which the population in the surveyed area can be involved. However, the information in **Table III.14** shows that, apart from religious organizations, only a small proportion of the households are members of any social organizations.

Table III.14: Membership of Social Organizations (percentage of households)

SOCIAL ORGANIZATIONS	SURVEY AREA				
	EBD	ECD	MMA	BBP	TOTAL
Farmers' association	1.5	9.9	1.4	1.8	3.3
Co-operatives	1.9	0.7	1.1	1.3	1.1
Village associations	1.8	1.6	3.0	1.1	2.1
Sports club	2.7	4.1	6.4	16.3	8.2
Youth groups	2.7	1.0	0.6	2.9	1.5
Religious associations	41.8	42.6	39.0	16.8	34.3
Other	1.2	1.5	2.5	0.0	1.5

Experience has shown that the motivation to become involved in social organizations is often related to the perceived benefits to be derived from membership of such organizations.

In the past a number of Farmers' Associations and cooperatives have failed primarily as a result of the conflict of interest between members or because members did not receive any concrete benefits from participating in the organizations. As a result farmers have lost confidence in such organizations and are generally reluctant to become members.

The fishermen in the ECD area have found it beneficial to organize in cooperatives since this facilitated easier access to grants and loans for the purchase of much needed equipment.

Rice farmers associations and a few livestock associations are the main types of associations functioning in the surveyed area.

Table III.15 shows that a relatively large number of households occupying land 10 acres and above in the ECD area (39 percent) are members of farmers' associations. There are primarily households involved in rice cultivation. Associations provide a convenient means of organizing for the purchase of inputs, the use of machinery, the drying of paddy and the negotiation of market prices.

Table III.15: Percentage of total number of households in each farm size category with membership of farm association or cooperative

ORGANIZATION	SURVEY AREAS	FARM SIZE				
		no farm	< 0.5 acre	0.5 - 9.9 acre	>= 10.0 acre	Average
Farm association	EBD	2.9	0.0	0.0	0.0	1.5
	ECD	0.0	1.6	14.0	39.2	9.9
	MMA	0.0	0.6	5.4	3.3	1.4
	BBP	0.4	0.8	3.6	0.0	1.8
	Average	0.4	0.8	7.1	8.1	3.3
Cooperative	EBD	0.0	0.0	10.5	0.0	1.9
	ECD	0.0	0.0	1.6	0.0	0.7
	MMA	29.3	0.0	0.0	0.0	1.1
	BBP	0.0	2.2	0.4	5.2	1.3
	Average	1.7	0.4	1.1	1.6	1.1

Properly organized farmers' associations can be of a great assistance to farmers. In Chapter 2, it was mentioned that a good deal of technical advice received by farmers was obtained from fellow farmers. In the absence of an adequately functioning extension service system, farmers' associations can function as a focal point for the circulation of technology and the sharing of experiences.

Farmers' associations can also be of practical importance to farmers in a number of ways by:

- enabling them to purchase farm inputs in large quantities thus obtaining price concessions;
- facilitating easier access to credit by collective application for loans and the combining of assets to provide collateral security that would be more acceptable to banks;
- organizing the sale of farmers' produce, and
- assisting in the organization and maintenance of drainage and irrigation systems.

3.4 EMPLOYMENT AND INCOME

3.4.1 Employment

The economically active or working population was defined earlier in this study as the population in the 15-64 age group. It was observed however, that the actual working population in the surveyed area included persons in the age group 65 year and above. Tables in this section of the report would therefore have a much larger reported working population than that previously indicated.

Employment in the surveyed area is provided by various forms of economic activities, conducted on or off the farm by members of farm and non-farm households.

3.4.1.1 Off-farm Employment in Farm Households

Employment for individuals within farm households is provided on the farm as well as off the farm. Off-farm employment may be of a permanent or temporary nature.

Table III.16 shows the distribution of the working population among various forms of employment.

TABLE III.16: Distribution of working population in farm households among various forms of employment (%)

SURVEY AREAS	Sugar estate	Other farm	Private non-farm	Public sector	Domestic service	Percentage permanently employed off the farm	Percentage self-employed or temporarily employed off farm	Total
EBD	1.2	1.3	19.2	1.9	0.9	24.5	75.5	100.0
ECD	1.0	0.0	5.3	4.9	0.2	11.4	88.6	100.0
MMA	15.4	0.5	6.4	6.5	0.0	28.8	71.2	100.0
BBP	6.9	0.1	6.0	6.0	0.1	19.1	80.9	100.0
TOTAL AREA	8.4	0.3	6.6	5.7	0.1	21.2	78.8	100.0

Approximately 21 percent of the members of farm households, under consideration in this report, are permanently employed in off-farm activities: on sugar estates; on other farms; in the Public Sector; as domestic workers; and in other private non-farm activities.

The sugar industry employs the largest number of permanent workers in the MMA and BBP area and is overall, the largest employer of permanent off-farm workers in the entire surveyed area.

Some 80 percent of the workers employed on the sugar estates are manual workers (**Table A.III.6**) working in the fields and factories, quite likely on the Albion, Port Mourant and Blairmont estates within close proximity to the surveyed area. Wages paid to manual workers employed on sugar estates are much better than those paid to other manual agricultural workers, or even other forms of manual and unskilled workers. Employment on sugar estates is therefore an appropriate means of supplementary farm household income.

A significant proportion of the permanent employment in the EBD area (19 percent) is provided by the private non-farm sector. This area is a few miles away from the industrial zone on the outskirts of Georgetown, where a number of private businesses conduct various processing and manufacturing enterprises. The American Fishing Company at McDoom also employs a number of permanent workers for wages that are relatively better than those offered by the Public Sector.

It is therefore apparent that off-farm employment contributes significantly to the income of farm households. This is particularly so on small farms under 0.5 acres in size, where not very much income is generated from farm production.

Table III.16 shows that a significantly large proportion of the working population (79 percent) is not permanently employed off the farm. A large number of these persons are self-employed, working on their own farms or involved in other forms of self employment such as carpentry, construction, mechanical and electrical repair jobs, taxi or bus services, and trade. In most instances the ground floor ('bottom house') of the family building is used for those activities that require a fixed premises.

Apart from the individuals involved in self-employment, a portion of the working population is casually or temporarily employed. The survey did not generate the information required to estimate the exact number of individuals employed on a temporary basis. Employment for these persons is generally provided in the form of seasonal farm work, carpentry, construction, repair jobs, retail trading and domestic work.

3.4.1.2 Employment in non-farm households

The employment opportunities open to the non-farm households are in many ways similar to those offered to the farm household population employed off the farm.

Table III.17 shows that about 32 percent of the working population living in non-farm households is permanently employed, (not including permanent self employment).

TABLE III.17: Distribution of the working population in the non-farm households among various forms of employment (%)

SURVEY AREAS	Sugar estate	Other farm	Private non-farm	Public sector	Domestic service	Percentage permanently employed	Percentage self employed or temporarily employed	Total
EBD	6.2	3.3	24.2	9.7	0.8	44.2	55.8	100.0
ECD	0.9	0.0	15.6	4.1	0.0	20.6	79.4	100.0
MMA	14.9	0.0	6.4	10.3	0.6	32.2	67.8	100.0
BBP	8.2	0.0	16.3	9.2	0.0	33.7	66.3	100.0
TOTAL AREA	10.7	0.5	11.6	9.1	0.5	32.4	67.6	100.0

Overall, the main source of permanent employment is the private non-farm sector. On the EBD in particular, where this sector is most developed, more job opportunities are available than in other areas. The relatively easy access of the EBD and the ECD areas to the capital city Georgetown, further contributes to the importance of the private non-farm sector and to some extent the Public Service sector as sources of employment in the non-farm sector.

The sugar industry is also a significant source of employment. Approximately 11 percent of the non-farm working population is permanently employed in this industry. Approximately 67 percent of these workers are engaged in manual work, while about 23 percent are involved in jobs of a technical/managerial nature (**Table A.III.6**).

Generally, a relatively smaller number of persons are employed in the domestic service sector. This is understandable, in view of the fact that there are not many households in these rural areas that can afford the services of a domestic worker. Household chores are generally done by the female members of the households.

3.4.1.3 Employment of the female Population

A number of studies have shown that the female population is one of the most socially and economically deprived groups living in small towns and rural communities. Within the surveyed area, women living in farm households perform the traditional household chores as well as work on the farm (weeding, planting, caring the crops and livestock, and the harvesting and sale of produce). A number of women, both from farm and non-farm households, are also involved in off-farm employment.

Table III.18 shows the percentage of women in the 15-65 age groups engaged in various types of occupations in the Surveyed area.

TABLE III.18: Women employed in various occupations by age groups, (%)

AGE GROUPS	Types of occupation						
	Manual work	Clerical work	Technical/ Managerial	Other	Permanently Employed	Self employed or casual employment	TOTAL
15-24	1.2	2.8	2.4	4.6	11.0	89.0	100
25-39	1.5	0.9	1.2	7.0	10.6	89.4	100
40-64	1.5	0.8	1.9	9.7	13.9	86.1	100
65 +	-	-	-	-	-	100	100
Average	1.3	1.8	1.8	5.7	10.3	89.7	100

The female working population makes a relatively small contribution to the permanent off-farm work force (about 10 percent). Some 90 percent of the female working population are either self employed or involved in casual occupations.

Unlike the male population, the female permanent off-farm labour force is less involved in manual work (1.3 percent).

Table III.18 shows that about 6 percent of females are permanently engaged in 'other' occupations. 'Other' occupations refer to jobs that combine manual and technical skills, such as garment making, catering and culinary activities.

Self employment for the female working population is provided in activities such as farming, cottage industry processing and manufacturing (the making of jams, jellies, sauces, pickles and confectioneries); sewing and craft making; retailing and catering.

A number of women are also involved in various forms of casual employment, as domestic workers, agricultural labourers on other farms and estates, factory workers and as saleswomen in retail outlets.

Wages paid to women for off-farm occupations are generally low. This is however, more a reflection of the generally low level of wage rates in Guyana (particularly in the public sector), than a form of gender discrimination.

The produce from self employment such as farm products, garments, crafts, processed foods etc. are sold either directly to the consumer or to the middlemen. Prices are generally determined by supply and demand forces.

3.4.2 Income

3.4.2.1 Definition and measurement of income in the survey

Household income, in the survey, is defined as annual net earnings coming from farm activities, wage labour or any other gainful occupation, plus transfers (pensions, remittances, etc.). It may include not only monetary income, but also the market value of some farm products consumed at home.

The study of income in the survey includes earnings from several sources:

- Farm income (crops, livestock, fishing)
- Wage income (farm or non-farm, casual or permanent)
- Non-wage off-farm income

Farm income is defined as the gross value of farm production minus farm costs of production. In practice several limitations were faced in quantifying these concepts in the analysis of the data. This was in part due to a widespread reluctance of farmers to report reliable income information and the many instances of over estimated farm expenditure.

The value of production was only quantified for those products that were destined for the market. The amount produced times the market price for each product would give the estimated value of production for each product.

With regards to livestock production, the value of production includes the total value of milk and other products (sold and unsold), plus the revenue from the sale of animals. Increases in the herd or flock as a consequence of births, for instance, were not considered as "production". Stock decreases also were similarly treated.

Information on the value of production on kitchen gardens was not generated from the survey. The information was however estimated ex-post for every household with such kind of subsistence production. Each household with a homestead imputed an amount equivalent to a certain share (one fourth to one half) of the estimated family consumption of the typical kitchen garden products (vegetables, tubers, etc.). Family consumption was estimated from the basic basket used for the poverty line (**Table A.IV.1**) scaled down or up to the actual number of members in the household.

The analysis of the reported cost of production data also posed a number of difficulties. The survey questionnaire included questions about the amounts spent on hired labour, fertilizer, agrochemicals and several other inputs for crop and for livestock production. However, the quantities and corresponding costs declared for these inputs were not in harmony with the actual production pattern. In many instances these declared costs were ten to twenty times larger than the total farm value of production. While a situation in which cost exceeds revenue is possible, and is often encountered by farmers, in many cases the situation was dubious, since the amounts were disproportionate in relation to the size of the plot or the number of livestock owned.

In view of this situation, only an approximate solution was permissible. It was decided that the declared costs would be taken at face value if they were a reasonable proportion to farm value of production. In cases where declared costs were considered unacceptable, a percentage of farm value of production was deducted (10% in cases where declared costs were small, and 50% where they were too high).[9]

In a few of the households interviewed, commercial fishing was reported as an agricultural activity. Even though the cases encountered were few, the revenue generated from this activity was substantial. This factor considerably distorted the average farm income, particularly in the ECD survey area.

Wage or non-wage off-farm employment was investigated at the level of each individual member of the household. This information was generally available from the survey, (nature of the job, the amount of time worked and the wage rate or income accruing from those activities). When an explicit income or wage rate was not declared, an estimate was substituted, using information on the time worked and the regular pay earned in the area for the corresponding sort of work.

Other possible sources of income investigated in the survey were pensions for the elderly, remittance from abroad and rents from assets such as land leased out. Estimates for remittances from abroad were considered to be under estimated in many instances.

The above description of the difficulties involved in the estimation of farm and household income, and the corresponding adjustments required, implies that the information on household income used in this study is only approximate. However, these income figures seem accurate enough so as to give an overall picture of income levels and distribution among the rural population of the coastal area of Guyana, as represented in the surveyed areas.

3.4.2.2 Income level and distribution

Average income per household was estimated at G$424,735 per year, or G$35,394 per month. Since the average household had 5.02 members, and the existing exchange rate was G$125 = US$ 1, this calculates to approximately US$ 676 per capita per year, or US$ 282 per household per month. These relatively high figures, however, obscure a very skewed distribution among the rural population and

[9] Costs here involve only physical purchased inputs and hired labour. They do not include the opportunity cost of family labour, nor any non-purchased input such as manure fertiliser or the use of the farm's own seed. Thus the share of costs on production value should not be too high.

between the different areas. A large share of this average income is concentrated on a few well-off households. In fact, as will be shown in chapter four, a large proportion of households do not earn enough to be above the poverty line, and many live in extreme poverty.

Table III.19 shows that the richest 10 percent of the households possessed more than 55 percent of the total household income, while the poorest 40 percent of the households received only 10.4 percent of total household income.

Table A.III.7 and **A.III.8** provides additional information on the distribution of household income.

The prevalence of very low incomes among the rural population within the surveyed areas is a result of the various factors reviewed in previous sections: the poor state of the Guyanese economy in general (in spite of recent efforts to combat the existing problems); poorly maintained irrigation and drainage systems along the coastal plains; low levels of production technology used in agriculture; low paid off-farm employment; low producer prices for farm products; among others.

Table III.19: Distribution of household total annual income by deciles of per capita income

	Distribution of total household income
TOTAL	100.0%
Poorest 10%	1.2%
Decile 2	2.3%
Decile 3	3.3%
Decile 4	3.6%
Decile 5	4.4%
Decile 6	5.5%
Decile 7	5.1%
Decile 8	8.3%
Decile 9	11.2%
Decile 10	55.2%

Note: Each decile covers about a tenth of the households from the poorest to the richest in terms of per capita household income.

Table III.20 shows that only 16 percent of the total population obtained their household income almost exclusively from their farms. More than a third of the surveyed population live in households where farm and some form of permanent off-farm wage employment are combined.

Table III.20: Percent of population and income by sources of household income

Sources of income	% Popul.	% Income
Total	100.0%	100.0%
Mostly farm (*)	16.1%	52.7%
Farm + employment	36.1%	17.5%
Farm + casual work	2.6%	1.9%
Farm + commerce	5.7%	4.4%
Farm + other	15.2%	9.5%
No farm, employment	14.4%	7.4%
No farm, casual work	1.2%	0.8%
Other non farm	8.7%	5.8%

(*) At least 80% of income comes from the family farm.

The 16 percent of the population living almost entirely on income generated on the farm earns 52 percent of the total income (**Table III.20**). At the same time, **Table A.III.8** in the Annex shows that individuals living almost exclusively on farm income account for about 64 percent of the richest 10 percent of households. Those combining farm income and permanent off-farm wages only get 17 percent of the total income.

Low income for the majority combined with poor living conditions, results in a widespread situation of poverty as the dominant feature of the surveyed areas, as will be seen in the next chapter.

Those farmers living almost entirely from income generated on the farm, and at the same time earning a relatively significant income, cultivate larger plots of land and employ better farm management practices than the smaller farmers. In other words, households with productive and well managed farms and good irrigation and drainage systems obtained a significantly higher income than those households where poor farm conditions forced individuals to seek employment off the farm.

CHAPTER 4

RURAL POVERTY

4.1 CONCEPTS

Poverty, loosely defined as **deprivation** with respect to certain standards of wealth or welfare, is not easily assigned an **operational** definition.

From a statistical point of view, poverty is usually analyzed by means of two different and complementary approaches: one based on **basic needs** index, the other on the head count ratio.

The basic needs index is used to indicate the social development of rural areas. It is a measure primarily of the welfare and well-being of the population and incorporates data on education, health, housing and access to utility services such as electricity, waste disposal and water supply. The nature of the information analyses by the basic needs index enables a more long-term evaluation of poverty, since the quality of many social services may not change in the short term inspite of changing economic conditions.

A distinctive feature of these basic needs is that they are relatively independent of the household's current income. For instance, the fact that a household can enjoy piped water or have access to sewers does not depend entirely upon the household members immediate purchasing power. If the general area in which they live is lacking water or sanitation infrastructure, little can be done by individual households.

The head count ratio on the other hand, is more a measure of a current situation. it compares income and/or consumption of households to an objectively defined poverty line and is therefore prone to sudden changes in an unstable macroeconomic environment. The poverty gap index is used to measure the gap between income in the poor households and the poverty line.

The combination of the two approaches allows for a two fold classification of the poverty situation and the defining of a poverty typology.

Supposing that a suitable series of indicators for basic needs is chosen, and also each household's income is compared to a defined poverty line, households can be classified into four groups, reflecting poverty types. This is illustrated in the Matrix below.

Basic Needs	Income below Poverty Line	Income above Poverty Line
Basic needs wanting	A	B
Basic needs fulfilled	C	D

Situation A is usually marked as "structural poverty" or "chronic poverty". These people have a low income and **also** poor living conditions. Situation D, the opposite, is considered as the "no poverty" condition, in which people have sufficient income and adequate living conditions.

Situation B and C are more intriguing. Individuals in situation B have currently an income above the poverty line, allowing them to purchase some essential goods and services, but they live in substandard conditions (lack of drinking water in the house, lack of adequate sanitation, etc.). This poverty situation is sometimes described as "inertial poor".

Situation C, on the other hand, illustrates the condition of people with adequate infrastructure and services, but with a low current income. This condition is often encountered during high inflation or in the first stages of rigged programmes of structural adjustment that hit the purchasing power of wages, especially in traditional trades or in the lower middle classes, diminishing their real income though leaving their house and environment untouched. Should the low income become permanent, these people might be forced to move to cheaper neighbourhoods, or to do without some of the amenities they now enjoy. Persons in the C category are often referred to as "recent poor".

The above classification is simply based on dichotomies: poor-non poor. But either the basic needs or the poverty line approaches can also recognize degrees in the severity of the problem. For instance, the poverty line approach usually takes two measuring rods: the **absolute** poverty line is an income equivalent to the value of a set of essential goods and services (food, clothing, health care, housing, transportation, etc.), but a lower **critical** poverty line is equivalent to the cost of adequate food alone. People whose entire income would not be enough to buy adequate food, even if other needs are disregarded, is indeed in an extreme or critical situation. People below the higher line but above the lower one are in a situation of "moderate poverty", in the sense that they earn enough for food, but nonetheless cannot fulfill their entire 'ticket' of day-to-day expenditures with the meagre income they obtain.

Basic needs measurements of poverty also admit degrees. Usually, a certain number of specific indicators is used in this approach, and any household found without any one of them is classified as "wanting", meaning that they fail to fulfill at least one of their essential or basic needs. However, the number of needs unfulfilled is also important to indicate the severity of the deprivation. Lacking water is bad, but lacking water, sewers and a good roof in the house is even worse.

4.2 INDICATORS

4.2.1 Indicators of basic needs

In this Rural Socio-economic Survey, four basic needs were considered:

- Adequate housing
- Adequate water supply
- Adequate sanitation and waste disposal
- Access to electricity

There were also data on the availability of health care and access to education, which were used complementarily, but was not included in the basic needs index.

Regarding housing, two indicators were used. Households were deemed to be "wanting" when the house:

(a) Had more than three persons sleeping per bedroom (including as "bedrooms" any rooms usually used for sleeping) or:

(b) Had a thatched roof instead of corrugated zinc or other reliable materials

In fact, very few houses in the sample had a bad roof, and thus overcrowding (more than 3 persons to a bedroom) was the single most important indicator as regards housing. There was no simple and straightforward indicator of building quality that could be used, other than the roof material. Most of the houses were made of wood, but it was difficult to determine the quality of the construction in the limited time period available during interviews with household members.

Regarding sanitation, the indicator used was the absence of WC or pit latrines. When a household lacked any kind of WC or even a pit latrine, it was regarded as wanting in this aspect, (even though, a pit latrine may be regarded as unsafe from a sanitary point of view).

The third indicator was the absence of electricity in the house. This is often disregarded, especially in rural areas, as a luxury rather than a basic need, however, in the coastal rural areas of Guyana it is not thus considered and was therefore regarded as a basic need in this study.

The fourth dimension in the analysis of basic needs was water supply. A household was considered lacking in this regard if it was in either of the following conditions:

(a) obtained water somewhere outside the family yard;

(b) obtained water from river, canals or other sources apart from piped water, rainwater collection tanks and pumped wells.

The degree of fulfillment of basic needs was measured on a scale indicating the number of unfilled needs; varying from 0.4. On this basis the number of households with varying levels of basic needs fulfillment was obtained.

4.2.2 Indicators for poverty lines

In determining the poverty line, there were two basic methodological problems:

- estimating the poverty lines (absolute and critical poverty), and
- estimating household incomes.

a) Estimating the Poverty Lines

With regards to the poverty line, a minimum food basket was prepared with IFAD's assistance. It was based on information from the only available food consumption survey in Guyana, and a more recent effort by the Federation of Trade Unions in Guyana to prepare a basic food basket.

The criteria appropriate for the purpose of estimating a critical poverty line is a basket of foodstuffs that is:

- in accordance with food habits prevailing in the country;
- of minimum cost, and
- nutritionally adequate.

Nutritional adequacy is often defined as the provision of the required amount of energy (measured in calories) in addition to the recommended amounts of nutrients (proteins, vitamins, minerals). Normally a varied diet providing the necessary calories will always provide the other nutrients, if it contains enough vegetables, fruit and milk apart from staple foodstuff.

An estimate of the required calories was provided using FAO/WHO recommendations, the estimated age-sex distribution of the Guyana population and the estimated average adult height and weight. It was estimated that an average person required about 2,200 calories per day. A food basket was then assembled to provide for 2,200 calories per person daily for a family of five of average age-sex composition. The proposed food basket, prepared by an IFAD mission is shown in **Table A.IV.1 (see annex)**. Specific households may require more or less according to their particular age-sex composition, and thus the poverty line may vary from household to household, though based on a constant standard of food intake.

Each item in the basket was valued at prices found at Georgetown's markets in July 1993 (time of the survey). Those prices generally coincide with those given by the Statistical Bureau of Guyana, which come also from other locations but were not available for the required period.

The cost of the basket for an average family of five was calculated as G$12,500 per month or G$2,500 monthly per capita, (G$30,000 annually per capita).

The basket provided approximately 11,000 calories per day (2,200 per person) at a cost of about G$38 per thousand calories (i.e. about G$0.038 per calorie).

For each particular household, a computation of the required calories was performed, in accordance with FAO-WHO recommendations for persons similar to those found in Guyana population (mostly of Hindu and African origin, thus facilitating the use of assumptions about average height and weight of adults). It was assumed that adult male height is on average 1.60 metres, and 1.55 for the females. This corresponds to normal weights of 65 and 60 kg respectively. For children up to 17 years of age, international standards were used, as recommended by international norms.

The amount of energy (expressed in calories) required in each household was then multiplied by the average cost of a calorie, to give the amount of money necessary to purchase adequate food for the members of each particular household.[10]

[10] This procedure is mathematically equivalent to reducing all members to "adult equivalents" in terms of calories required, and fixing the basic basket as the food necessary for an average adult. The two procedures are but the same, differing only in appearance.

The result obtained was the **critical poverty line**: the cost of an adequate amount of food for the household members. This amount was calculated at G$12,500.

To estimate the **absolute** poverty line, a usual shortcut was used. It was assumed, based on existing information about expenditure structure in Guyana and similar countries, that low income people expend more or less a half of their income on food. Thus, the absolute poverty line was set at twice the amount of the critical line. For an average family of five, the absolute poverty line would be G$ 25,000 per month, about U$S 200 (at the exchange rate of G$125 = US$1 at the time of the study). This figure would differ for each particular household according to its size and composition.[11]

b) **Estimating household incomes:** Total household income is the sum of various components: farm income, income from off-farm employment (both for wages or on a self-employed basis), remittances from abroad, pensions, rental revenue for land or houses leased out, interest earned on capital, etc. In the survey, farm income was calculated ex-post based on declared amounts of production, hired labour and inputs. Off-farm income was ascertained directly from data available in the questionnaires, along with information about other forms of income (pensions, remittances, rent, etc.).

As a result of the difficulties described in chapter 3, household income for many of the surveyed households had to be approximated. However, the estimated household income can, with a favourable degree of reliability, be used to calculate a global estimated household income per year and to make comparisons with the poverty line so as to determine the poverty situation of specific households.

4.3 POVERTY PROFILE OF THE SURVEYED AREA

4.3.1 Above and below the poverty line

In the entire surveyed area only 31.2 percent of the households are above the poverty line, i.e. 68.8 percent of households had incomes insufficient to cover a basic budget of food and other essential expenditures.

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[11] Two households with the same number of members may require different amounts of food. To feed a single mother with three small children costs less than feeding the same number of male adults. It is further assumed that both would devote 50% of their income to food, leaving the other half for non-food items (this "Engel coefficient" may vary from household to household, but no direct data was available to estimate it more precisely, thus the same percentage was used for all).

Of those households below the poverty line, 36.1 percent were in critical poverty, while the remaining 32.7 percent were experiencing moderate poverty (**see Table IV.1 and Tables A.IV.2a-2e**). Of a total of 13,969 households in the surveyed area, 9,606 were below the poverty line, (**Table A.IV.3**), accounting for about 73 percent of the surveyed population, an estimated 51,000 persons (**See Tables A.IV.5**).

The incidence of poverty varies significantly from area to area. In the EBD area where there is a high percentage of non-farm households (51 percent) approximately 50 percent of the households are above the poverty line. The areas where critical poverty is more widespread are East Coast Demerara and the MMA Frontlands, with 39 and 38 percent of their respective households in this situation (**Table IV.1**)

Table IV.1: Incidence of poverty by area

	TOTAL	Level of poverty (Percentage)		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL OF THE FOUR AREAS	100.0	36.1	32.7	31.2
East Bank Demerara	100.0	20.2	29.3	50.5
East Coast Demerara	100.0	39.2	23.3	37.6
MMA Frontlands	100.0	37.9	38.8	23.3
Blackbush Frontlands	100.0	34.8	31.0	34.2

4.3.2 Factors affecting poverty

As shown in **Tables A.IV.2a-e**, poverty varies between the surveyed areas by source of income. In MMA and Blackbush frontlands it is most severe in households that make their living primarily from off-farm employment, while the incidence of poverty is less in households living mostly from farming activities.

The survey information seems to indicate a strong correlation between the incidence of poverty and the size of the household and the number of children. This is shown in **Table IV.2** below where the average number of members (5.02) falls to 4.39 in households above the poverty line, and rises to 5.67 members in those in critical poverty. The average number of children in households experiencing critical poverty is more than that of households above the poverty line.

Table IV.2: Relationship between the incidence of poverty anad the size and composition of households

Households	Critical poverty	Moderate poverty	Above poverty line	Total
Average members	5.67	4.91	4.39	5.02
Average children	2.71	2.52	2.03	2.44

From data relating poverty to family type (**Tables A.IV.3 to A.IV.6**), it is evident that female headed households are most affected by poverty, and in fact a large number (about 46 percent) of these households are experiencing critical poverty, **(See Tables IV.3 and IV.4)**

These findings seem to indicate that children, the elderly and women (particularly women heads of homes) are particularly vulnerable as regards poverty.

Table IV.3: Incidence of poverty by type of family, in terms of households affected (% of households)

Type of family	Level of poverty (Percentage)			
	Critical poverty	Moderate poverty	Above poverty line	TOTAL
TOTAL OF ALL AREAS	36.0	32.7	31.2	100.0
Nuclear, Lone couple	24.2	15.6	60.3	100.0
Nuclear, young children	29.0	30.4	40.2	100.0
Nuclear, mixed children	39.0	38.6	22.4	100.0
Nuclear, grown children	13.6	45.5	40.9	100.0
Extended family	46.3	22.8	30.9	100.0
Female head, young children	47.6	33.1	19.3	100.0
Female head, other	45.4	32.0	22.5	100.0
Other types	43.4	33.4	23.2	100.0

Table IV.4: Incidence of poverty by type of family in terms of population affected (% of population)

Type of family	Level of poverty (Percentage)			
	Critical poverty	Moderate poverty	Above poverty line	TOTAL
TOTAL OF ALL AREAS	40.7	32.0	27.3	100.0
Nuclear, Lone couple	24.2	15.6	60.3	100.0
Nuclear, young children	31.2	30.6	38.2	100.0
Nuclear, mixed children	43.1	37.4	19.6	100.0
Nuclear, grown children	15.1	44.5	40.4	100.0
Extended family	49.6	21.2	29.2	100.0
Female head, young children	54.1	30.8	15.1	100.0
Female head, other	50.1	32.5	17.4	100.0
Other types	43.1	39.1	17.8	100.0

The incidence of poverty, surprisingly, seems to bear less relation to the size of the land holdings than one would expect. Poverty is high among those with less than 0.5 acres, but it is highest among those with more than 20 acres of land (**Table IV.5**). Critical poverty seems more clearly related to farm size: the incidence of critical poverty tends to diminish with larger holdings, with the exception of the group of farms with 20 and more acres (probably an effect of low net farm incomes resulting from high input expenditure and poor crop yields).

Table IV.5: Percent of households below the poverty line by size of land holding (acres)

Size of farm (acres)	Below the pov.line (*)	Critical poverty
Less than 0.5	72.1	39.8
0.5 - 0.9	69.4	43.2
1.0 - 2.4	58.4	35.4
2.5 - 4.9	64.0	32.0
5.0 - 9.9	59.6	22.4
10 - 19	60.5	22.8
20 and more	73.8	37.1
Total	68.7	36.0

(*) Includes critical and moderate poverty

4.3.3 The annual income of the poor and the non-poor

By definition, households below the poverty line have relatively low incomes. This can be seen in **Table IV.6** below, and in **Tables A.IV.7** and **A.IV.8** in the Annex. Households in critical poverty have an average and median incomes of about G$ 18,000 per capita (about U$S 144 annually per person), and those in moderate poverty have an average or median per capita income of about G$ 45,000 (equivalent to some U$S 360 annually per capita). The median and the average roughly coincide in both groups. Households above the poverty line, have a median income of G$98,000, but their average (distorted by the few that earn very high incomes) is about G$ 245,000.

Table IV.6: Average and median annual per capita household income, by level of poverty

	Total	Level of Poverty		
		Critical Poverty	Moderate Poverty	Above Poverty Line
Average income per capita	$98,194	$18,569	$45,144	$245,664
Median income per capita	$42,721	$18,994	$44,563	$98,817

Note: See these data by area in the Annex, Tables A.IV.7 and A.IV.8.[12]

4.3.4 The poverty gap

People are classified as poor, in this context, when their incomes fall below a given poverty line. The difference between the poverty line and the income of poor people is called the **poverty gap**. Any attempt to overcome poverty should be aimed at raising the income of the poor at least by the amount equivalent to the average poverty gap.

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[12] These per capita figures merit a word of caution, since incomes are obtained at **household**, not at individual, level. To obtain an average per capita household income, the procedure is as follows: first, per capita income is computed for each household, and then these figures are averaged over all households irrespective of their size (this way, larger households are somewhat underrepresented in the average, and smaller households are somewhat overrepresented). The median per capita household income is a figure such that 50% of the households are below it in terms of per capita income. This does not mean that 50% of the individuals are below that income, for household sizes are not used as weights in these calculations. In spite of these limitations, per capita incomes reflect better the income level of households because it does take into account the size of the household. The **true** per capita income would result of adding all household incomes and dividing by total population, an operation not performed here.

The average poverty gap of all poor households (**Table A.IV.7**) was about G$ 164,000 per household, equivalent to US$ 1,312 annually per family or about U$S 261 annually per capita. The **aggregate** poverty gap of the four surveyed areas totals up to G$ 1.5 billion, i.e. about US$ 12.6 million. In other words, the annual income of the poor population in these areas should be increased by US$ 12.6 million, to raise them all above the poverty line. Approximately 75% of that additional income should accrue to people now in critical poverty, as shown here in **Table IV.7** and **IV.8** and in more detail in **Tables A.IV.6** and **A.IV.10** in the Annex.

Table IV.7: Average poverty gap per household, by area, type of family and poverty level

Areas	Total	Level of Poverty Gap	
		Critical Poverty	Moderate Poverty
Total	$163,935	$235,675	$84,913
East Bank Demerara	$169,183	$277,027	$94,975
East Coast Demerara	$200,241	$270,552	$81,886
MMA Frontlands	$148,854	$219,080	$80,240
Black Bush Frontlands	$164,652	$227,366	$94,203

Figures in Guyana dollars (US$ 1 = G$125)

Table IV.8: Aggregate poverty gap by area, type of family and poverty level

Areas	Total	Level of Poverty	
		Critical Poverty	Moderate Poverty
Total	$1,574,760,716	$1,186,621,665	$388,139,051
East Bank Demerara	$88,821,164	$59,283,866	$29,537,298
East Coast Demerara	$376,652,951	$319,250,818	$57,402,132
MMA Frontlands	$718,073,611	$522,287,691	$195,785,920
Black Bush Frontlands	$391,212,990	$285,799,289	$105,413,702

Figures in Guyana dollars (U$S 1 = G$ 125).

The average gap per household does not vary much among areas, but the aggregate gap does vary, because of the different size of the populations in the four areas.

The average income per household is about G$493,000, while the average income of **poor** households (in critical or moderate poverty) is about G$161,000.

Thus, bridging the average poverty gap would require an approximate 100% increase in the income of poor people. The poverty gap also represents about a third of all income in the area, and 15 percent of the income of the non-poor. Poverty is not usually overcome by simple redistribution, but for the sake of illustration one could note that redistributing 15 percent of the income of the (relatively) rich inhabitants of the area among the poor would completely eliminate poverty by doubling (on average) the income of the poor.

4.3.5 Poverty and basic needs

Table IV.9 shows that about two thirds (67.8 percent) of the households had one or more basic needs unfilled. The incidence of unfilled basic needs was highest among households in critical poverty (78.5 percent), and lower among households above the poverty line (59.7 percent). Clearly indicating a relationship between low income and inferior conditions of living. It should however be noted that the general living conditions in the surveyed area were so inadequate (water supply, electricity and sanitation) that most persons above the poverty line had one or more basic needs unfilled.

Table IV.9: Basic needs and poverty lines of households

Basic Needs	Total	Level of Poverty (Percentage)		
		Critical Poverty	Moderate Poverty	Above Poverty Line
Total number of households	13,969	5,035	4,571	4,363
Basic needs condition				
Fulfilled	4,248	1,083	1,408	1,757
Unfulilled	9,721	3,952	3,163	2,606
% Unfulfilled	67.8	78.5	69.2	59.7
Number of needs unmet				
None	4,248	1,083	1,408	1,757
One	6,543	2,459	2,225	1,859
Two	3,015	1,401	930	684
Three	163	92	8	63

Table IV.10 shows more clearly the relation between the two approaches to poverty (basic needs and head count ratio). The incidence of poverty resulting from low income is highly correlated with the occurrence of unfilled basic needs.

Table IV.10: Incidence of income poverty by fulfillment of basic needs

TOTAL OF ALL AREAS % of households

Basic Needs	Total	Level of Poverty (Percentage)		
		Critical Poverty	Moderate Poverty	Above Poverty Line
TOTAL HOUSEHOLDS	100.0	36.0	32.7	31.2
Basic needs condition				
Fulfilled	100.0	25.5	33.1	41.4
Unfulilled	100.0	40.7	32.1	26.8
Number of needs unmet				
None	100.0	25.5	33.1	41.4
One	100.0	37.6	34.0	28.4
Two	100.0	46.5	30.8	22.7
Three	100.0	56.4	4.9	38.7

The typology of poverty mentioned before allows for a two-dimensional classification of household on the basis of level of income and basic needs fulfillment. This is clearly shown in **Table IV.10.**

Table IV.11: Percentage distribution of households on a two-dimensional typology of poverty

Basic Needs	Income below poverty line	Income above poverty line	Total
Basic needs unfilled	51.0	18.6	69.6
Basic needs fulfilled	17.8	12.6	30.4
Total	68.8	31.2	100.0

More than one half of the households (51.0 percent) are in "structural poverty", in the sense of being both below the poverty line and lacking in some basic needs. Only 12.6 percent are non-poor in both senses. About 18 percent are above the poverty line but had their basic needs unfilled; approximately the same percentage of households met their basic needs but were below the poverty line. This latter category is often associated with the short-term effects of econimic crisis and structural adjustment, since basic needs reflect standards of living in the past while the poverty lines are related to current income.

4.4 CONCLUDING REMARKS

Poverty affects the majority of the rural population in the Coastal regions of Guyana. Defined as insufficient income or unsatisfactory conditions of living, poverty is experienced by half to two thirds of the rural inhabitants in those areas.

One of the major factors contributing to the poverty situation is undoubtedly the long period of economic decline experienced in Guyana and also the initial effects of the economic reform that is now underway. Economic stagnation and decline caused the State to abandon maintenance and expansion of the irrigation and drainage systems and social and public service infrastructure. Unrealistic macroeconomic policies have diminished the competitiveness of Guyana products in foreign markets (in fact, rice exports to some Caribbean countries under special agreements is not a clear sign of competitiveness, and may well result in a crisis situation in the context of global liberalization of trade).

Poverty is experienced by farmers independent of the farm size. Families with smaller plots seek to complement their income through off-farm employment, but the latter is of no more significant than agriculture production, with the outcome that the incidence of poverty is more or less similar in almost all farm-size groups.

A significant proportion of rural households are headed by women. These households have a significantly higher incidence of poverty and critical poverty. Families with many members, and particularly those headed by a woman, have a correspondingly higher incidence of poverty.

The global poverty gap in the surveyed area, i.e. the amount of additional income that would have to be generated yearly to bring all families above the poverty line, is about U$S 12.6 million, which represents:

- A 100% of the poor people's income;
- A third of the average household income; and
- A 15% of the average income of the non-poor.

Increasing the income of poor families by an average 100% is not an easy task. It would take significant investments and many years of sustained growth.

It would also demand a clear decision from the Government and the people of Guyana about the form of development they wish to pursue. If economic policy is not geared towards the support of the small farmer, and towards the improvement of the efficiency and competitiveness of the small-farming sector, little would be achieved through direct intervention.

The examination of the problems of poverty and under-development that exists among the rural population of Guyana, viewed here through the imperfect lens of a socio-economic survey, teaches the important lesson that the economic plight of the country has affected more or less all groups. Even those classified as "non-poor" are not rich either: their average income (some U$S 1900 per capita) is clearly above the country's average but makes them by no means opulent.[13]

Countries that initiate economic reforms towards a market economy are easily tempted into putting their faith in the advantages of large business and huge investment projects.

However, the message from this survey is that the small farmer can produce efficiently, if the means are available and man-made distortions and hindrances removed. And above all, that economic policy should be a balanced effort by a democratic government to offer a fair opportunity to all.

Development of social and rural infrastructure, improved irrigation and drainage systems, credit, technical assistance, marketing and other support services are all required for the recovery of the small-farmer sector of Guyana. Such actions will create more jobs in the rural areas, where a significant number of non-farm families also live.

One of the important lessons from many programmes of this type in the world, as IFAD's experience testifies, is that the poor are bankable, and can produce efficiently. They only need a fair-play environment and clear-cut economic policies that do not discriminate against them. It is only in this way that equitable and sustainable growth of production, income and welfare can be achieved.

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[13] The average is distorted by a few cases of high income. The median income of the non-poor, something less than G$100,000 or U$S 800 per capita, is a better representation of their economic standing.

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ANNEXES

ANNEX I.: STATISTICAL ANNEX

ANNEX A.I: INTRODUCTION

ANNEX A.I.1: Selected average annual growth rates (constant 1988 prices) 1961-1992 (in%)

	1961-1970	1971-1980	1981-1990	1991	1992[1]
Gross Domestic Product (GDP)	3.6	0.9	-3.3	6.0	6.5
GDP (Per Capita)	1.0	0.3	-3.3	6.2	6.6
Population (Total)	2.5	0.4	-0.1	-0.1	-0.1
Population (Urban)	0.4	2.0	0.6	3.2	3.2
Total Consumption	3.6	1.2	-4.1	1.1	n.a
Gross Domestic Investment	0.6	-0.7	-1.9	10.9	n.a
Exports of goods and services (f.o.b)	3.3	-2.9	-2.6	17.0	18.4
Value Added in Agriculture, Forestry and Fishing	0.7	0.9	-2.9	12.1	n.a
Value Added in Mining and Quarrying	6.8	-3.8	-8.3	2.1	n.a
Value Added in Manufacturing	2.1	5.1	-6.6	10.5	n.a
Value Added in Construction	1.5	0.9	-1.0	2.0	n.a
Growth of Consumer Prices	2.2	10.3	33.0	105.9	26.0
Government Deficit[2]	7.9	21.4	21.5	n.a	n.a
Unemployment Rate[2]	16.0	20.0	n.a	n.a	n.a

Source: IDB Annual Report 1991, IMF, Bank of Guyana and Government Documents

[1] Provisional
[2] Data refers to the periods 1960-69, 1970-79 and 1980-89 respectively

Table A.I.2: Consolidated public sector finances (% of GDP)

	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991 (prel.)
Central Government[1]										
Revenue[2]	28.3	45.1	33.8	-5.8	4.8	-3.2	-4.0	-2.3	2.1	7.6
Expenditure	25.3	26.6	46.0	33.5	42.1	30.5	30.0	18.7	21.6	21.0
Rest of Public Sector[3]	..	..	..	-39.3	-37.3	-33.7	-34.1	-21.1	-19.5	13.4
Primary Current Balance	..	..	..	4.9	19.1	28.0	15.7	13.2	12.6	19.3
Interest Obligations	..	..	..	-29.0	-32.7	-36.8	-31.6	-32.0	-34.1	-35.0
- Domestic	..	..	..	-16.0	-17.9	-12.6	-11.7	-8.9	-9.0	-6.1
- External[4]	..	..	..	-13.0	-14.8	-24.2	-19.8	-23.1	-25.0	-28.8
Current Balance	3.0	18.5	-12.2	-24.1	-13.6	-8.8	-15.9	-18.8	-21.5	-15.7
Capital Revenue	0.6	0.3	0.3	0.2	0.1	0.0	0.0	0.4	1.9	5.7
Grants	n.a	0.3	0.3	1.5	1.2	3.1	1.7	2.1	3.6	2.8
Capital Expenditure	-11.1	-25.6	-24.0	-24.7	-24.8	-29.4	-18.4	-18.9	-27.5	-16.5
Overall Balance	-7.5	-6.7	-35.9	-47.1	-37.2	-35.1	-32.6	-35.2	-43.5	-23.8
Financing	7.5	6.7	35.9	47.1	37.2	35.1	32.6	35.2	43.5	23.8
- External (Net)	3.5	5.5	7.0	26.9	26.5	37.1	17.5	26.2	30.8	6.9
- Domestic	4.0	1.2	28.9	17.5	10.6	-2.0	15.1	9.0	12.7	16.9

Source: Government of Guyana, IMF and Bank staff estimates; cited in World Bank (1985, 1992)

[1] For the period 1985-91 the data excludes transactions with the Public Enterprises and the NIS

[2] For the period 1985-91 the data excludes the sugar levy and all other taxes from Public Enterprises

[3] For the period 1985-91 the data excludes transactions with the Central Government.For the earlier years the public sector is included in the Central Government data

[4] Starting from October 1990, interest obligations on reschedule debt were estimated at 2% of the stock of such debt; these obligations were subsequently rescheduled by the Paris Club.

Table A.I.3: External sector 1975-1992 (000,000 US$)

	Current account balance	Exports goods (f.o.b.)	Imports goods (c.i.f.)	Services account (net)	Un-requested trans-fers (net)	External medium & long term debt[2] outstanding	External medium & long term debt outstanding [3] (% of GDP)	Debt service (% of exports)
1975	-18	378	378	-14	-3.9	406	n.a	n.a
1976	-141	294	405	-24	-6.1	461	81.6	11.2
1977	-99	279	348	-26	-3.9	484	97.7	11.4
1978	-32	314	314	-25	-6.5	657	88.3	15.8
1979	-79	311	360	-30	0.3	737	97.5	29.4
1980	-109	406	471	-41	-6.0	770	94.6	17.0
1981	-169	373	484	-58	0.2	869	112.4	21.9
1982	-133	264	348	-43	-8.2	859	141.6	18.7
1983	-128	225	324	-29	0.7	831	142.9	23.2
1984	-94	217	202	-114	5.0	840	159.5	15.7
1985	-131	213	255	-96	-17.0	897	168.8	9.5
1986	-141	210	260	-126	16.0	952	165.6	12.5
1987	-109	240	262	-109	21.0	1040	119.2	9.6
1988	-94	215	216	-94	19.0	1048	226.5	8.6
1989	-113	205	212	-113	21.0	1559	579.1	11.5
1990	-148	204	250	-148	28.0	1864	738.6	56.7
1991	-119	239	242	-119	22.0	1852	n.a	n.a
1992[1]	-107	283	286	-107	19.0	2063	n.a	n.a

Source: IDB, Annual Report, 1991, IMF Statistics, World Bank County Reports 1985, 1992, Bank of Guyana Report 1992

[1] Provisional
[2] Excludes Short Term Public Debt
[3] Includes only outburst and outstanding debt at end of year
[4] Includes only medium and long term Public Debt Service Payments (interest and amortization).

Table A.I.4: Official Guyana exchange rate 1970-1992 (G$ / US$)

YEARS	End of period	Period averages
1970	2.0053	2.0034
1971	2.0417	1.9779
1972	2.2194	2.0866
1973	2.2433	2.1062
1974	2.2190	2.2269
1975	2.5500	2.3554
1976	2.5500	2.5500
1977	2.5500	2.5500
1978	2.5500	2.5500
1979	2.5500	2.5500
1980	2.5500	2.5500
1981	3.0000	2.1825
1982	3.0000	3.0000
1983	3.0000	3.000
1984	4.1500	3.8316
1985	4.1500	4.2519
1986	4.4000	4.2724
1987	10.0000	9.7558
1988	10.0000	10.0000
1989	33.0000	27.1588
1990	45.0000	39.5333
1991	122.7500	111.8000
1992	126.0000	125.3850

Source: Bank of Guyana Reports (Various Issues)

Table A.I.5: Composition of agricultural GDP, 1985-1991 (%)

SUB-SECTOR	1985	1986	1987	1988	1989	1990	1991
Sugar cane	37	49	60	42	33	31	46
Rice	10	7	6	6	11	6	14
Other crops	21	17	14	20	18	18	11
Livestock	10	9	7	10	8	7	4
Fishing	13	11	8	13	25	34	21
Forestry	10	8	6	9	5	5	3
Total	100	100	100	100	100	100	100

Source: Bank of Guyana Reports; World Bank Report (1992)

Table A.I.6: Production of selected non-traditional products 1981-92 (000 tonnes)

PRODUCE	1981-83	1984	1985	1986	1987	1988	1989	1990	1991	1992
Coconuts	47.0	50.0	51.0	51.0	45.4	45.3	48.6	47.8	54.6	56.3
Citrus	10.7	10.7	11.4	13.2	11.0	7.4	5.4	6.4	6.4	7.2
Ground provision	21.1	29.0	38.0	44.5	50.3	39.0	37.2	32.0	13.0	n.a
Plantains	13.2	20.5	24.2	20.8	22.4	22.7	22.3	13.0	13.0	13.0
Bananas	4.9	11.2	16.2	17.4	9.5	14.2	15.8	12.7	12.8	13.3
Pineapples	2.0	3.6	3.7	5.3	7.9	9.9	11.2	7.6	6.5	8.8
Grain legumes	0.9	1.0	1.2	1.5	1.0	1.0	1.0	1.0	0.9	n.a
Tomatoes	2.9	3.0	3.0	3.7	2.4	2.3	2.4	1.3	1.3	1.6
Cabbages	1.0	1.3	1.6	2.1	0.3	0.8	1.6	1.5	1.2	1.3
Milk (000 000 gal.)	3.2	3.8	4.9	6.2	6.9	7.9	7.8	8.3	8.5	n.a
Beef	2.1	1.6	1.6	1.7	1.8	2.0	2.4	2.2	3.2	n.a
Pork	1.1	1.0	1.0	1.1	1.1	1.1	1.0	0.9	0.9	0.6
Eggs (x 000,000)	45.2	49.0	49.3	49.9	35.0	14.0	30.4	13.5	5.3	7.3
Poultry	7.0	4.1	2.8	3.0	3.6	3.9	2.2	2.1	1.5	3.1
Fish	20.8	34.3	34.2	33.8	32.8	31.5	32.5	33.0	36.0	37.2
Prawns/ Shrimps	6.3	5.4	5.7	6.3	6.2	6.2	6.4	5.1	6.0	5.8

Source: Ministry of Agriculture - Annual Reports - (Various Issues)

Table A.I.7: Annual average value of exports of traditional agricultural commodities from 1975-1990 (000,000 US$)

COMMODITIES	1975-80	1981-85	1986-89	1990	1991[1]	1992[1]
Sugar	114.1	79.2	84.4	81.4	95.6	132.7
Rice	31.4	22.1	14.0	13.0	17.2	34.4
Timber	4.5	4.5	3.5	4.6	3.8	3.7
Others	4.7	1.9	22.1	22.9	n.a	n.a
Total agriculture	154.7	107.7	124.0	121.9	n.a	n.a
As % of all exports	52%	47%	53%	48%	n.a	n.a

Source: World Bank (1992), Bank of Guyana Reports (Various Issues), Statistical Bureau (1993)

[1] Provisional

Table A.I.8: Selected non-traditional agricultural exports in 1989 and 1990

NON-TRADITIONAL CROPS	1989		1990	
	(ton)	(000 US$)	(ton)	(000 US$)
Pineapples	603.5	116.9	665.3	121.9
Plantains	13.3	2.6	220.8	34.7
Pumpkins	123.6	14.9	5.0	0.5
Hot peppers	7.8	6.1	1.9	2.8
Mangoes	2.5	0.2	67.6	5.6
Limes	24.9	7.0	27.6	6.5
Oranges	49.2	11.8	5.9	1.6
Eddoes	6.4	1.4	4.2	0.7
Coconuts	6.6	1.2	29.2	3.7
Cassava	0.5	0.1	0.0	0.0
Tangerines	4.6	1.1	0.8	0.2
Grapefruit	0.7	0.2	0.0	0.0
Total[1]	1,066.5	214.7	1,204.8	273.0

Source: World Bank, 1992

[1] Including commodities not listed above

ANNEX A.II - THE FARM

Table A.II.1: Distribution of total farm area by farm size and surveyed area

SURVEYED AREAS	Acreage of land in each farm size grouping							
	Under 0.5 acres	%	0.5-9.9 acres	%	10 acres and above	%	TOTAL	%
EBD	80.3	1.7	753.0	15.6	3988	82.7	4821.3	100
ECD	361.3	3.4	4301.6	40.5	5954.3	56.1	10617.2	100
MMA	1058.5	3.1	4090.1	11.8	29472.4	85.1	34621.0	100
BBP	235.5	0.9	6743.5	22.9	22365	76.2	29344	100
TOTAL	1735.5	2.2	1888.3	20.0	61779.7	77.8	79403.5	100

Table A.II.2: Distribution of farms by farm size and surveyed area

SURVEYED AREAS	No of farms in various farm size groups							
	Under 0.5 acres	%	0.5-9.9 acres	%	10 acres and above	%	TOTAL	%
EBD	280	55.7	190	38.0	32	6.3	502	100
ECD	846	35.5	1285	53.2	268	11.3	2399	100
MMA	2564	63.2	1076	26.5	418	10.3	4058	100
BBP	765	24.3	1627	51.7	760	24.1	3152	100
TOTAL	4455	44.1	4178	41.3	1478	14.6	10111	100

Table A.II.3: Average size of farms in surveyed areas by land use (acres)

LAND USE	EBD	ECD	MMA	BBP	OVERALL AVERAGE
Paddy fields	0.0	11.8	42.8	10.1	23.3
Other crops	3.7	4.4	0.9	1.9	1.8
Fallow land	21.7	2.9	3.3	11.3	9.4
Planted pasture	20.0	1.2	0.3	7.3	6.6
Natural pasture	0.0	0.9	109.6	22.4	47.5
Non-agricultural land	8.6	2.8	6.3	2.5	5.6
Homestead	0.4	0.4	0.3	0.4	0.4

Table A.II.4: Likely response of farmers to improved drainage and irrigation facilities as indicated by farmers (% in each farm size grouping)

SURVEYED AREA	OPTION	< 0.5 acre	0.5 - 9.9 acre	> = 10.0 acre	TOTAL
EBD	Expand area with crops	2.1	73.7	10.0	35.5
	More harvests per year	5.7	52.6	10.0	29.5
	Expand or improve pastures	10.4	0.0	5.0	5.8
	Other ideas	48.2	64.0	0.0	39.6
ECD	Expand area with crops	31.9	39.7	5.6	33.1
	More harvests per year	16.8	33.0	40.3	28.0
	Expand or improve pastures	0.0	2.2	0.0	1.2
	Other ideas	22.6	5.6	5.6	11.6
MMA	Expand area with crops	18.3	13.5	8.6	16.0
	More harvests per year	9.9	23.1	18.7	14.3
	Expand or improve pastures	0.0	0.0	11.2	1.2
	Other ideas	21.3	29.3	38.7	23.1
BBP	Expand area with crops	34.4	49.6	53.4	46.9
	More harvests per year	0.8	33.1	40.0	26.9
	Expand or improve pastures	0.0	0.8	6.7	2.0
	Other ideas	49.4	13.3	10.0	21.3
TOTAL	Expand area with crops	22.6	38.4	33.0	30.6
	More Harvests per year	9.4	31.4	35.3	22.3
	Expand or improve pasture	0.3	1.0	7.7	1.7
	Other ideas	28.0	16.0	11.5	20.7

Table A.II.5: Total number of machinery and equipment per surveyed area and numbers per acre

Machinery and equipment	Surveyed areas	TOTAL NUMBER OF EQUIPMENT			NUMBER OF ACRES PER 1 EQUIPMENT		
		< 10.0 acres	> = 10.0 acre	TOTAL	< 10.0 acres	> = 10.0 acre	TOTAL
Tractor	EBD	0	16	16	-	249	301
	ECD	34	138	172	137	43	62
	MMA	68	278	346	76	106	100
	BBP	69	261	330	101	86	89
	TOTAL	171	693	864	103	89	92
Ploughs	EBD	0	16	16	-	249	301
	ECD	47	135	182	99	44	58
	MMA	86	207	293	60	142	118
	BBP	34	291	325	205	77	90
	TOTAL	167	649	816	106	95	97
Harrows	EBD	0	0	0	-	-	-
	ECD	0	88	88	-	68	121
	MMA	0	186	186	-	158	186
	BBP	0	68	68	-	329	432
	TOTAL	0	342	342	-	181	232
Combine harvesters	EBD	0	0	0	-	-	-
	ECD	0	44	44	-	135	241
	MMA	0	80	80	-	368	433
	BBP	0	6	6	-	3,728	4,891
	TOTAL	0	130	130	-	475	611
Water pumps	EBD	0	0	48	-	-	100
	ECD	221	50	271	21	119	39
	MMA	588	0	588	9	-	59
	BBP	370	200	570	19	112	51
	TOTAL	1179	298	1477	15	207	54

Table A.II.6: Utilization of Fertilizers and other agro-chemicals by 'other crop' producers in tl surveyed areas

BORAD CATEGORIES OF 'OTHER CROPS'	SELECTED 'OTHER CROPS'	Percentage of acreage with crops on which fertilizer and Agro-chemicals are used									
		EBD		ECD		MMA		BBP		TOTAL	
		Fer	Other Chem	Fer	Other Chem	Fer	Other Chem	Fer	Other Chem	Fer	Other Chem
GROUND PROVISIONS	Cassava	66.2	94.8	-	-	-	-	-	-	65.9	94.4
	Eddoes	-	55.7	-	-	-	-	-	-	-	55.7
	Sweet Potatoes	25.8	67.7	-	-	-	-	-	-	25.8	67.7
	Yams	-	45.8	-	-	-	-	-	-	-	45.8
VEGETABLES	Pumpkin	-	-	100	-	56.4	56.4	74.3	74.3	82.6	31.1
	Ochro	-	-	100	100	56.7	60.7	88.2	88.2	95.5	94.3
	Boulanger	-	-	100	100	81.1	84.1	98.9	98.9	98.3	98.3
	Calaloo	-	-	100	100	-	96.1	-	-	98.7	100
	Squash	-	-	100	90.3	-	-	85.1	85.1	98.6	90.1
	Tomatoes	-	-	100	100	99.1	5.4	99.1	99.1	98.9	85.7
	Bora	42.0	13.0	97.9	91.4	61.7	63.6	100	100	96.1	90.2
	Pakchoy	100	100	38.4	100	100	100	-	100	80.9	100
	Watermelons	-	-	-	-	99.4	75.6	91.5	91.2	96.2	53.1
	Cucumbers	100	98.5	100	100	100	100	-	-	-	-
FRUITS	Limes	100	-	-	-	-	-	-	-	100	-
	Oranges	75	25	-	-	-	-	-	-	75.0	25.0
	Bananas	-	-	100	46.7	-	2.7	-	-	74.4	38.3
	Cherries	100	-	100	100	-	-	-	-	100	29.8
	Mangoes	100	-	-	-	-	-	-	-	1.3	-
SEASONINGS	Eschallot	-	-	100	72.5	92.5	84.9	100	100	91.1	81.7
	Chives	-	-	-	-	100	100	-	-	100	100
	Celery	-	-	89.8	89.8	-	-	100	100	91.7	81.4
	Peppers	-	86.0	100	100	76.0	76.0	-	100	83.9	97.0
EDIBLE OIL CROPS	Coconuts	-	-	46.9	13.2	-	-	-	-	14.4	11.7
LEGUMES	Bleckeye beans	-	-	-	-	9.2	-	-	-	87.0	43.2
	Minica	-	-	-	-	41.5	41.5	-	-	41.5	41.5
	Peanuts	-	-	-	-	-	-	100	100	100	100

Table A.II.7: Total acreage and annual yield per acre of selected 'other crops' int he surveyed area

BROAD CATEGORIES OF 'OTHER CROPS'	SELECTED 'OTHER CROPS'	Annual yield per acre by surveyed area						Total acreage with each crop by area (acres)				
		Units	EBD	ECD	MMA	BBP	TOTAL	EBD	ECD	MMA	BBP	TOTAL
GROUND PROVISIONS	CASSAVA	tons	2.2	-	-	5.7	2.2	580.2	-	2.8	-	583.0
	EDDOES	tons	3.8	-	-	-	3.8	13.2	-	-	-	13.2
	SWEET POTATOES	tons	2.0	-	-	-	2.4	31.0	-	-	-	31.0
	YAMS	tons	5.2	-	-	-	5.2	7.2	-	-	-	7.2
VEGETABLES	PUMPKIN	tons	3.6	2.7	1.8	1.7	2.8	0.8	36.0	15.4	17.5	69.7
	OCHRO	tons	0.2	1.9	0.5	1.6	1.7	4.0	225.4	15.3		321.2
	BOULANGER	tons	-	1.7	1.9	1.9	1.9	-	116.2	27.0	76.5	560.7
	CALALOO	tons	-	0.3	0.6	-	0.3	-	103.6	1.3	417.5	104.9
	SQUASH	tons	-	2.4	-	2.6	2.5	-	230.2	-	30.2	260.4
	TOMATOES	tons	2.3	1.1	1.9	1.9	1.8	2.0	103.7	91.7	453.8	651.2
	BORA	tons	1.3	2.5	1.6	1.8	2.4	6.9	513.7	20.9	42.7	584.2
	PAKCHOY	tons	2.7	4.0	0.6	1.4	3.1	6.5	20.9	2.5	4.3	34.2
	WATERMELONS	tons	-	-	0.6	4.1	2.04	-	-	442.0	307.6	749.6
	CUCUMBERS	tons	2.7	2.9	-	-	2.9	4.0	205.4	-	-	209.4
FRUITS	LIMES	tons	4.0	-	-	-	4.0	30.0	-	-	-	30.0
	ORANGES	tons	5.4	4.5	-	-	5.0	40.0	8.5	-	-	48.5
	BANANAS	tons	4.6	5.8	3.3	1.8	5.1	11.3	147.5	15.4	24.0	198.2
	CHERRIES	tons	0.4	1.4	-	-	0.6	4.0	1.7	-	-	5.7
	MANGOES	tons	1.0	3.8	2.9	-	2.6	4.0	252.2	32.2	-	289.0
SEASONINGS	Eschallot	tons	1.2	1.1	1.8	2.0	1.7	4.0	23.7	130.9	4.3	162.9
	CHIVES	tons	-	-	0.6	-	0.6	-	-	1055.0	-	1055.0
	CELERY	tons	1.8	2.1	-	2.5	2.1	8.0	66.7	-	4.3	78.3
	PEPPERS	tons	2.1	0.6	0.9	0.4	0.7	15.0	156.1	21.1	13.0	205.3
EDIBLE OIL CROPS	COCONUTS	Nuts (000)	3.0	4.0	3.5	3.3	3.4	2.0	829.2	891.7	971.5	2694.4
LEGUMES	BLACKEYE BEANS	tons	1.1	-	0.8	0.2	0.6	2.0	-	221.0	80.9	303.9
	MINICA	tons	-	-	0.4	-	0.4	-	-	442.0	307.6	28.?
	PEANUTS	tons	-	-	0.6	0.6	0.6	-	-	33.0	17.0	50.0

Table A.II.8: Main buyers of output of 'Other Crop' production

CATEGORIES OF 'OTHER CROPS'	SELECTED CROPS	Main buyers of output of 'Other Crops' production (% of producers reporting use of each market)					
		Mills & Factories	Town Market	Local Market	Exporters	Middlemen	Other Marketng Problems
GROUND PROVISIONS	CASSAVA	-	39.6	18.2	-	42.2	-
	SWEET POTATOES	-	45.3	-	-	54.7	-
	YAMS	-	100.0	-	-	-	-
VEGETABLES	PUMPKIN	5.8	5.1	68.8	-	20.3	-
	BOULANGER	-	7.6	24.8	-	67.6	-
	PAK CHOY	39.7	-	-	-	55.4	4.9
	TOMATOES	-	13.3	20.9	-	65.8	-
	WATERMELONS	-	-	6.4	-	93.6	-
	OCHRO	-	13.8	34.0	-	52.2	-
	BORA	-	16.3	40.9	-	39.2	3.6
	SQUASH	-	15.4	41.1	-	43.5	-
FRUITS	LIMES	-	-	-	-	100.0	-
	ORANGES	-	51.5	-	-	49.5	-
	BANANAS	-	14.7	9.5	-	75.8	-
	CHERRIES	-	-	-	-	100.0	-
	MANGOES		6.1	41.0	-	34.1	18.8
SEASONINGS	ESCHALLOT	-	14.2	10.1	3.5	72.2	-
	CELERY	-	40.5	20.3	-	39.2	-
	PEPPERS	-	24.9	1.1	6.4	67.6	-
EDIBLE OIL CROPS	COCONUTS	-	1.5	19.7	-	67.9	10.9
LEGUMES	BLACKEYE BEANS	-	14.6	14.6	-	85.4	-
	MINICA	-	51.8	-	-	48.2	-
	PEANUTS	-	72.2	-	-	27.8	-

Table A.II.9: Marketing problems facing 'Other Crops' producers in the surveyed area

CATEGORIES OF 'OTHER CROPS'	SELECTED CROPS	Marketing Problems (% of producers reporting each problem)				
		Inadequate Prices	Payment Delays	Expensive Transport	Market Glut	Other Markeitng Problems
GROUND PROVISIONS	CASSAVA	56.4	27.7	66.0	19.2	-
	SWEET POTATOES	21.6	43.2	100.0	-	-
	YAMS	100.0	-	100.0	-	-
VEGETABLES	PUMPKIN	23.2	30.4	44.6	92.0	-
	BOULANGER	73.4	27.6	77.1	21.0	3.3
	PAK CHOY	41.5	19.5	100.0	59.8	-
	TOMATOES	76.7	33.2	77.0	29.3	4.2
	WATERMELONS	79.3	42.5	66.1	20.0	-
	OCHRO	46.6	20.9	44.8	74.3	16.4
	BORA	74.5	17.9	48.3	78.2	13.5
	SQUASH	77.0	15.3	56.3	72.4	22.2
FRUITS	LIMES	100.0	-	-	-	-
	ORANGES	100.0	-	62.5	-	-
	BANANAS	17.7	38.1	23.7	41.9	6.5
	CHERRIES	-	-	-	-	-
	MANGOES	50.0	75.0	25.0	50.0	25.0
SEASONINGS	ESCHALLOT	65.0	17.2	41.7	49.2	-
	CELERY	51.9	12.2	88.6	50.4	-
	PEPPERS	60.6	15.7	49.8	72.3	-
EDIBLE OIL CROPS	COCONUTS	65.0	17.2	41.7	49.2	-
LEGUMES	BLACKEYE BEANS	80.0	-	60.0	40.0	-
	MINICA	60.9	39.1	39.1	100.0	-
	PEANUTS	100.0	72.1	100.0	27.9	-

Table A.II.10: Livestock distribution by farm size and area

SURVEYED AREA	LIVESTOCK GROUP	TOTAL NUMBER	FARM SIZES (% no. in each farm size group)			
			< 0.5 acre	0.5-9.9 acre	> = 10.0 acre	TOTAL %
EBD	Cattle	1612	11.4	5.2	83.4	100.0
	Swine	88	9.0	0.0	91.0	100.0
	Sheep	32	0.0	0.0	100.0	100.0
	Goat	116	74.1	25.9	0.0	100.0
	Equine	16	0.0	100.0	0.0	100.0
	Chicken	44454	25.6	1.9	72.5	100.0
	Other poultry	9023	42.8	2.8	54.4	100.0
ECD	Cattle	3259	22.6	74.0	3.4	100.0
	Swine	2247	7.3	92.7	0.0	100.0
	Sheep	2070	31.8	55.5	12.7	100.0
	Goat	1901	17.5	77.9	4.6	100.0
	Equine	371	16.7	79.2	4.1	100.0
	Chicken	28490	30.8	54.6	14.6	100.0
	Other poultry	16213	23.1	55.2	21.7	100.0
MMA	Cattle	18835	18.2	23.6	58.2	100.0
	Swine	3104	46.1	17.5	36.4	100.0
	Sheep	21776	59.4	19.2	21.4	100.0
	Goat	9310	26.9	27.1	46.0	100.0
	Equine	743	33.4	43.1	23.5	100.0
	Chicken	29016	73.7	16.6	9.7	100.0
	Other poultry	26559	57.8	27.0	15.2	100.0
BBP	Cattle	14216	5.6	32.7	61.7	100.0
	Swine	6340	9.7	78.9	11.4	100.0
	Sheep	9814	3.1	31.7	65.2	100.0
	Goat	3382	16.8	22.9	60.3	100.0
	Equine	1558	21.3	48.7	30.0	100.0
	Chicken	2771	57.6	33.2	9.2	100.0
	Other poultry	49784	21.4	51.3	27.3	100.0
TOTAL	Cattle	37922	13.5	30.5	56.0	100.0
	Swine	11779	18.8	64.8	16.4	100.0
	Sheep	33692	41.2	25.1	33.7	100.0
	Goat	14709	23.7	39.8	36.5	100.0
	Equine	2688	23.9	51.6	24.5	100.0
	Chicken	104731	41.2	21.1	37.7	100.0
	Other poultry	101579	33.1	41.4	25.5	100.0

Table A.II.11: Average number of livestock on farms of varying sizes by surveyed areas

SURVEYED AREAS	LIVESTOCK GROUP	FARM SIZES (No. of animals)		
		< 0.5 acre	0.5-9.9 acre	> = 10.0 acre
EBD	Cattle	2.8	4.2	42.0
	Swine	1.0	0.0	5.0
	Sheep	0.0	0.0	2.0
	Goat	3.6	3.0	0.0
	Equine	0.0	2.0	0.0
	Chicken	126.3	21.2	1007.5
	Other poultry	36.1	9.4	300.0
ECD	Cattle	2.8	5.7	2.0
	Swine	5.9	8.8	0.0
	Sheep	5.1	6.2	4.1
	Goat	5.5	6.8	2.0
	Equine	1.2	1.1	1.7
	Chicken	17.6	18.4	17.6
	Other poultry	16.7	18.1	16.1
MMA	Cattle	6.9	19.2	56.6
	Swine	7.5	7.5	16.9
	Sheep	61.8	24.3	34.1
	Goat	10.0	33.0	44.4
	Equine	1.0	3.1	1.9
	Chicken	19.8	24.2	26.6
	Other poultry	13.8	16.5	22.8
BBP	Cattle	6.4	16.7	30.9
	Swine	5.3	26.4	11.6
	Sheep	4.4	25.9	43.5
	Goat	13.5	6.1	29.5
	Equine	1.8	1.1	1.7
	Chicken	19.7	5.3	15.0
	Other poultry	17.9	154.9	25.3
TOTAL	Cattle	5.4	12.0	37.1
	Swine	6.5	13.0	13.6
	Sheep	31.9	16.3	31.4
	Goat	8.8	12.6	29.0
	Equine	1.4	1.6	1.9
	Chicken	24.1	19.3	98.2
	Other poultry	16.3	20.2	27.5

Table A.II.12: Grazing and feeding practices on Livestock Farms by area and farm size

SURVEYED AREA	Grazing and Feeding Practices	Percentage No of Livestock Farms involved in each practice, by farm size			
		Under 0.5	0.5-9.9 acres	10 acres & above	TOTAL
EBD	Grazing livestock on communal pastures.	0.0	1.7	6.8	8.5
	Grazing livestock on roadsides and embankments.	9.1	3.3	0.0	12.4
	Grazing livestock on harvested paddy fields.	0.0	0.0	0.0	0.0
	Stall feeding animals	13.9	6.3	3.4	23.7
ECD	Grazing livestock on communal pastures.	9.4	11.8	2.1	23.3
	Grazing livestock on roadsides and embankments.	9.8	18.8	2.1	30.7
	Grazing livestock on harvested paddy fields.	3.9	13.1	0.2	17.2
	Stall feeding animals	12.1	17.9	2.0	32.9
MMA	Grazing livestock on communal pastures.	5.1	4.6	2.6	12.3
	Grazing livestock on roadsides and embankments.	16.0	7.2	4.1	27.3
	Grazing livestock on harvested paddy fields.	12.0	6.1	4.8	23.3
	Stall feeding animals	2.6	0.0	0.9	3.5
BBP	Grazing livestock on communal pastures.	1.6	12.7	1.5	22.9
	Grazing livestock on roadsides and embankments.	4.8	5.3	1.5	11.6
	Grazing livestock on harvested paddy fields.	4.5	6.3	7.6	18.4
	Stall feeding animals	-	10.4	2.3	12.7

Table A.II.12: (Continued)

SURVEYED AREA	Grazing and Feeding Practices	Percentage No. of Livestock Farms involved in each practice, by farm size			
		Under 0.5	0.5-9.9 acres	10 acres & above	TOTAL
TOTAL AREA	Grazing livestock on communal pastures.	4.7	8.7	4.6	18.0
	Grazing livestock on roadsides and embankments.	10.6	7.9	2.6	21.1
	Grazing livestock on harvested paddy fields.	7.2	7.5	4.4	19.1
	Stall feeding animals	4.59	7.8	1.9	14.2

Table A.II.13: Characteristics of Milk Production by survey area and farm size.

Surveyed Areas	Milk Production	TOTAL	FARM SIZES (Acres)						
			Under 0.5	%	0.5-9.9	%	10 and above	%	TO (?
EBD	No. of milking cows	417	89	21.3	24	5.8	304	72.9	1(
	No of farms producing milk.	100	60	60	8	8	32	32	10
	Average No of milking cows.	4.2	1.2	-	3.0	-	9.5	-	
	Average length of lactation (mths)	7.1	6.9	-	7.0	-	7.5	-	
	Total milk output (gal)	118942.5	22057.5	18.5	4725.0	4.0	92160	77.5	1
	Average annual production per cow (gal)	285.2	247.8	-	196.9	-	303.2	-	
ECD	No. of milking cows	832	152	18.3	677	81.4	3	0.37	10
	No. of farms producing milk	410	96	23.4	311	75.8	3	0.8	1
	Average No of milking cows per farm	2.03	1.6	-	2.2	-	1.0		
	Average length of lactation (mths)	6.7	6.4	-	6.5	-	9.0		
	Total annual milk output (gal)	167358.9	2308	1.4	141291.9	84.4	759	14.2	
	Average annual production per cow (gal)	201.2	166.5	-	208.7	-	153.1	-	
MMA	No. of milking cows	5035	881	17.5	1213	24.1	2941	58	
	No. of farms producing milk.	803	428	53.3	181	22.5	144	04.4	
	Average No of milking cows.	6.3	2.1	-	6.7	-	15.2		
	Average length of lactation (mths).	6.6	6.6	-	6.7	-	6.6	-	
	Total annual milk output (gal).	780474.1	139046.5	17.8	16335.3	20.9	478076.3	61.3	10
	Average annual production per cow (gal).	155.0	157.8	-	134.7	-	164.3	-	

Table A.II.13: Continued

Surveyed Areas	Milk Production	TOTAL	FARM SIZES (Acres)						
			Under 0.5	%	0.5-9.9	%	10 and above	%	TOTAL
BBP	No. of milking cows	4321	334	7.7	1151	26.6	2836	65.7	100
	No. of farms producing milk.	667	126	18.9	279	41.8	262	39.3	100
	Average No of milking cows.	6,5	2.7	-	4.1	-	10.8	-	
	Average length of lactation (mths)	5.8	5.8	-	5.3	-	6.1	-	
	Total milk output (gal)	721398.0	97760.3	13.6	183656.2	25.5	439981.5	60.9	100
	Average annual production per cow (gal)	166.9	292.7	-	159.6	-	155.1	-	
Total Area	No. of milking cows	10605	1456	13.7	3065	28.9	6084	57.4	100
	No. of farms producing milk	1980	710	35.9	799	40.4	491	23.7	100
	Average No of milking cows per farm	5.4	2.1	-	3.9	-	12.4	-	
	Average length of lactation (mths)	6.4	6.4	-	6.2	-	6.4	-	
	Total annual milk output (gal)	1788203.5	284177.5	15.9	493031.1	27.6	1010994.9	56.5	100
	Average annual production per cow (gal)	168.6	195.2	-	160.9	-	166.2	-	

Table A.II.14: **Percentage of farm households employing permanent and casual workers and exchanging labour, by farm size and surveyed area (% of total number of households in each farm size group).**

Type of labour	Surveyed area	FARM SIZE (%)			
		< 0.5 acre	0.5-9.9 acre	> = 10.0 acre	Mean
Permanent labour	EBD	15.7	13.7	100.0	17.1
	ECD	9.2	7.1	0.0	7.7
	MMA	1.9	6.8	23.9	5.4
	BBP	8.4	8.8	15.4	11.7
	Average	5.3	9.0	15.8	8.5
Casual labour	EBD	8.1	43.9	100.0	27.9
	ECD	17.3	19.1	39.6	20.6
	MMA	6.4	12.3	37.6	13.2
	BBP	1.0	26.9	28.5	20.8
	Average	7.7	21.0	41.8	17.9
Exchange labour	EBD	0.0	20.5	0.0	7.8
	ECD	7.2	8.6	3.4	7.5
	MMA	1.4	16.3	0.0	5.8
	BBP	12.8	4.0	3.0	5.9
	Average	4.4	7.4	2.2	6.3

Table A.II.15: Technical assistance to livestock farmers by surveyed areas

TECHNICAL ASSISTANCE	EBD	ECD	MMA	BBP	TOTAL
REQUEST FOR TECHNICAL ASSISTANCE					
- Total nunber of farms	502	2399	4058	3152	10111
- Number of farms that requested tech. asst.	93	773	1378	621	2865
- Percentage of Farms that requested tech. asst. %	18.5	32.2	33.9	19.7	28.3
- Number of farms that received tech. asst.	13	385	794	228	1420
- Percentage of farms that received tech. asst. in relation to the number of farms that requested T.A	13.9	49.8	57.6	36.7	49.6
SOURCES AND QUALITY OF TECHNICAL ASSISTANCE	EBD	ECD	MMA	BBP	TOTAL
TOTAL NO FARMS RECEIVING TECHNICAL ASSISTANCE	13	385	794	228	1420
Contribution of each source of T.A requirements of farms (%)					
- MOA/NDDP	-	38.9	70.4	31.5	54.6
- Commercial Houses	-	3.1	2.1	7.9	3.2
- Others	100	57.9	27.5	60.6	42.1
Opinion of farmers as to the quality of tech. asst.(%)					
- Very good	100	15.1	54.4	-	36.6
- Good	-	65.5	42.9	80.2	54.9
- Poor	-	19.4	2.7	19.8	8.5

Table A.II.16: Technical Assistance to Crop Producing Farmers by Surveyed Areas

TECHNICAL ASSISTANCE	EBD	ECD	MMA	BBP	TOTAL
REQUEST FOR TECHNICAL ASSISTANCE					
- Total no of farms	502	2399	4058	3152	10111
- Number of farms that requested tech. asst.	125	941	1624	938	3628
- Percentage of Farms that requested tech. asst. (%)	24.9	39.2	40.0	29.8	35.9
- Number of farms that received tech. asst.	58	533	792	509	1892
- Percentage of farms that received tech. asst. in relation to the number of farms that requested T.A	46.4	56.6	48.8	54.3	52.1
SOURCES AND QUALITY OF TECHNICAL ASSISTANCE	**EBD**	**ECD**	**MMA**	**BBP**	**TOTAL**
TOTAL NO FARMS RECEIVING TECHNICAL ASSISTANCE	58	533	792	509	1892
Contribution of each source of T.A requirements of farms (%)					
- MOA/NDDP	-	17.1	55.3	89.6	52.1
- Commercial Houses	31.0	3.2	8.2	3.3	6.2
- Others	69.0	79.7	36.5	7.1	41.7
Opinion of farmers as to the quality of tech. asst.(%)					
- Very good	8.2	5.6	34.3	51.3	32.3
- Good	-	88.6	62.9	47.2	64.0
- Poor	17.2	5.8	2.8	1.5	3.7

Table A.III.1: Age Distribution of the population by area and sex (No.)

Age groups	EBD			ECD			MMA			BBP			TOTAL		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
0-14	1104	730	1834	2237	2387	4721	4191	4465	8656	2625	3096	5721	10257	10675	20932
15-24	538	603	1141	2514	2057	4571	4026	3528	7554	2080	2432	4512	9158	8620	17778
25-39	592	547	1139	1633	1758	3391	3036	3569	6605	2120	1969	4089	7381	7843	15224
40-64	490	460	950	1557	1662	3219	3032	2953	5985	1733	1828	3561	6812	6903	13715
65+	82	82	164	154	299	453	715	587	1302	381	928	1309	1332	1188	2520
Total	2806	2422	5228	8095	8163	16355	15000	15102	30102	8939	10253	19192	34940	35229	70169

TABLE A.III.2: Age distribution of the population by area and sex (%)

Age groups	EBD			ECD			MMA			BBP			TOTAL		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
0-14	39.3	30.1	35.1	27.6	29.2	28.8	27.9	29.6	28.8	29.3	30.2	29.8	29.4	30.2	29.8
15-24	19.2	24.9	21.8	31.1	25.2	28.0	26.8	23.3	25.1	23.3	23.7	23.5	26.2	24.5	25.3
25-39	21.1	22.6	21.8	20.2	21.5	20.7	20.3	23.6	21.9	23.7	19.2	21.3	21.1	22.3	21.7
40-64	17.5	19.0	18.2	19.2	20.4	19.7	20.2	19.6	19.9	19.4	17.8	18.6	19.5	19.6	19.6
65+	2.9	3.4	3.1	1.9	3.7	2.8	4.8	3.9	4.3	4.3	9.1	6.8	3.8	3.4	3.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE A.III.3: Distribution of female headed households by number of children and age of household heads

AGE GROUPS	NUMBER OF CHILDREN IN THE HOUSEHOLD											
	0		1		2		3 - 4		5 - 9		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%
ALL AGES	463	16.8	670	24.3	469	17.0	795	28.9	357	13.0	2754	100
15 - 24	16	16.8	43	45.3	0	0.0	36	37.9	0	0.0	95	100
25 - 39	80	17.9	55	12.3	01	18.1	163	36.4	69	15.4	448	100
40 - 64	109	6.6	462	27.8	337	20.3	535	32.2	216	13.0	1059	100
Over 64	258	46.7	110	19.9	51	9.2	61	11.1	72	13.0	552	100

Table A.III.4: Female heads of households by age groups and size of farm (%)

AGE GROUPS	FARM SIZE (acres)							
	NONE	<0.5	0.5-0.9	1-2.4	2.5-4.9	5-9.9	10-19	20+
15-24 yrs	37.9	62.1	0.0	0.0	0.0	0.0	0.0	0.0
25-39 yrs	29.7	47.1	10.0	0.0	13.2	0.0	0.0	0.0
40-64 yrs	21.2	41.8	9.5	5.4	9.1	7.3	7.3	1.3
65 + yrs	21.7	52.5	0.0	6.3	6.2	4.2	4.2	3.3
Total Female population	23.3	45.5	7.3	4.5	8.9	3.8	5.2	1.5

Table A.III.5: Educational attainment by sex and area

EDUCATION LEVEL	Percentage of persons attaining various level of education by sex and survey area									
	EBD		ECD		MMA		BBP		TOTAL	
	M	F	M	F	M	F	M	F	M	F
PRIMARY	43.5	43.7	45.2	41.7	35.4	34.1	48.1	47.9	41.60	40.26
SECONDARY	37.0	39.4	39.8	41.3	48.5	48.3	39.3	38.8	43.18	43.49
UNIVERSITY	1.6	0.7	0.2	0.0	0.6	0.0	0.5	0.0	0.6	0.05
OTHER	5.7	4.6	6.1	4.5	5.5	6.6	4.8	7.0	5.48	6.08
NONE	12.2	11.6	8.7	12.5	10.0	11.0	7.3	6.3	9.18	10.11
TOTAL	100	100	100	100	100	100	100	100	100	100

TABLE A.III.6: Types of occupation in the various sectors of permanent employment

SECTORS OF PERMANENT EMPLOYMENT	Number and percentage of working population employed in various types of occupation									
	Manual work		Clerical		Technical/ Managerial		Others		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
FARM Sugar estate	2564	79.8	73	2.2	531	16.5	47	1.5	3215	100
Other farms	76	65.0	-	-	31	26.5	10	8.5	117	100
Private (Non-farm)	368	16.7	88	4.0	345	15.6	1408	63.7	2209	100
Public sector	418	20.0	354	17.0	624	29.9	692	33.1	2088	100
Domestic service	22	47.8	9	19.6	-	-	15	32.6	46	100
NON-FARM Sugar estate	793	66.6	76	6.4	272	22.9	49	4.1	1190	100
Other farms	47	85.5	-	-	8	14.5	-	-	55	100
Private (Non-farm)	293	24.3	79	6.5	139	11.5	696	57.7	1207	100
Public service	38	3.8	161	15.9	258	25.5	555	54.8	1012	100
Domestic service	-	-	-	-	-	-	52	100.0	52	100

Table A.III.7: Household per capita income deciles types of family

	TOTAL	Per capita household income by deciles									
		Poorest 10%	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Richest 10%
TOTAL	100.0%	1.2%	2.3%	3.3%	3.6%	4.4%	5.5%	5.1%	8.3%	11.2%	55.2%
Type of family											
Nuclear, lone couple	100.0%	.0%	.2%	1.0%	1.0%	.7%	.3%	4.8%	2.3%	8.7%	80.9%
Nuclear, young children	100.0%	.4%	1.6%	2.5%	3.0%	2.3%	4.8%	5.6%	6.7%	12.1%	61.1%
Nuclear, mixed children	100.0%	2.3%	1.9%	8.6%	5.0%	12.5%	11.5%	6.2%	14.7%	9.9%	27.6%
Nuclear, grown children	100.0%	.2%	.5%	.7%	2.0%	4.6%	4.7%	6.8%	12.9%	17.1%	50.5%
Extended family	100.0%	1.3%	2.8%	3.4%	2.7%	3.3%	2.5%	1.6%	4.4%	12.6%	65.5%
Female head, young children	100.0%	6.2%	7.9%	7.6%	8.2%	6.5%	14.2%	13.4%	5.6%	10.6%	19.8%
Female head, other	100.0%	1.4%	3.0%	4.2%	5.6%	4.3%	5.0%	8.1%	7.2%	4.1%	57.0%
Other types	100.0%	1.5%	4.6%	3.0%	6.3%	6.0%	11.3%	3.9%	16.1%	4.4%	42.7%
TOTAL	100.0%	1.2%	2.3%	3.3%	3.6%	4.4%	5.5%	5.1%	8.3%	11.2%	55.2%
Sources of income											
Mostly farm	100.0%	.3%	.4%	.6%	1.4%	.2%	.9%	.3%	2.2%	3.7%	89.9%
Farm + employment	100.0%	2.8%	5.2%	8.9%	8.0%	12.2%	10.6%	12.3%	16.1%	13.7%	10.2%
Farm + casual work	100.0%	1.0%	2.7%	3.7%	1.1%	4.6%	12.2%	5.0%	24.3%	19.4%	26.0%
Farm + commerce	100.0%	.5%	1.0%	1.5%	.9%	6.9%	16.7%	7.3%	32.0%	9.6%	23.7%
Farm + other income	100.0%	2.1%	4.0%	3.4%	4.4%	8.9%	6.2%	5.9%	15.4%	35.1%	14.7%
No farm, employment	100.0%	2.2%	6.3%	6.5%	9.4%	5.1%	15.3%	15.2%	7.6%	22.7%	9.7%
No farm, casual work	100.0%	1.3%	1.3%	6.9%	16.1%	13.9%	5.3%	5.0%	.9%	13.8%	35.5%
Other non farm	100.0%	1.8%	4.2%	7.7%	3.0%	7.6%	6.4%	11.0%	7.4%	15.6%	35.5%

Table A.III.8: Types of family and source of income by per capita household income deciles

	TOTAL	Per capita household income by deciles									
		Poorest 10%	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Richest 10%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Type of family											
Nuclear, lone couple	1.4%	.3%	.4%	1.2%	1.1%	.6%	.2%	3.6%	1.1%	3.2%	4.0%
Nuclear, young children	16.9%	6.7%	15.4%	16.8%	18.9%	11.5%	19.6%	24.2%	18.4%	24.5%	17.3%
Nuclear, mixed children	15.2%	17.7%	8.1%	23.0%	12.1%	24.7%	18.6%	11.1%	15.9%	7.0%	11.2%
Nuclear, grown children	11.9%	3.5%	2.9%	3.0%	8.1%	15.3%	12.9%	20.1%	23.3%	22.6%	15.8%
Extended family	24.0%	33.6%	31.7%	27.1%	20.7%	21.9%	12.9%	8.5%	14.3%	32.0%	32.3%
Female head, young children	8.1%	16.2%	12.1%	8.5%	8.0%	5.0%	9.4%	9.7%	2.7%	3.6%	2.2%
Female head, other	11.1%	13.1%	13.0%	12.8%	16.6%	9.9%	9.8%	16.5%	8.3%	3.7%	6.0%
Other types	11.4%	8.9%	16.4%	7.6%	14.6%	11.2%	16.6%	6.3%	16.1%	3.4%	11.3%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sources of income											
Mostly farm	16.1%	18.2%	10.0%	10.5%	19.9%	2.9%	9.0%	3.3%	13.8%	16.2%	64.0%
Farm + employment	36.0%	37.8%	38.6%	45.9%	39.3%	49.0%	34.2%	42.5%	34.7%	19.8%	11.2%
Farm + casual work	2.6%	1.5%	2.1%	2.2%	.6%	2.1%	4.2%	1.8%	5.7%	3.2%	3.2%
Farm + commerce	5.7%	1.9%	2.3%	2.0%	1.2%	6.8%	13.4%	6.0%	16.5%	4.3%	5.1%
Farm + other income	15.2%	18.0%	16.6%	9.4%	11.6%	18.8%	10.8%	11.5%	17.4%	30.0%	7.8%
No farm, employment	14.4%	11.2%	19.4%	14.8%	19.3%	8.6%	20.6%	21.8%	6.6%	17.0%	3.7%
No farm, casual work	1.2%	1.2%	.4%	1.7%	3.3%	2.5%	.7%	.7%	.1%	.9%	.3%
Other non farm	8.7%	10.1%	10.5%	13.5%	4.8%	9.3%	7.0%	12.3%	5.1%	8.6%	4.8%

Table A.IV.1: Guyana Maximum Food Basket

Food Items	Daily ration: Grams per person/day	Calories per 100 g	Calories daily per person	Mthly allow. (family of 5) Qty.+ Unit	Rounded monthly basket	Unit price July/93	Total Monthly cost (July 1993)
TOTAL			2176.2				G$12,467.50
CEREALS							
Rice (milled)	227.0	372	844.4	76.04 lbs	75	G$ 17.50	G$ 1,312,50
Noodles	45.4	360	164.4	15.21 lbs	15	G$ 70.00	G$ 1,050.00
Bread	75.7	260	196.7	25.35 lbs	25	G$ 80.00	G$ 2,000.00
TUBERS AND OTHER STARCHY FOODS							
Plantain	22.7	83	18.8	7.60 lbs	8	G$ 15.00	G$ 120.00
Cassava	22.7	120	27.2	7.60 lbs	8	G$ 10.00	G$ 80.00
Eddoes	22.7	89	20.2	7.60 lbs	8	G$ 20.00	G$ 160.00
Yams	11.3	100	11.3	3.79 lbs	4	G$ 15.00	G$ 60.00
Potatoes	11.3	97	11.0	3.79 lbs	4	G$ 35.00	G$ 140.00
SUGAR							
Brown sugar	45.4	384	174.3	15.21 lbs	15	G$ 28.00	G$ 420.00
VEGETABLES							
Bora	10.8	337	36.4	3.62 lbs	4	G$ 20.00	G$ 80.00
Pumpkin	34.0	35	11.9	11.39 lbs	11	G$ 40.00	G$ 440.00
Calaloo	21.6	60	13.0	7.24 lbs	7	G$ 40.00	G$ 280.00
Boulanger (eggplant)	22.7	127	28.8	7.60 lbs	8	G$ 20.00	G$ 160.00
Ochro	22.7	110	25.0	7.60 lbs	8	G$ 25.00	G$ 200.00
FRUITS							
Orange	11.3	45	5.1	3.79 lbs	4	G$ 40.00	G$ 160.00
Lime	22.7	45	10.2	7.60 lbs	8	G$ 20.00	G$ 160.00
Banana (ripe)	32.4	100	21.4	10.86 lbs	11	G$ 30.00	G$ 330.00
Mango	22.3	51	5.8	3.79 lbs	4	G$ 40.00	G$ 160.00
Pineapple	11.3	60	6.8	3.79 lbs	4	G$ 50.00	
MEAT AND FISH							
Butter fish	22.7	266	46.5	6.10 lbs	6	G$ 85.00	G$ 510.00
Salted fish	11.3	225	25.4	3.79 lbs	4	G$ 70.00	G$ 280.00
DAIRY PRODUCTS							
Milk, powder	10.8	520	56.2	3.62 lbs	4	G$220.00	G$ 800.00
OILS AND FATS							
Margarine	6.0	725	43.5	2.01 lbs	2	G$120.00	G$ 240.00
Vegetable oil	18.4	884	162.4	6.16 Pints	6	G$ 64.00	G$ 384.00
OTHER							
Salt				1.00 lb	1	G$ 25.00	G$ 25.00
Tea (100 bags)				1.00 Box	1	G$160.00	G$ 160.00
Coffee, ground				1.00 lb	1	G$ 96.00	G$ 96.00

Estimated by IFAD, Prices taken at Georgetown Stabroek market, mid-July 1993.
Calorie content as given by FAO, Local nutritionists, and The National Food and Nutrition Survey of Guyana (PAHO, Washington, 1976).

Table A.IV.2a: Incidence of poverty among households with different characteristics

TOTAL OF ALL SURVEYED AREAS

	TOTAL	Level of poverty (Percentage		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	36.0	32.7	31.2
Sources of income				
Mostly farm	100.0	35.2	14.8	50.0
Farm + employment	100.0	37.6	41.1	21.3
Farm + casual work	100.0	18.1	38.5	43.4
Farm + commerce	100.0	8.6	44.8	46.6
Farm + other income	100.0	31.2	33.1	35.7
No farm, employment	100.0	42.0	34.3	23.7
No farm, casual work	100.0	41.6	36.1	22.4
Other non farm	100.0	48.4	24.3	27.2
Predominant source of income				
Mostly farm income	100.0	30.5	20.8	48.7
Mostly wages	100.0	38.8	38.6	22.6
Mostly non-wage off-farm	100.0	44.3	30.9	24.7
None clearly prevails	100.0	15.9	38.3	45.8
TOTAL	100.0	36.0	32.7	31.2
Size of household				
1-2 members	100.0	33.3	19.9	46.8
3-4 members	100.0	27.2	35.1	37.7
5-6 members	100.0	35.2	38.9	26.0
7-9 members	100.0	50.1	30.7	19.2
10 and more	100.0	63.3	16.5	20.2
Av. members in household	5.02	5.67	4.91	4.39
Av. children in household	2.44	2.71	2.52	2.03
TOTAL	100.0	36.0	32.7	31.2
Age of household head				
15-24	100.0	32.5	24.7	42.8
25-39	100.0	33.9	31.1	35.0
40-64	100.0	33.0	36.0	31.0
Over 65	100.0	57.3	22.6	20.1
TOTAL	100.0	36.0	32.7	31.2
Land controlled				
Under 0.5	100.0	39.8	32.3	27.9
0.5-0.9	100.0	43.2	26.2	30.6
1.0-2.4	100.0	35.4	23.0	41.7
2.5-4.9	100.0	32.0	32.0	36.0
5.0-9.9	100.0	22.4	37.2	40.3
10-19	100.0	22.8	37.7	39.6
20+	100.0	37.1	36.7	26.2

Table A.IV.2b: Incidence of poverty among households with different characteristics

Area: East Bank Demerara

	TOTAL	Level of poverty (Percentage)		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	20.2	29.3	50.5
Sources of income				
Mostly farm	100.0		20.8	79.2
Farm + employment	100.0	28.1	11.5	60.4
Farm + casual work	100.0		100.0	
Farm + commerce	100.0		32.5	67.5
Farm + other income	100.0	38.7	25.8	35.5
No farm, employment	100.0	5.7	33.0	61.3
No farm, casual work	100.0	22.0	50.0	28.0
Other non farm	100.0	31.3	30.1	38.6
Predominant source of income				
Mostly farm income	100.0		13.0	87.0
Mostly wages	100.0	22.6	34.7	42.6
Mostly non-wage off-farm	100.0	22.1	22.5	55.4
None clearly prevails	100.0			100.0
TOTAL	100.0	20.2	29.3	50.5
Size of household				
1-2 members	100.0	5.6	20.1	74.3
3-4 members	100.0	12.8	25.1	62.1
5-6 members	100.0	22.4	27.2	50.4
7-9 members	100.0	32.0	47.5	20.5
10 and more	100.0	73.3	26.7	
Av. members in household	4.93	6.54	5.30	4.07
Av. children in household	2.35	2.70	2.93	1.87
TOTAL	100.0	20.2	29.3	50.5
Age of household head				
15-24	100.0		27.6	72.4
25-39	100.0	17.0	23.5	59.4
40-64	100.0	27.4	35.2	37.4
Over 65	100.0		23.9	76.1
TOTAL	100.0	20.2	29.3	50.5
Land controlled				
Under 0.5	100.0	17.4	31.0	51.6
0.5-0.9	100.0	24.5	30.2	45.3
1.0-2.4	100.0	34.8	34.8	30.4
2.5-4.9	100.0		55.6	44.4
5.0-9.9	100.0	62.5		37.5
10-19				
20+	100.0			100.0

Table A.IV.2c: Incidence of poverty among households with different characteristics

Area: East Coast Demerara

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	39.2	23.3	37.6
Sources of income				
Mostly farm	100.0	33.4	6.4	60.1
Farm + employment	100.0	47.6	42.1	10.3
Farm + casual work	100.0	26.3	36.8	36.8
Farm + commerce	100.0		56.9	43.1
Farm + other income	100.0	44.7	22.3	33.0
No farm, employment	100.0	41.7	43.2	15.1
No farm, casual work	100.0	45.6	28.1	26.3
Other non farm	100.0	55.9		44.1
Predominant source of income				
Mostly farm income	100.0	28.9	9.2	61.9
Mostly wages	100.0	50.6	30.8	18.6
Mostly non-wage off-farm	100.0	46.0	33.1	20.9
None clearly prevails	100.0	24.7	37.0	38.3
TOTAL	100.0	39.2	23.3	37.6
Size of household				
1-2 members	100.0	44.0	7.8	48.2
3-4 members	100.0	14.5	32.2	53.3
5-6 members	100.0	39.8	32.8	27.5
7-9 members	100.0	51.8	13.3	34.9
10 and more	100.0	62.8	13.9	23.3
Av. members in household	5.42	6.12	5.26	4.80
Av. children in household	2.48	2.53	2.7	2.27
TOTAL	100.0	39.2	23.3	37.6
Age of household head				
15-24	100.0	74.8	14.0	11.2
25-39	100.0	37.7	20.7	41.7
40-64	100.0	33.2	26.5	40.3
Over 65	100.0	63.4	13.9	22.6
TOTAL	100.0	39.2	23.3	37.6
Land controlled				
Under 0.5	100.0	43.5	26.2%	30.2%
0.5-0.9	100.0	66.5	11.6%	21.8%
1.0-2.4	100.0	34.8	17.0%	48.2%
2.5-4.9	100.0	41.5	15.8%	42.7%
5.0-9.9	100.0	28.2	19.0%	52.7%
10-19	100.0	11.3	61.0%	27.7%
20+	100.0	25.1	19.7%	55.2%

Table A.IV.2d: Incidence of poverty among households with different characteristics

Area: NWA frontlands

	TOTAL	Level of poverty (Percentage)		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	37.9	38.8	23.3
Sources of income				
Mostly farm	100.0	30.2	24.2	45.5
Farm + employment	100.0	34.7	45.6	19.7
Farm + casual work	100.0	100.0		
Farm + commerce	100.0	13.1	61.2	25.8
Farm + other income	100.0	24.0	33.9	42.2
No farm, employment	100.0	48.0	35.1	16.9
No farm, casual work	100.0	100.0		
Other non farm	100.0	52.1	35.2	12.8
Predominant source of income				
Mostly farm income	100.0	29.0	26.8	44.2
Mostly wages	100.0	40.5	42.0	17.5
Mostly non-wage off-farm	100.0	48.3	35.5	16.2
None clearly prevails	100.0	10.4	47.3	42.3
TOTAL	100.0	37.9	38.8	23.3
Size of household				
1-2 members	100.0	37.7	34.8	27.5
3-4 members	100.0	31.6	36.8	31.6
5-6 members	100.0	35.1	49.6	15.3
7-9 members	100.0	53.3	38.2	8.5
10 and more	100.0	73.5		26.5
Av. members in household	4.78	5.37	4.57	4.17
Av. children in household	2.32	2.62	2.29	1.88
TOTAL	100.0	37.9	38.8	23.3
Age of household head				
15-24	100.0		40.3	59.7
25-39	100.0	38.0	36.1	25.9
40-64	100.0	33.9	42.7	23.4
Over 65	100.0	61.1	28.0	10.9
TOTAL	100.0	37.9	38.8	23.3
Land controlled				
Under 0.5	100.0	43.4	37.6	19.0
0.5-0.9	100.0	24.1	32.5	43.4
1.0-2.4	100.0	22.7	11.9	65.5
2.5-4.9	100.0	28.7	54.5	16.8
5.0-9.9	100.0	9.3	60.0	30.7
10-19	100.0	27.3	22.3	50.4
20+	100.0	40.1	41.4	18.5

Table A.IV.2e: Incidence of poverty among households with different characteristics

Area: Blackbush frontlands

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	34.8	31.0	34.2
Sources of income				
Mostly farm	100.0	42.1	18.0	40.0
Farm + employment	100.0	40.2	38.1	21.7
Farm + casual work	100.0	3.7	35.6	60.7
Farm + commerce	100.0	12.1	22.4	65.5
Farm + other income	100.0	27.6	43.5	28.9
No farm, employment	100.0	51.0	21.4	27.7
No farm, casual work	100.0		68.4	31.6
Other non farm	100.0	37.9	21.6	40.5
Predominant source of income				
Mostly farm income	100.0	35.0	27.5	37.5
Mostly wages	100.0	34.3	37.1	28.5
Mostly non-wage off-farm	100.0	44.4	23.2	32.4
None clearly prevails	100.0	19.0	30.0	51.0
TOTAL	100.0	34.8	31.0	34.2
Size of household				
1-2 members	100.0	24.1	11.7	64.2
3-4 members	100.0	28.2	35.8	36.1
5-6 members	100.0	35.0	31.7	33.3
7-9 members	100.0	49.4	29.3	21.3
10 and more	100.0	49.7	40.5	9.8
Av. members in household	5.12	5.66	5.32	4.39
Av. children in household	2.63	3.08	2.75	2.05
TOTAL	100.0	34.8	31.0	34.2
Age of household head				
15-24	100.0	22.7	16.0	61.3
25-39	100.0	31.1	32.9	36.1
40-64	100.0	32.6	33.4	34.1
Over 65	100.0	57.7	17.6	24.7
TOTAL	100.0	34.8	31.0	34.2
Land controlled				
Under 0.5	100.0	43.1	23.3	33.6
0.5-0.9	100.0	49.1	37.0	13.9
1.0-2.4	100.0	41.9	31.3	26.8
2.5-4.9	100.0	30.9	24.9	44.2
5.0-9.9	100.0	20.7	40.5	38.9
10-19	100.0	26.1	32.5	41.4
20+	100.0	35.5	32.3	32.3

Table A.IV.3: Households by poverty level, type of family and area

TOTAL OF ALL AREAS

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	13969	5035	4571	4363
Type of family:				
Nuclear, lone couple	501	121	78	302
Nuclear, young children	2706	794	823	1089
Nuclear, mixed children	1693	660	654	379
Nuclear, grown children	2063	281	939	843
Extended family	2220	1027	506	687
Female head, young children	918	437	304	177
Female head, other	1836	834	588	414
Other types	2032	881	679	472

Area: East Bank Demerara

TOTAL	1060	214	311	535
Type of family:				
Nuclear, lone couple	88	8	29	51
Nuclear, young children	237	19	49	169
Nuclear, mixed children	120	38	50	32
Nuclear, grown children	61		39	22
Extended family	196	66	51	79
Female head, young children	84	36	28	20
Female head, other	116	26	16	74
Other types	158	21	49	88

Area: East Coast Demerara

TOTAL	3013	1180	701	1132
Type of family:				
Nuclear, lone couple	124	30		94
Nuclear, young children	397	113	114	170
Nuclear, mixed children	323	103	73	147
Nuclear, grown children	408	34	182	192
Extended family	677	290	118	269
Female head, young children	271	115	93	63
Female head, other	473	311	63	99
Other types	340	184	58	98

Area: MMA frontlands

TOTAL	6287	2384	2440	1463
Type of family:				
Nuclear, lone couple	139	53	43	43
Nuclear, young children	1258	403	413	442
Nuclear, mixed children	626	319	282	25
Nuclear, grown children	1066	27	611	428
Extended family	843	424	214	205
Female head, young children	355	203	109	43
Female head, other	863	388	360	115
Other types	1137	567	408	162

Area: Blackbush frontlands

TOTAL	3609	1257	1119	1233
Type of family:				
Nuclear, lone couple	150	30	6	114
Nuclear, young children	814	259	247	308
Nuclear, mixed children	624	200	249	175
Nuclear, grown children	528	220	107	201
Extended family	504	247	123	134
Female head, young children	208	83	74	51
Female head, other	384	109	149	126
Other types	397	109	164	124

Table A.IV.4: Incidence of poverty by area and type of family, in terms of households affected
% of households

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL OF ALL AREAS	100.0	36.0	32.7	31.2
Type of family:				
Nuclear, lone couple	100.0	24.2	15.6	60.3
Nuclear, young children	100.0	29.3	30.4	40.2
Nuclear, mixed children	100.0	39.0	38.6	22.4
Nuclear, grown children	100.0	13.6	45.5	40.9
Extended family	100.0	46.3	22.8	30.9
Female head, young children	100.0	47.6	33.1	19.3
Female head, other	100.0	45.4	32.0	22.5
Other types	100.0	43.4	33.4	23.2
East Bank Demerara				
Type of family:				
Nuclear, lone couple	100.0	9.1	33.0	58.0
Nuclear, young children	100.0	8.0	20.7	71.3
Nuclear, mixed children	100.0	31.7	41.7	26.7
Nuclear, grown children	100.0		63.9	36.1
Extended family	100.0	33.7	26.0	40.3
Female head, young children	100.0	42.9	33.3	23.8
Female head, other	100.0	22.4	13.8	63.8
Other types	100.0	13.3	31.0	55.7
East Coast Demerara				
Type of family:				
Nuclear, lone couple	100.0	24.2		75.8
Nuclear, young children	100.0	28.5	28.7	42.8
Nuclear, mixed children	100.0	31.9	22.6	45.5
Nuclear, grown children	100.0	8.3	44.6	47.1
Extended family	100.0	42.8	17.4	39.7
Female head, young children	100.0	42.4	34.3	23.2
Female head, other	100.0	65.8	13.3	20.9
Other types	100.0	54.1	17.1	28.8
MMA frontlands				
Type of family:				
Nuclear, lone couple	100.0	38.1	30.9	30.9
Nuclear, young children	100.0	32.0	32.8	35.1
Nuclear, mixed children	100.0	51.0	45.0	4.0
Nuclear, grown children	100.0	2.5	57.3	40.2
Extended family	100.0	50.3	25.4	24.3
Female head, young children	100.0	57.2	30.7	12.1
Female head, other	100.0	45.0	41.7	13.3
Other types	100.0	49.9	35.9	14.2
Blackbush frontlands				
Type of family:				
Nuclear, lone couple	100.0	20.0	4.0	76.0
Nuclear, young children	100.0	31.8	30.3	37.8
Nuclear, mixed children	100.0	32.1	39.9	28.0
Nuclear, grown children	100.0	41.7	20.3	38.1
Extended family	100.0	49.0	24.4	26.6
Female head, young children	100.0	39.9	35.6	24.5
Female head, other	100.0	28.4	38.8	32.8
Other types	100.0	27.5	41.3	31.2

Table A.IV.5: Total population by area, type of family and poverty level

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	70131	28537	22454	19140
Type of family				
Nuclear, lone couple	1002	242	156	604
Nuclear, young children	11876	3704	3632	4540
Nuclear, mixed children	10671	4594	3990	2087
Nuclear, grown children	8360	1261	3723	3376
Extended family	16820	8345	3563	4912
Female head, young children	5646	3056	1739	851
Female head, other	7777	3897	2530	1350
Other types	7979	3438	3121	1420
East Bank Demerara				
Type of family				
Nuclear, lone couple	176	16	58	102
Nuclear, young children	1112	102	203	807
Nuclear, mixed children	751	254	337	160
Nuclear, grown children	252	.	172	80
Extended family	1410	628	352	430
Female head, young children	452	226	136	90
Female head, other	499	94	88	317
Other types	576	79	303	194
East Coast Demerara				
Type of family				
Nuclear, lone couple	248	60	.	188
Nuclear, young children	1691	505	559	627
Nuclear, mixed children	1802	647	380	775
Nuclear, grown children	1735	170	719	846
Extended family	5586	2532	945	2109
Female head, young children	1918	1119	479	320
Female head, other	1985	1528	241	216
Other types	1376	655	367	354
MMA frontlands				
Type of family				
Nuclear, lone couple	278	106	86	86
Nuclear, young children	5508	1886	1873	1749
Nuclear, mixed children	3919	2074	1720	125
Nuclear, grown children	4132	108	2433	1591
Extended family	6413	3390	1428	1595
Female head, young children	1867	1186	552	129
Female head, other	3415	1739	1365	311
Other types	4546	2322	1703	521
Blackbush frontlands				
Type of family				
Nuclear, lone couple	300	60	12	228
Nuclear, young children	3565	1211	997	1357
Nuclear, mixed children	4199	1619	1553	1027
Nuclear, grown children	2241	983	399	859
Extended family	3411	1795	838	778
Female head, young children	1409	525	572	312
Female head, other	1878	536	836	506
Other types	1481	382	748	351

Table A.IV.6: Incidence of poverty by area and type of household in terms of population affected

% of population

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	100.0	40.7	32.0	27.3
Type of family:				
Nuclear, lone couple	100.0	24.2	15.6	60.3
Nuclear, young children	100.0	31.2	30.6	38.2
Nuclear, mixed children	100.0	43.1	37.4	19.6
Nuclear, grown children	100.0	15.1	44.5	40.4
Extended family	100.0	49.6	21.2	29.2
Female head, young children	100.0	54.1	30.8	15.1
Female head, other	100.0	50.1	32.5	17.4
Other types	100.0	43.1	39.1	17.8
East Bank Demerara				
Type of family:				
Nuclear, lone couple	100.0	9.1	33.0	58.0
Nuclear, young children	100.0	9.2	18.3	72.6
Nuclear, mixed children	100.0	33.8	44.9	21.3
Nuclear, grown children	100.0		68.3	31.7
Extended family	100.0	44.5	25.0	30.5
Female head, young children	100.0	50.0	30.1	19.9
Female head, other	100.0	18.8	17.6	63.5
Other types	100.0	13.7	52.6	33.7
East Coast Demerara				
Type of family:				
Nuclear, lone couple	100.0	24.2		75.8
Nuclear, young children	100.0	29.9	33.1	37.1
Nuclear, mixed children	100.0	35.9	21.1	43.0
Nuclear, grown children	100.0	9.8	41.4	48.8
Extended family	100.0	45.3	16.9	37.8
Female head, young children	100.0	58.3	25.0	16.7
Female head, other	100.0	77.0	12.1	10.9
Other types	100.0	47.6	26.7	25.7
MMA frontlands				
Type of family:				
Nuclear, lone couple	100.0	38.1	30.9	30.9
Nuclear, young children	100.0	34.2	34.0	31.8
Nuclear, mixed children	100.0	52.9	43.9	3.2
Nuclear, grown children	100.0	2.6	58.9	38.5
Extended family	100.0	52.9	22.3	24.9
Female head, young children	100.0	63.5	29.6	6.9
Female head, other	100.0	50.9	40.0	9.1
Other types	100.0	51.1	37.5	11.5
Blackbush frontlands				
Type of family:				
Nuclear, lone couple	100.0	20.0	4.0	76.0
Nuclear, young children	100.0	34.0	28.0	38.1
Nuclear, mixed children	100.0	38.6	37.0	24.5
Nuclear, grown children	100.0	43.9	17.8	38.3
Extended family	100.0	52.6	24.6	22.8
Female head, young children	100.0	37.3	40.6	22.1
Female head, other	100.0	28.5	44.5	26.9
Other types	100.0	25.8	50.5	23.7

Table A.IV.7: Average per capita annual income by poverty level, type of family and area

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	$98,194	$18,569	$45,144	$245,664
Type of family				
Nuclear, lone couple	$238,431	$22,519	$52,935	$372,848
Nuclear, young children	$128,055	$19,475	$42,990	$271,509
Nuclear, mixed children	$55,202	$19,082	$44,124	$137,217
Nuclear, grown children	$104,627	$21,171	$49,103	$194,292
Extended family	$101,357	$17,523	$39,997	$271,873
Female head, young children	$41,870	$15,606	$41,582	$107,208
Female head, other	$94,741	$17,971	$44,367	$320,940
Other types	$78,255	$19,249	$48,468	$231,240
Area				
East Bank Demerara				
Type of family				
Nuclear, lone couple	$84,967	$25,830	$39,589	$120,046
Nuclear, young children	$86,104	$22,954	$42,338	$105,894
Nuclear, mixed children	$61,799	$20,466	$47,499	$133,225
Nuclear, grown children	$93,178	.	$42,014	$183,877
Extended family	$79,716	$17,442	$42,537	$155,744
Female head, young children	$44,529	$14,752	$46,417	$95,483
Female head, other	$70,571	$17,577	$34,901	$96,903
Other types	$193,559	$11,746	$43,157	$320,692
East Coast Demerara				
Type of family				
Nuclear, lone couple	$68,119	$25,125	.	$81,840
Nuclear, young children	$532,552	$15,354	$46,555	$1,202,241
Nuclear, mixed children	$109,884	$20,453	$49,023	$202,770
Nuclear, grown children	$211,379	$29,030	$50,525	$396,146
Extended family	$155,430	$13,052	$41,793	$358,770
Female head, young children	$64,554	$16,865	$41,240	$186,023
Female head, other	$200,488	$15,946	$43,294	$880,244
Other types	$139,632	$22,024	$55,998	$409,947
MMA frontlands				
Type of family				
Nuclear, lone couple	$57,130	$23,823	$62,188	$93,125
Nuclear, young children	$53,444	$18,367	$41,317	$96,758
Nuclear, mixed children	$31,372	$19,193	$41,118	$76,850
Nuclear, grown children	$71,141	$31,563	$49,085	$105,125
Extended family	$84,744	$18,967	$37,908	$269,684
Female head, young children	$27,898	$14,584	$43,811	$50,416
Female head, other	$42,257	$19,650	$44,995	$109,955
Other types	$49,371	$19,146	$48,979	$156,145
Blackbush frontlands				
Type of family				
Nuclear, lone couple	$637,260	$16,725	$51,125	$831,407
Nuclear, young children	$58,297	$22,741	$44,272	$99,445
Nuclear, mixed children	$49,534	$17,938	$45,414	$91,505
Nuclear, grown children	$91,065	$18,681	$49,373	$192,484
Extended family	$64,924	$20,315	$40,857	$169,242
Female head, young children	$35,087	$16,730	$36,901	$62,328
Female head, other	$89,739	$17,861	$44,320	$205,630
Other types	$62,523	$16,547	$46,120	$124,632

All figures in Guyana dollars. Rate of exchange: US$ 1 = G$ 125.

Table A.IV.8: Median per capita annual income by poverty, area and type of family

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	$42,721	$18,994	$44,563	$98,817
Type of family				
Nuclear, lone couple	$73,080	$25,080	$62,188	$106,080
Nuclear, young children	$47,063	$19,816	$44,580	$87,650
Nuclear, mixed children	$38,180	$21,464	$42,742	$113,281
Nuclear, grown children	$58,715	$23,800	$47,313	$106,563
Extended family	$33,250	$17,942	$35,465	$108,050
Female head, young children	$30,893	$16,521	$42,628	$62,321
Female head, other	$36,003	$18,888	$43,483	$88,125
Other types	$38,290	$18,360	$48,750	$161,080

	TOTAL	Level of poverty		
		Critical poverty	Moderate poverty	Above poverty line
TOTAL	$42,721	$18,994	$44,563	$98,817
Area				
East Bank Demerara	$58,680	$22,280	$38,510	$101,100
East Coast Demerara	$45,080	$17,170	$45,630	$127,417
MMA frontlands	$39,293	$19,816	$44,795	$93,125
Blackbush frontlands	$43,808	$20,700	$43,925	$81,650

Note: The median is the level of income such that 50% of households are below it, and 50% are at or above i

Table A.IV.9: Average poverty gap per household, by area, type of family and poverty level

	TOTAL	Level of poverty	
		Critical poverty	Moderate poverty
TOTAL	$163,935	$235,675	$84,913
Area			
East Bank Demerara	$169,183	$277,027	$94,975
East Coast Demerara	$200,241	$270,552	$81,886
MMA frontlands	$148,854	$219,080	$80,240
Blackbush frontlands	$164,652	$227,366	$94,203
East Bank Demerara			
Type of family			
Nuclear, lone couple	$50,755	$81,067	$42,393
Nuclear, young children	$95,430	$185,148	$60,642
Nuclear, mixed children	$180,403	$274,128	$109,172
Nuclear, grown children	$107,285	.	$107,285
Extended family	$274,707	$386,736	$129,728
Female head, young children	$198,894	$307,143	$59,716
Female head, other	$136,867	$164,945	$91,241
Other types	$139,658	$182,396	$121,341
East Coast Demerara			
Type of family			
Nuclear, lone couple	$73,260	$73,260	.
Nuclear, young children	$116,418	$171,356	$61,961
Nuclear, mixed children	$205,041	$291,647	$82,845
Nuclear, grown children	$90,456	$222,615	$65,767
Extended family	$334,106	$417,182	$129,935
Female head, young children	$284,672	$427,871	$107,599
Female head, other	$179,636	$201,208	$73,143
Other types	$122,694	$148,465	$40,936
MMA frontlands			
Type of family			
Nuclear, lone couple	$45,010	$74,751	$8,352
Nuclear, young children	$122,453	$180,202	$66,103
Nuclear, mixed children	$215,857	$279,079	$144,339
Nuclear, grown children	$74,560	$136,439	$71,826
Extended family	$266,161	$324,473	$150,626
Female head, young children	$180,941	$245,020	$61,602
Female head, other	$114,856	$172,835	$52,367
Other types	$127,544	$173,931	$63,080
Blackbush frontlands			
Type of family			
Nuclear, lone couple	$84,450	$95,245	$30,477
Nuclear, young children	$106,095	$157,526	$52,167
Nuclear, mixed children	$223,621	$355,074	$118,037
Nuclear, grown children	$166,069	$212,135	$71,355
Extended family	$226,403	$275,579	$127,650
Female head, young children	$191,337	$229,060	$149,027
Female head, other	$135,925	$187,143	$98,456
Other types	$113,188	$155,778	$84,882

Note: The poverty gap is the additional income required to bring poor households up to the poverty line
All figures in Guyana dollars. Rate of exchange: US$ 1 = G$ 125.

Table A.IV.10: Aggregate poverty gap by area, type of family and poverty level

	TOTAL	Level of poverty	
		Critical poverty	Moderate poverty
TOTAL	$1,574,760,716	$1,186,621,665	$388,139,051
Area			
East Bank Demerara	$88,821,164	$59,283,866	$29,537,298
East Coast Demerara	$376,652,951	$319,250,818	$57,402,132
MMA frontlands	$718,073,611	$522,287,691	$195,785,920
Blackbush frontlands	$391,212,990	$285,799,289	$105,413,702
Area			
East Bank Demerara			
Type of family			
Nuclear, lone couple	$1,877,936	$648,538	$1,229,398
Nuclear, young children	$6,489,254	$3,517,810	$2,971,444
Nuclear, mixed children	$15,875,475	$10,416,856	$5,458,619
Nuclear, grown children	$4,184,102	.	$4,184,102
Extended family	$32,140,721	$25,524,607	$6,616,113
Female head, young children	$12,729,210	$11,057,162	$1,672,048
Female head, other	$5,748,432	$4,288,580	$1,459,852
Other types	$9,776,034	$3,830,313	$5,945,721
East Coast Demerara			
Type of family			
Nuclear, lone couple	$2,197,803	$2,197,803	.
Nuclear, young children	$26,426,782	$19,363,180	$7,063,602
Nuclear, mixed children	$36,087,289	$30,039,634	$6,047,654
Nuclear, grown children	$19,538,545	$7,568,915	$11,969,630
Extended family	$136,315,127	$120,982,824	$15,332,302
Female head, young children	$59,211,849	$49,205,181	$10,006,667
Female head, other	$67,183,682	$62,575,668	$4,608,014
Other types	$29,691,875	$27,317,613	$2,374,261
MMA frontlands			
Type of family			
Nuclear, lone couple	$4,320,933	$3,961,785	$359,148
Nuclear, young children	$99,921,643	$72,621,222	$27,300,420
Nuclear, mixed children	$129,729,862	$89,026,347	$40,703,515
Nuclear, grown children	$47,569,268	$3,683,864	$43,885,405
Extended family	$169,810,508	$137,576,474	$32,234,034
Female head, young children	$56,453,592	$49,738,982	$6,714,611
Female head, other	$85,911,960	$67,059,926	$18,852,034
Other types	$124,355,846	$98,619,092	$25,736,754
Blackbush frontlands			
Type of family			
Nuclear, lone couple	$3,040,206	$2,857,343	$182,864
Nuclear, young children	$53,684,238	$40,799,110	$12,885,128
Nuclear, mixed children	$100,406,050	$71,014,861	$29,391,189
Nuclear, grown children	$54,304,617	$46,669,685	$7,634,932
Extended family	$83,768,936	$68,067,929	$15,701,008
Female head, young children	$30,039,938	$19,011,967	$11,027,971
Female head, other	$35,068,564	$20,398,569	$14,669,995
Other types	$30,900,441	$16,979,824	$13,920,616

All figures in Guyana dollars. Rate of exchange: US$ 1 = G$ 125.

ANNEX B: FIGURE ANNEX

ANNEX B.1: MAPS OF SURVEYED AREAS

FIGURE B.I.1

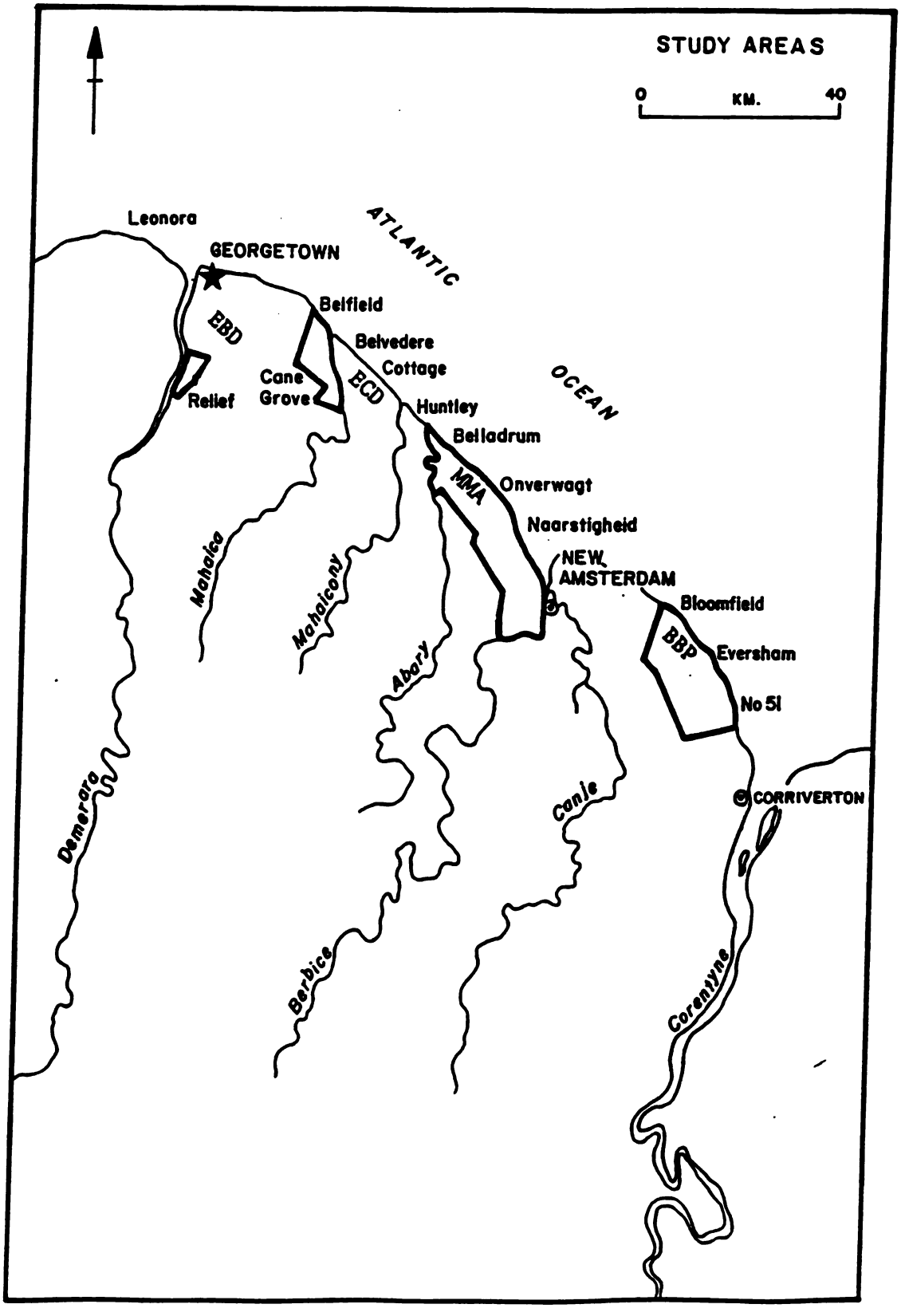


Figure B.I.2

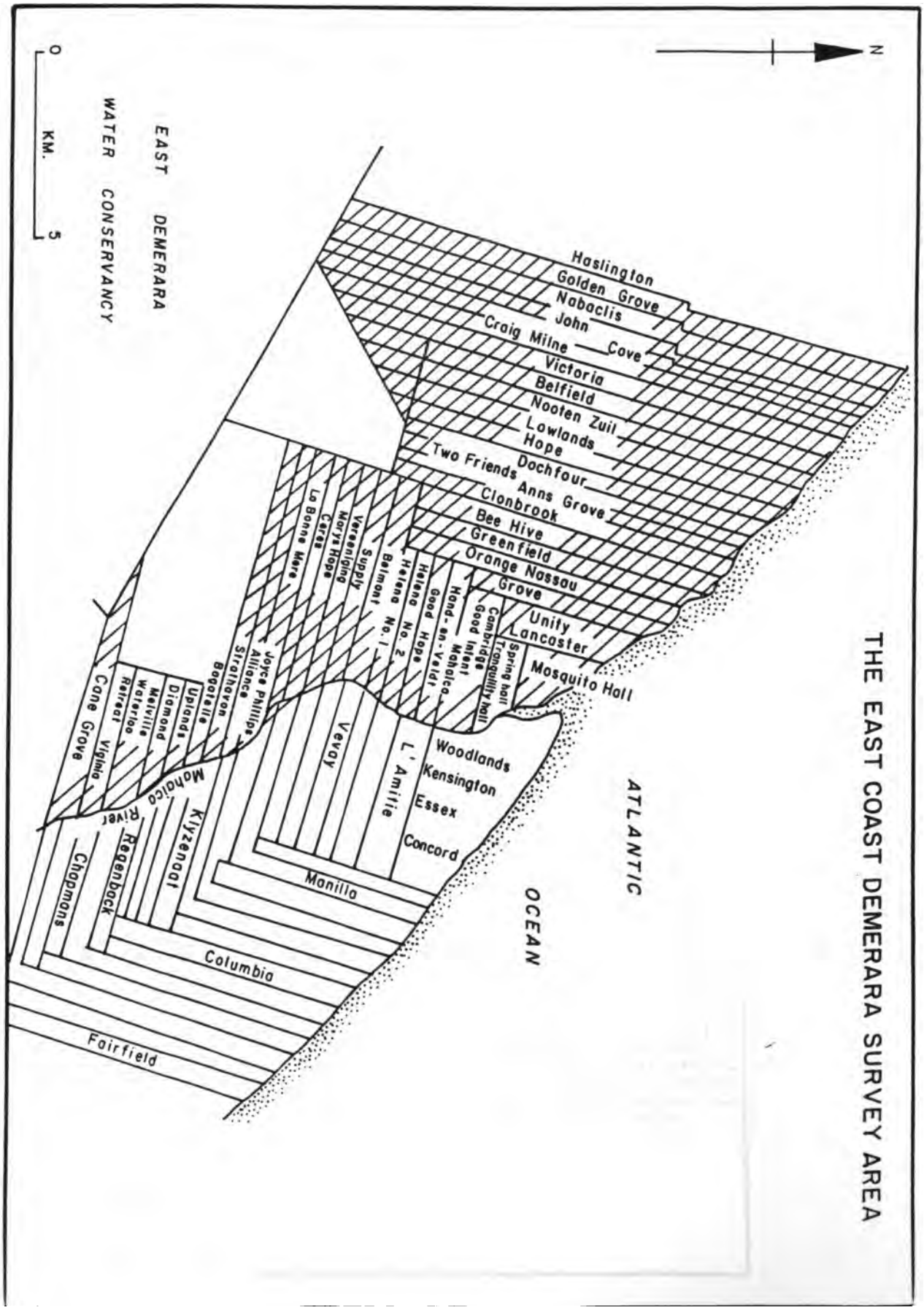

N
0
KM.
5
EAST DEMERARA WATER CONSERVANCY
ATLANTIC OCEAN
THE EAST COAST DEMERARA SURVEY AREA
Haslington
Golden Grove
Nabaclis
John
Craig Milne
Cove
Victoria
Belfield
Nooten Zuil
Lowlands
Hope
Dochfour
Two Friends
Anns Grove
Clonbrook
Bee Hive
Greenfield
Orange Nassau
Grove
Unity
Lancaster
Mosquito Hall
Spring hall
Tranquility hall
Cambridge
Good Intent
Hand-en-Veldt
Mahaica
Good Hope
Helena No. 2
Helena No. 1
Belmont
Supply
Vereenigting
Mary's Hope
Ceres
La Bonne Mere
Joyce Phillips
Alliance
Strathoran
Bagotelle
Uplands
Diamond
Melville
Waterloo
Retreat
Cane Grove
Vigilie
Mahaica River
Kilzenaat
Regenback
Chapmans
Vevay
L'Amitie
Woodlands
Kensington
Essex
Concord
Manilla
Columbia
Fairfield

Figure B.I.3

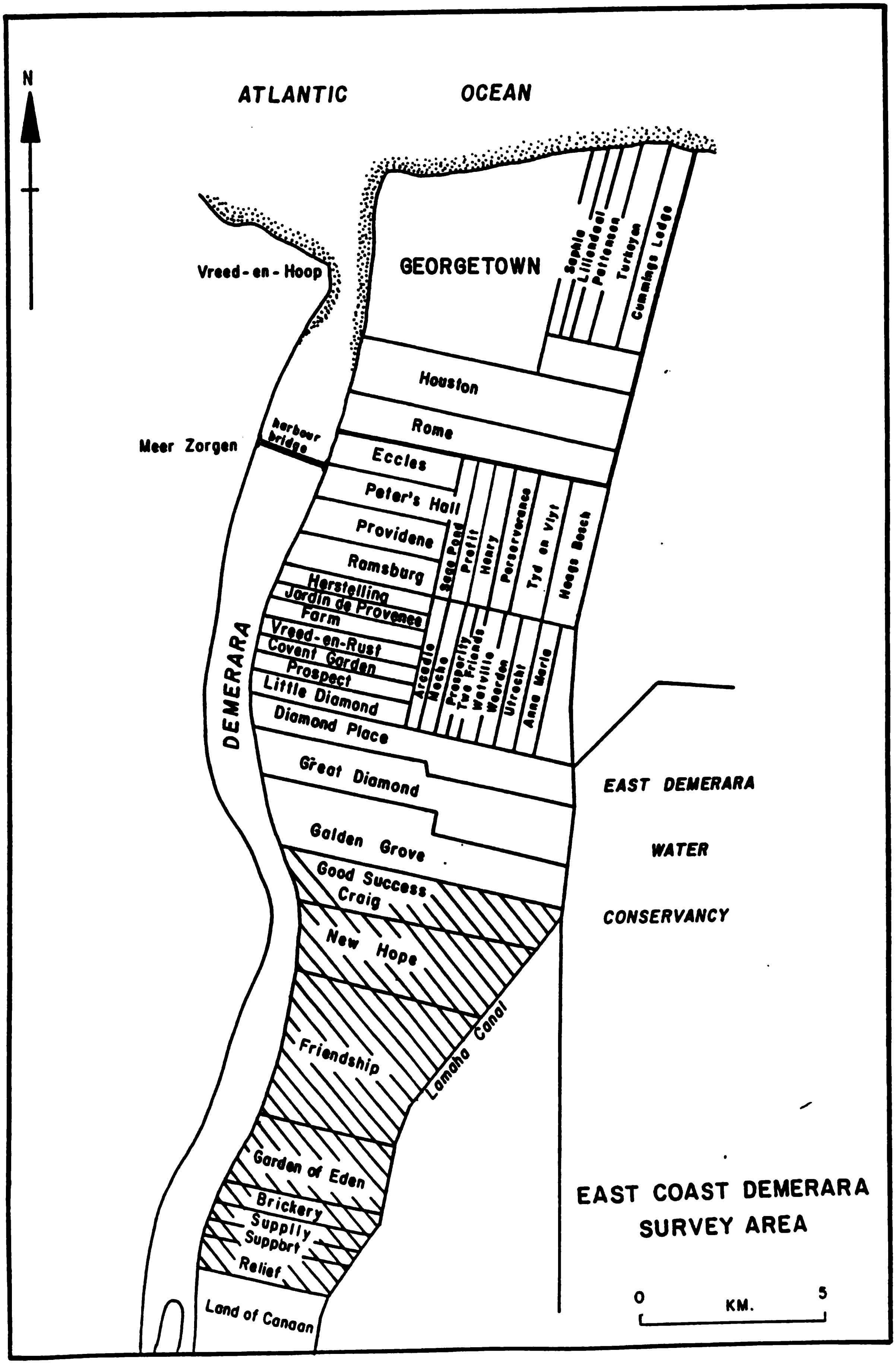

N
ATLANTIC OCEAN
GEORGETOWN
Vreed-en-Hoop
Sophia
Lilliendaal
Pattensen
Turkeyen
Cummings Lodge
Houston
Rome
Meer Zorgen
harbour bridge
Eccles
Peter's Hall
Providene
Ramsburg
Herstelling
Jardin de Provence
Farm
Vreed-en-Rust
Covent Garden
Prospect
Little Diamond
Diamond Place
Sage Pond
Profit
Henry
Perseverance
Tyd en Vlyt
Haags Bosch
Arcadia
Mocha
Prosperity
Two Friends
Watville
Woerden
Utrecht
Anna Maria
DEMERARA
Great Diamond
Golden Grove
Good Success
Craig
New Hope
Friendship
Lamaha Canal
Garden of Eden
Brickery
Supply
Support
Relief
Land of Canaan
EAST DEMERARA
WATER
CONSERVANCY
EAST COAST DEMERARA
SURVEY AREA
0
KM.
5

Figure B.I.4

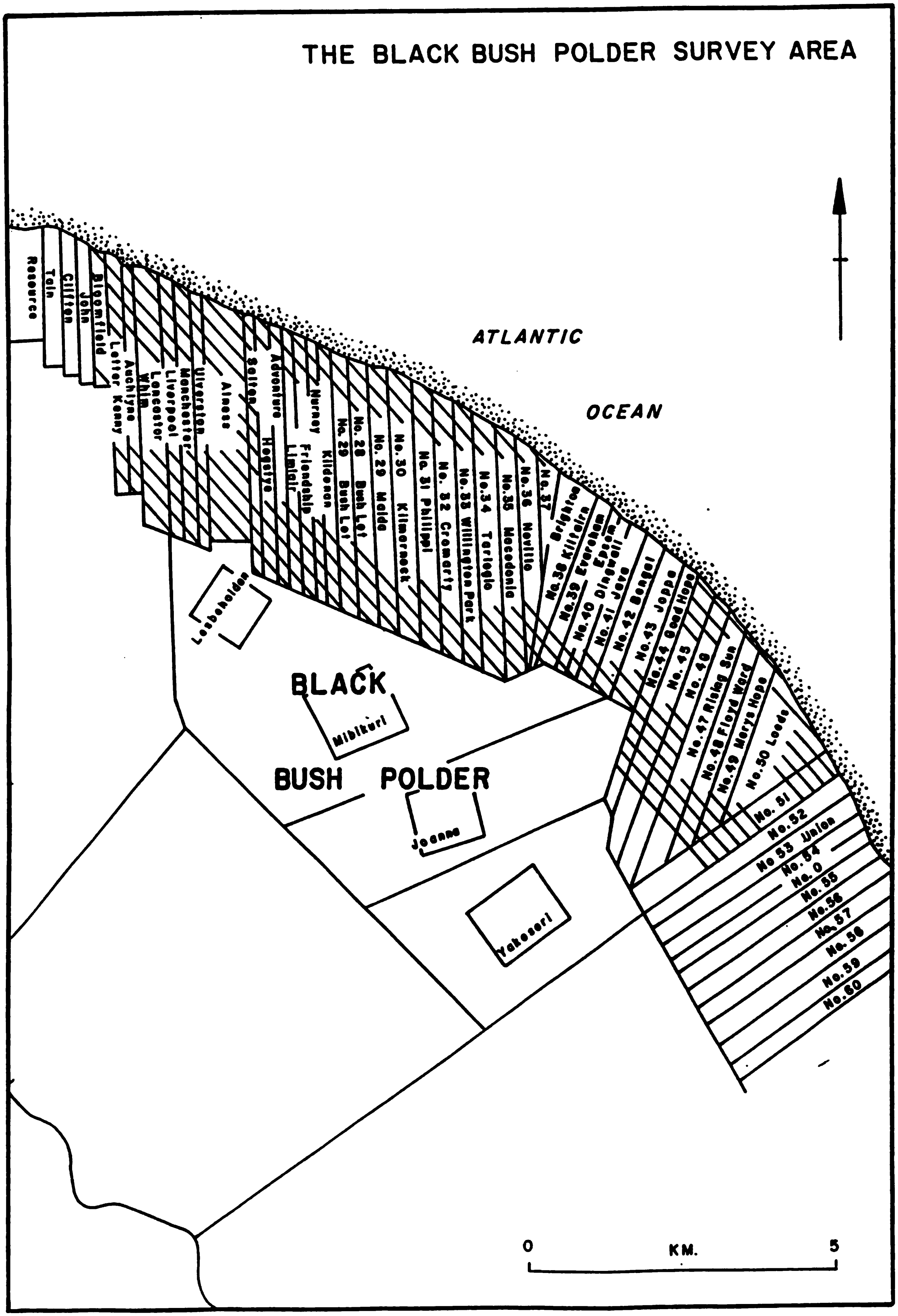
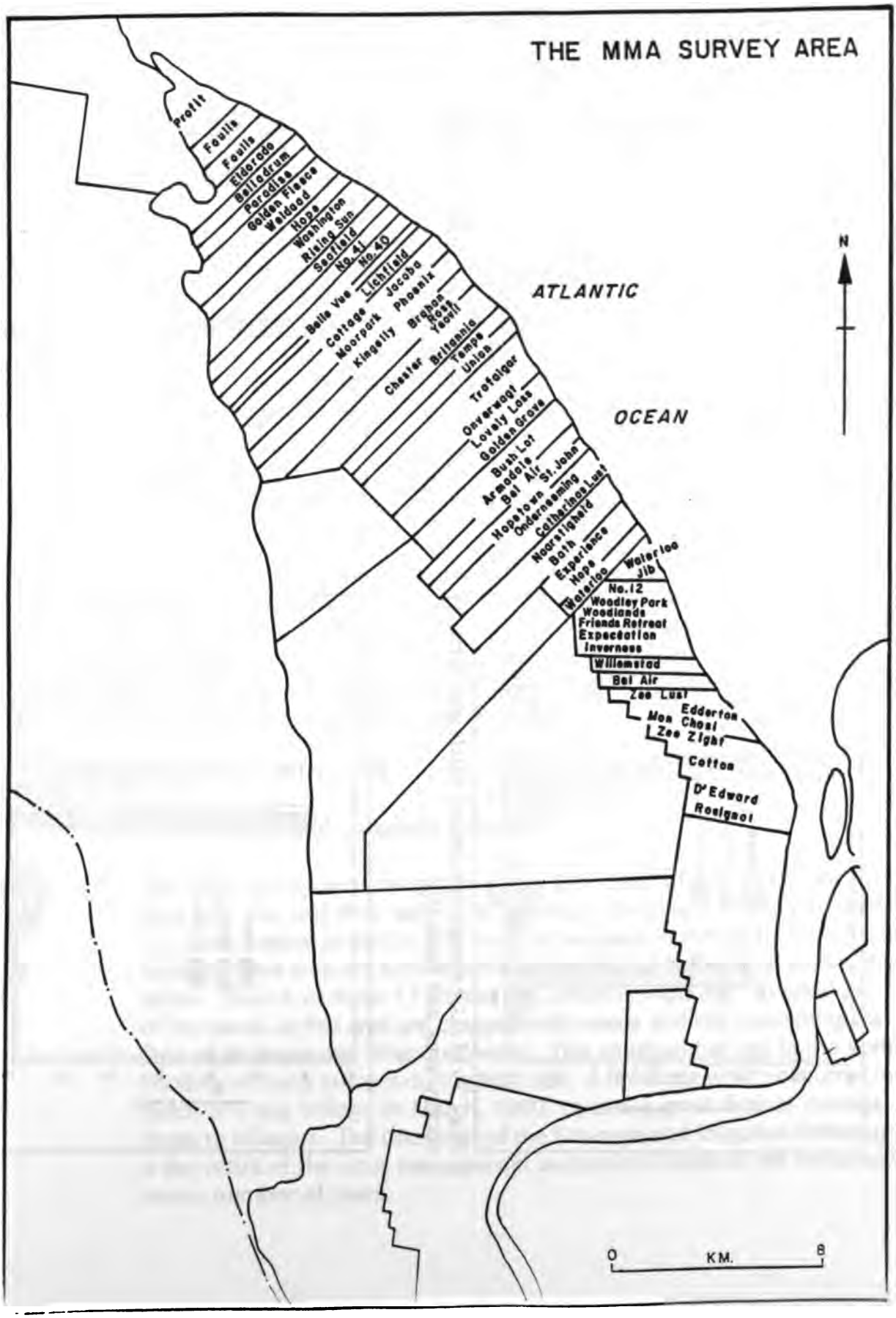

THE BLACK BUSH POLDER SURVEY AREA
ATLANTIC
OCEAN
BLACK
BUSH POLDER
Mibikuri
Joanna
Yakasari
0
KM.
5

Figure B.I.5


THE MMA SURVEY AREA
ATLANTIC
OCEAN
N
Profit
Foulis
Foulis
Elderado
Belledrum
Paradise
Golden Fleece
Weldaag
Hope
Washington
Rising Sun
Seafield
No. 41
No. 40
Lichfield
Jacoba
Phoenix
Bella Vue
Cottage
Moorpark
Kingsilly
Brahoe
Rosh
Yeovil
Chester
Britannia
Tempe
Union
Trafalgar
Onverwagt
Lovely Lass
Golden Grove
Bush Lot
Armadale
Bel Air
St. John
Hopetown
Ondernemming
Catharinas Lust
Noorstighaid
Bath
Experience
Hope
Waterloo
Waterloo Jib
No. 12
Woodley Park
Woodlands
Friends Retreat
Expectation
Inverness
Williamstad
Bel Air
Zee Lust
Edderton
Mon Chosi
Zee Zight
Cotton
D' Edward
Rosignol
0
KM.
8

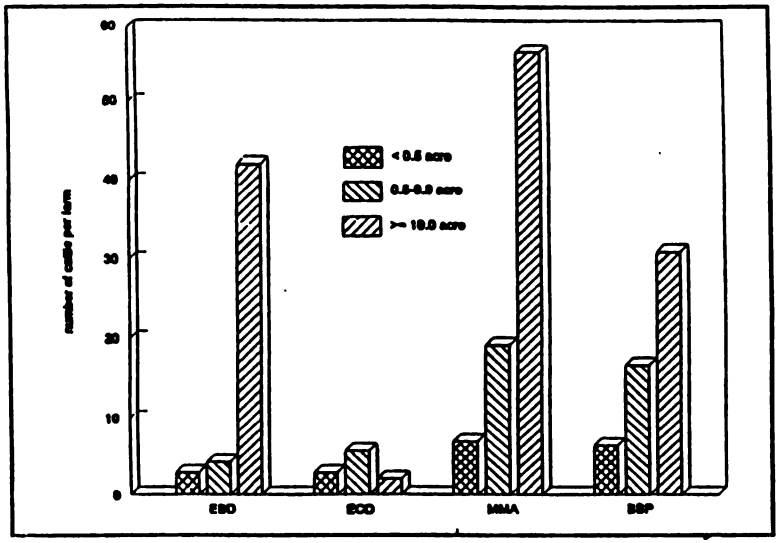


Fig. B.II.1: Average number of cattle per farm by survey area and farm size

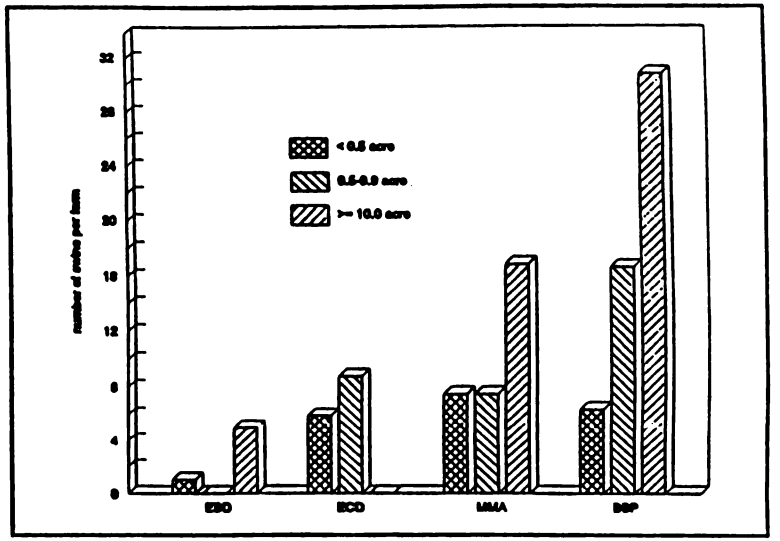


Fig. B.II.2: Average number of swine per farm by survey area and farm size

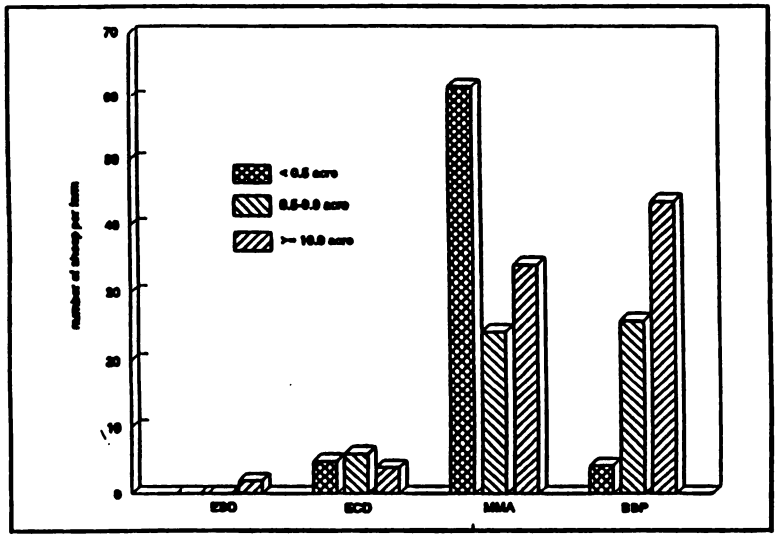


Fig. B.II.3: Average number of sheep per farm by survey area and farm size

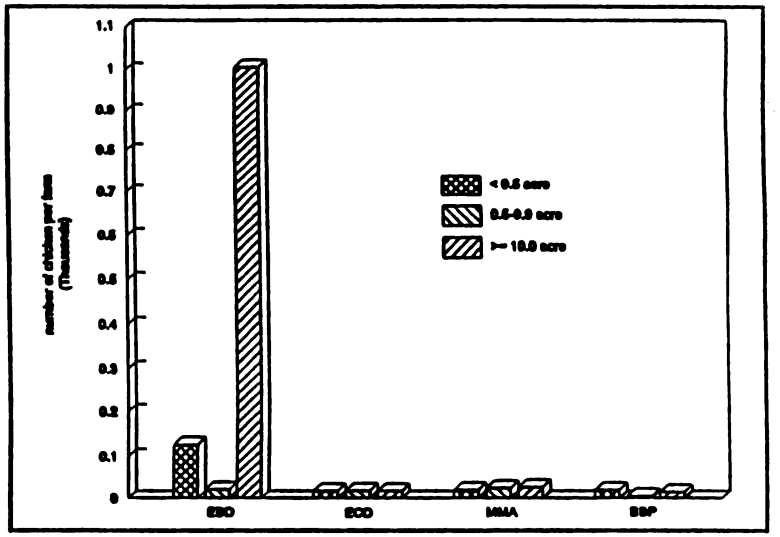


Fig. B.II.4: Average number of chicken per farm by survey area and farm size

ANNEX C: PROFILES OF THE SURVEYED AREAS

1. THE EAST BANK DEMERARA SURVEY AREA (EBD)

1.1 PHYSICAL CHARACTERISTICS

The East Bank Demerara survey area is part of Region Four in the Regional Administrative System. This area includes eight villages - Craig, New Hope, Friendship, Garden of Eden, Brickery, Supply, Support and Relief. These villages are located along the eastern bank of the Demerara River as shown in Figure B.I.1 (see Annex B). The East Demerara Water Conservancy forms the eastern boundary and the Demerara River the western boundary of the EBD survey area. The canals and dams, which form part of the drainage and irrigation network, separate villages from each other.

There are approximately 8,500 acres of farmlands on the East Bank of the Demerara river of which 5,006.6 acres (59%) are located in the surveyed area.

The natural vegetation of the EBD area is comprised of a variety of forest trees and grasses such as Long-John, Dukabali, Razor Grass, Black Sage and Bamboo among others.

The climate is relatively humid with an average monthly temperature of 29°C and annual rainfall of about 80-85 inches.

1.2 PHYSICAL INFRASTRUCTURE

1.2.1 The Drainage and Irrigation System

The EBD survey area lying along the East Bank of the Demerara River is generally flat and thus subject to constant flooding. Mangroves however provide a natural protection for most of the lands in the area. The 13 sluices located in this area are administered by the Village or Regional administrative office. Only 6 of these 13 sluices are presently working. In addition, most of the canals in this area are clogged with weeds and silt, preventing the free flow of drainage and irrigation water. This situation has led to the periodic flooding of many villages during high tide. A breakage which occurred in the sluice at Craig Village in March, 1990, caused a great deal of damage and losses to villagers. The poor state of the Drainage and Irrigation infrastructure is the result of the poor management and maintenance of the infrastructure over a number of years.

1.2.2 Water Supply

The water supply system in the EBD survey area is particularly inadequate. This is primarily the result of the lack of maintenance and the acute shortages of spare parts and supplies for the pumping stations. There are 8 wells in this area, 3 are controlled by the Local Authority and the other 5 are controlled by private groups and the Guyana Defence Force. Only 4 of these wells are functioning. The wells controlled by the village/regional administration are all out of order. This is largely due to inefficiencies in the institutional structure, such as the poor communication and flow of information between the village councils and the Central Regional office. In addition, human resource constraints, inappropriate budgetary practices and widespread vandalism in many communities further aggravate the problem of poor water supply.

1.2.3 The Transport Infrastructure Network

Apart from the 25 miles of asphalted (Georgetown to Timehri) public roadway which passes through this area, all other roads in the area are mainly earth dams. Access roads to many farm locations are largely mud tracks. These tracks are in desperate need of rehabilitation as a result of damage done by tractors and cattle. During the rainy seasons travel on these tracks become impossible.

1.3 FARM SIZE, LAND OWNERSHIP AND LAND USE

1.3.1 Farm Size

The information analysed in *Chapter 2* of this report indicates that there are 502 farms occupying 5006.6 acres of farmland in the EBD area. Approximately 55.7 percent of the farms (280 farms) are under 0.5 acres and occupy about 2 percent of the farmland (80 acres). Some 38 percent of the farms (190 farms) are within the 0.5 to 10 acreage range and occupy approximately 16 percent of the farmland (753.3 acres); and 6.3 percent of the farms (32 farms) are over 10 acres and occupy 82 percent of the farmland (3988 acres).

This pattern of farm size distribution is an inherited feature of the colonial land distribution policy. In the post-independence period little was done to resolve this inequity and this policy remained a central element of the Government's land distribution programme. Under this system land holdings for rice and sugarcane cultivation were limited to 5 ha and less than 2 ha for 'other crops'.

1.3.2 Land Tenure

In the EBD survey area there are two major tenure modes: freehold (privately owned land) and leasehold and squatter occupied government land. Freehold is the dominant tenure mode with some 73 percent of the land (3,523.8 acres) being privately owned, while 27 percent of the land (1,297.2 acres) is government owned. No cases of private land leasing were reported in the information collected for the EBD area.

1.3.3 Land Use

Less than 26 percent of the farmland in the EBD area is presently used for agricultural production since over 58 percent of the farmland is fallow. Most of this land was previously used for agricultural production, however, with the increased problem of flooding in this area fallow land also increased.

No paddy is grown in this area. However, a significant amount of 'other crops', particularly root crops, is produced in this area. Poultry farming is the primary livestock activity in this area. Approximately 43 percent of the poultry (chicken) found in the entire surveyed area are concentrated in the EBD area.

1.4 SELECTED FEATURES OF THE POPULATION

It is estimated that 5,228 persons reside in the EBD survey Area. Some 49 percent (2,592 persons) live in farm households while 51 percent (2,636 persons) live in non-farm households. Approximately 54 percent of the population are males and 46 percent females.

The economically active population (15-64 years) accounts for about 62 percent of the population (3,230 persons).

As in most of the other surveyed areas the extended family and the nuclear family with young children are the dominant family types in this area.

1.5 EDUCATION

There are six (6) schools located in the EBD Survey area: three (3) nursery schools are located at Craig village; two (2) primary schools at Supply Village and one (1) Community High school at Friendship Village.

The decline in the education sector is evident in this area by the poor state of school buildings, the inadequate supply of text books, the loss of a large number of qualified teachers, and poor attendance and high drop out rates.

The information on school attendance shows that the gap between males and females attending school is greatly reduced. Some 78 percent of the males between the ages of 10-14 attend school as opposed to 73 percent for females. Approximately 39 percent of the females population attained secondary level of education as compared with 37 of the male population.

1.6 HEALTH CARE

The general deterioration of the health sector in the EBD area is quite evident in the lack of adequate health facilities and thus medical care, at the Community Health Post and Health Care Centers in this area. This has contributed to the breakdown of the referral system since many persons no longer seek preventive care at Health Care Centres and tend to bypass the first four referral levels (see Chapter 3) and seek treatment directly from the Georgetown Public Hospital.

Information from the survey indicates that there are 2 private doctors and one (1) dentist in the EBD survey area. Approximately 13 percent of the households utilize the services offered by these medical personnel, while 62 percent obtain medical attention at the Georgetown hospital.

1.7 EMPLOYMENT, INCOME AND POVERTY

Employment is provided both on and off the farm. Off-farm employment may be of a permanent or temporary nature. In the EBD area, approximately 19 percent of the working population permanently employed off the farm is employed in the private non-farm sector. The EBD area is a few miles away from the industrial zone on the outskirts of Georgetown, where a number of private entrepreneurs conduct various processing and manufacturing enterprises.

2. THE EAST COAST DEMERARA SURVEY AREA (ECD)

2.1 PHYSICAL CHARACTERISTICS

The ECD survey area includes thirteen villages: Ann's Grove, Clonbrook, Chapman's Grove, Beehive, Unity, Lancaster, Voorzigtighied, Cane Grove, Virginia, Mary's Hope, Supply, Belmont, Helena Nº.1 and Good Hope. These villages are located in Region 4 (Demerara-Mahaica, Regional Administration), which is divided into three sub-administrative districts, namely: (i) Mahaica - Unity district; (ii) Cane Grove district; and (iii) Grove - Haslington district. Only the first two districts formed part of the surveyed area.

The ECD survey area is part of the coastal plain and is approximately 35 miles eastwards of Georgetown. The Georgetown to Rosignol highway provides a good transportation link to this area. This area is bounded by the Mahaica River on the east, the New Shanks Canal on the West, the Atlantic Ocean on the north and the East Demerara Water Conservancy on the south as shown in Figure B.I.2 (Annex B).

The surveyed area has approximately 10,735.3 acres of land of which 10,617.2 acres are farmlands.

The climate, like most other coastal areas is characterized by annual average temperatures of about 30°C. Relatively high atmospheric humidity, and average annual rainfall of about 80 inches.

Most of the original vegetation along this part of the coast has been cleared, but several uncultivated areas are covered with secondary vegetation such as razor grass and belchnun fern.

2.2 THE PHYSICAL INFRASTRUCTURE

2.2.1 The Drainage and Irrigation System

The ECD area is generally flat and is in fact below sea level and consequently susceptible to flooding. The land in the area is protected by a combination of man-made and natural sea defences (mangroves, earthdams, concrete dikes, boulder slopes and temporary boulder works). Over the years there have been frequent breaches and overtopping in several areas along the sea defences causing substantial damage to crops, livestock, buildings and machinery. There is generally a backlog in rehabilitation works as a result of the poor management of the sea defence network and the lack of timely maintenance. There are approximately 13 sluices in the area, one serving each village. Most of these sluices are very old, obsolete structures that require immediate replacement. The responsibility for the management and

maintenance of these defences is with the Hydraulics Division in the Ministry of Agriculture located in Georgetown. Currently, a number of proposals are being considered to rehabilitate the entire sea defence network in the country, including those in the surveyed area. In the Mahaica - Unity District, Futures Fund (one of many non-governmental organisations involved in developmental projects) are assisting in maintenance works. The canals in the Grove - Haslington district have not been rehabilitated for over 20 years.

2.2.2 Water Supply

In 1984 as part of the Guyana Government's programme of delegating regional responsibility for local government, the provision of utility services such as water supply and sewerage services were delegated to the Regional Democratic Councils (RDCs). However, this mandate remains unclear because the Guyana Water Authority (GUYWA) and other agencies responsible for the provision of water and sewerage services in Guyana still maintain their function of maintaining, monitoring and control over the provision of these services while RDCs have been collecting water rates and not passing it on to GUYWA. In addition to this accounting anomally, there exists a high degree of uncertainty on the legal ownership of the assets. This situation has resulted in the poor maintenance of pumping stations and pipeline networks. Many parts of the ECD area have not been receiving water through the water supply system for more than five years. Consequently, the main sources of water supply in this area are rain collecting tanks and canals.

2.2.3 The Transport Infrastructure

The Georgetown/Rosignol public road passes through this area, and provides a good transport link between the two largest coastal towns, Georgetown and New Amsterdam. Most of the access roads to farm locations in the ECD area are not all-weather roads. Travel along these roads is therefore made difficult by the numerous potholds. Only the secondary roadways linking residential locations to the East Coast highway are asphalt surfaced. Many villages in the surveyed area are linked to the roadways via bridges over the network of canals that provide drainage and irrigation. Many of these bridges are in need of repair or complete replacement. Several of these bridges have been rehabilitated through funding from a few NGO's operating in Guyana (FUTURES, SIMAP). However, as a result of the delay in maintenance work on a large number of bridges and sections of the roadways, immediate rehabilitation work is required to prevent the closure of many roadways.

2.3 FARM SIZE, LAND TENURE AND LAND USE

2.3.1 Farm Size

There are 2,399 farms occupying 10,617.2 acres of farmlands in the ECD survey area. The distribution of farms with respect to the area of land occupied varies from district to district. Some 88.7 percent of the farms are under 10 acres. In the Mahaica-Unity district the average farm size is 0.5 acre, while the size of farms in the Cane-Grove district are within the range 0.5 to 10 acres.

2.3.2 Land Tenure

The two main tenure modes identified in this area are freehold and land leased from the government. Most of the land in the Mahaica-Unity and the Grove-Haslington districts are largely government leasehold land. This pattern of land tenure, along with the farm size distribution identified above, are inherited features of the colonial policy of restrictive land distribution.

2.3.3 Land Use

The information from the survey shows that of the 2399 farms in the ECD area, 391 farms occupying 5,061.7 acres of farmland (48 percent), produce paddy. Some 3,518 acres of farmland, (33 percent) is used to produce 'other crops', such as fruits, ground provisions and vegetables. This area has a relatively small amount of fallow land (8 percent).

2.4 SELECTED FEATURES OF THE POPULATION

The ECD area has an estimated population of about 16,355 persons, of which 84 percent live in 2,399 farm households and 16 percent in 614 non-farm households. The survey information indicates that the male to female population ratio is almost 1:1 (8,095 males and 8,163 females).

The average family size on the ECD area is 5.42 persons which is above the average for the total surveyed areas. Of the 8 family types identified in the study the extended family is the most common type. A relatively larger percentage of female headed households was also observed in this area.

2.5 EDUCATION

There are 15 schools in the ECD area, (2 Nursery schools, 12 Primary schools and 1 Community High school). An analysis of the survey information indicates that the school attendance rate among school age children is quite high (80 percent). Nevertheless, the major problems confronting the education system in the area, the lack of required materials, equipment, suitably qualified teachers and the poor state of school buildings, are seriously eroding the quality of education offered at the schools in this area.

2.6 HEALTH CARE

The health facilities on the East Coast Demerara are similar to those of the other surveyed areas. The information analysed in chapter 3 showed that the majority of residents on the East Coast Demerara obtained primary medical services for common illnesses from clinics and health centres located within the surveyed area. There are 3 health centres in the ECD survey area, these are staffed by a medex and a nurse and are equipped to offer primary medical care, while complicated cases are referred to the Public Hospital or other hospitals in Georgetown.

2.7 EMPLOYMENT, INCOME AND POVERTY

Approximately 68 percent of the population of the ECD survey area is potentially capable of being economically employed. This potential working population is made up of almost equal number of males and females.

Some 89 percent of the working population are either self-employed, (including work on personal farm) or temporarily employed off the farm. A relatively small proportion of the working population (11 percent) is permanently employed off the farm. The private non-farm sector provides employment for most of these persons.

3. THE MMA FRONTLANDS SURVEYED AREA

3.1 PHYSICAL CHARACTERISTICS

The Mahaica - Mahaicony - Abary frontlands constitute 24 Enumeration Districts in nineteen villages. These villages include Woodley Park, Monchoisi, Cotton Tree, Golden Grove, Bush Lot, No. 42 Village, Trafalgar, Weldad, Kingelly, and Bel Air. These villages are situated on the low coastal plain, and forms a triangle, commencing at the confluence of the Abary River and the Atlantic Ocean in the west and extending in a south eastern direction along the coast towards the Berbice River as shown in Figure 3, Annex B.

The climate of this area is typical of the coastal belt with heavy rainfall and humid temperature. The mean annual rainfall recorded over a third year period, was approximately 80.3 inches, of which 57 percent fell in the long wet period, April to August, and 23 percent in the short wet period, December to January.

Various types of natural vegetation exist in the MMA survey area, varying from shrubs, hard woods and semi-hard woods trees, Courida, Cyperaceae, Gramineae and Minnosaceae species.

3.2 PHYSICAL INFRASTRUCTURE.

3.2.1 The Drainage and Irrigation System.

The MMA survey area is part of the area administered by the Mahaica-Mahaicony-Abary/Agricultural Development Authority (MMA/ADA) which was established by the Central Government to oversee several mandatory obligations, principally the construction and administration of a Water Conservancy with a catchment area of 312 square miles and a submerged area of 126 square miles. This conservancy has over the last 12 years provided water for approximately 46,600 acres of rice fields and 13,700 acres of sugar cane fields located in the MMA backlands. In addition, flood plain protection is provided for approximately 146,140 acres of farmlands. There are two main canals located in this area. These are in good working condition. There is the Eldorado canal at the back of the Conservancy, which is the main irrigation canal, and the Facade drain that links the Profit and D'Edward Sluices, ruining parallel to the shoreline. The drainage sluices located at Trafalgar - Union Village require two gates to be replaced.

The lack of timely maintenance appears to be the major problem affecting drainage and irrigation in this area. This is the result of a number of factors including the lack of adequate funding of the Authority by the Central government, non-payment of drainage and irrigation rates by farmers in the

area and the lack of competent staff. The problem of insufficient Central government funding is related to the complex nature of the fiscal constraint of the central government and its inability to design an appropriate cost effective scheme that can ensure timely maintenance of the drainage and irrigation system. There also appear to be some complacency in the management of the system, as a result of the shortage of skilled manpower and the lack of adequate equipment to diagnose specific problems that may arise from time to time, such as increased water loss resulting from increased evapotranspiration.

3.2.2 Water Supply

The water supply situation in this area is better than the previously considered surveyed area. There are 10 wells in the area of which 8 are in good working condition and two are out of order. The average age of these wells is 25 years. One of the non-operational wells located in the Bel Air - Onverwagt is over 35 years old while the other located in the No. 12 village - Itaca area is over 50 years old. The wells generally require a well structure maintenance programme. The main problem with the water system has been that associated with separation of water rates collection responsibility from the accounting responsibility. This has led to the poor collection of revenue and the backlog in adequate maintenance and rehabilitation work.

3.2.3 The Transport Infrastructure

The main roadways in the MMA area are asphalt surfaced while most of the access roads are pegasse surfaced. Most of the access roads are located on embankments that follow the drainage and irrigation canals. In some areas farm locations are inaccessible during the rainy season, due to the potholes that are formed in the surface of roads. There are some 5 concrete road bridges and 5 wooden foot bridges in the MMA area. All the concrete bridges are in excellent condition but the wooden foot bridges are in need of repairs.

3.3 FARM SIZE DISTRIBUTION

3.3.1 Farm Size

The MMA survey area, made up of 6,287 households, is the largest of the four surveyed areas. The 4,058 farm households in this area occupy approximately 34,621 acres of farmland. Some 85 percent of the farmland is occupied by farms above 10 acres. However, approximately 63 percent of the farms are before 0.5 acres in size. The average sizes of paddy fields and natural pastures in this area are 42.8 and 109.6 acres respectively, which is

well above the average for the entire surveyed area. Most of the 'Other Crops' farms average below 1 acre in size.

3.3.2 Land Tenure

Approximately 72 percent of the farmland in the MMA survey area is Government leasehold. Most of this land forms part of the MMA/ADA land development scheme. This land is governed by the MMA/ADA Act and provides for leases up to 2 years.

3.3.3 Land Use

Rice production is the primary agricultural activity in this area. Some 64 percent of the farmland is utilized by paddy fields, which are in general well above the average size of paddy fields in the entire surveyed area. Many of these farms has yields above the national average of 23 bags per acre.

A relatively small percentage of farmland is fallow (4.6 percent). This can most probably be attributed to the better drainage and irrigation infrastructure in this area. Some 15 percent of the farmland is utilized as natural pastures.

The MMA area (Region 5) is noted for its concentration of cattle and sheep. The largest cattle herds are found on the marginal quality 'backlands'. The better quality frontlands are in general utilized for rice production.

3.4 SELECTED FEATURES OF THE POPULATION

The population in the MMA area was reported as 30,102 persons, of which 68 percent, (20,321 persons), resided in farm households. The population is made up of almost equal numbers of males and females (15,000 males and 15, 102 females).

Approximately 67 percent of the population forms part of the potential working or economically active population. Of the eight family types identified in the survey, the nuclear family with young children is most common in this area. The recorded overall average family size of 4.8 persons is below the average for the entire surveyed area.

3.5 EDUCATION LEVEL

Some 36 schools, representing four levels of education, are located in the MMA survey area (4 nurseries, 13 primary, 17 secondary and 2 technical schools). The rate of school attendance among school age children is lower than the average for the

entire surveyed area. However, a higher percentage of persons reported having completed secondary education (48 percent), than in any of the other surveyed areas. The nationwide problems of the educational sector reflected in the overcrowding of schools, the lack of basic material and equipment, inadequate and poorly trained teachers and the generally poor teaching/learning environment also affects the quality of education provided in the MMA area.

3.6 HEALTH CARE

There are 9 health care centres and one hospital in this area. The health centres provide primary health care such as immunisation for children and the treatment of common and minor illnesses, while the Fort Wellington hospital provides secondary health services for more complex problems. The facilities at both the Fort Wellington hospital and the health centres are substandard, as a result of the lack of adequate finance. This is seen in the limited availability of medical supplies, inadequate maintenance of existing equipment and the lack of suitable transportation facilities for patients and basic accommodation facilities. These problems are further aggravated by the lack of trained staff or the demoralised state of existing staff as a result of low remuneration and poor working conditions.

3.7 EMPLOYMENT, INCOME AND POVERTY

The working population of the MMA area is estimated at 20,144 persons. Approximately 69 percent of these individuals are from farm households. Some 28 percent of the working population living in farm households are permanently employed off the farm. More than half of these workers are employed on sugar estates primarily as manual labourers. The sugar industry also employs a relatively large number of workers from the non-farm households (15 percent). A greater percentage of these workers are employed in a technical/managerials capacity (23 percent).

In both the farm and non-farm households a large proportion of the working population are either self-employed or casually employed, (79 percent in farm households and 68 percent in non-farm households). These individual are either employed on their own farms or are involved in other productive activities such as carpentry, construction, mechanical and electrical repairs, retail trading and domestic work.

4. THE BLACK BUSH POLDER FRONTLANDS (BBP)

4.1 PHYSICAL CHARACTERISTICS

The Black Bush Polder frontlands are part of Region 6 in the Regional Administrative System. The surveyed area covered 44 villages in the area extending southwards from Bloomfield to Number 51 Village (see figure B.I.4, Annex B). The BBP frontlands are located on the coastal plain approximately 75 miles southeast of Georgetown. This area is bordered on the west by the Black Bush Polder and on the east by the Corentyne River.

4.2 PHYSICAL INFRASTRUCTURE

4.2.1 The Drainage and Irrigation System

The surveyed area is flat with an average slope of 0.5 feet per mile and is therefore proned to flooding. Concrete walls and mangroves are the main forms of sea defence in this area.

The Black Bush pumping station located on the Canjie Creek provides water for the lands in the surveyed area. The Torani Canal (63,000 feet long) is the main drainage and irrigation canal in the area. Most of the secondary canals in the villages are clogged and require urgent attention. There are approximately 30 sluices in the area and most of them require rehabilitation. The poor conditions of sluices also contributes to the periodic flooding of these locations.

4.2.2 Water Supply

Potable water supply facilities are inadequate in the BBP area. The survey reported the existence of 8 wells, most of which are presently not working. A number of factors including poor management, institutional weaknesses (shown in the way in which the wells are administered by the local government and district council) and the lack of adequate financing for maintenance and repairs, have contributed to this situation. Most of the residents of the BBP area therefore depend on the rivers and canals for their potable water supply.

4.2.3. The Transport Infrastructure

The main roadway linking the villages in the BBP area is the asphalted Corentyne Highway. All other access roads are largely earth dams and are in poor conditions. In some areas the ditches and canals along the access roads

to farms are filled with overgrown bushes. These conditions make it extremely difficult for farmers to gain access to their farms.

4.3 FARM SIZE, LAND TENURE AND LAND USE

4.3.1 Farm Size Distribution

There are 3,152 farm households occupying 29,024 acres of farmland in the BBP area. Some 52 percent of these farms are between 0.5 and 9.9 acres in size, while approximately 24 percent of the farms are below 0.5 acres and another 24 percent above 10 acres. This pattern indicates a greater equity in land distribution than in the other survey areas.

4.3.2 Land Tenure

Approximately 36 percent of the farmland is freehold. Most of these are plots of land under 0.5 acres in size. Some 64 percent of the farmland is in the form of Government leaseholds. A large number of farmers reported having short term leases, which prevents them from using these leaseholds as collateral against loans, and thus limiting their access to credit.

4.3.3 Land Use

The BBP area had traditionally been an important rice producing area, however, with the deteriorating drainage and irrigation infrastructure, the pattern of land use has changed. Approximately 64 percent of the farmland in this area is fallow land. Most of this land was previously cultivated but was abandoned as poor maintenance and management of the D&I facilities contributed to the flooding and the creation of swamps in many parts of the low coastal frontlands.

The reef lands found in this area are used to cultivate vegetables, fruits and coconuts and for the rearing of livestock, particularly sheep and swine.

4.4 SELECTED FEATURES OF THE POPULATION

The BBP survey area has the lowest population density (398 persons per sq. mile) and a population that is second only to the MMA area in size (18,484 persons). Approximately 89 percent of the population resides in farm households. The average family in this area has 5.12 persons, which is above the average for the entire surveyed area. The nuclear family with young children is the family type that is most widespread in the BBP area.

In the total population there is an estimated 8,339 males (48.4 percent) and 9,545 females (51.6 percent). The economically active population is approximately 68 percent of the population (12,162 persons).

4.5 EDUCATION

There are 13 nurseries, 10 primary and 3 secondary schools to provide for the educational needs of the approximately 4,000 school age children in this area. The school attendance rate is about 82 percent for males and approximately 79 for females. The school attendance rate for females in the 10-14 age group is about 4 percent below the average for the entire surveyed area.

The problems of over crowding, the lack of adequate equipment and material combined with the shortage of qualified teachers have seriously affected the quality of education in the BBP area.

4.6 HEALTH CARE

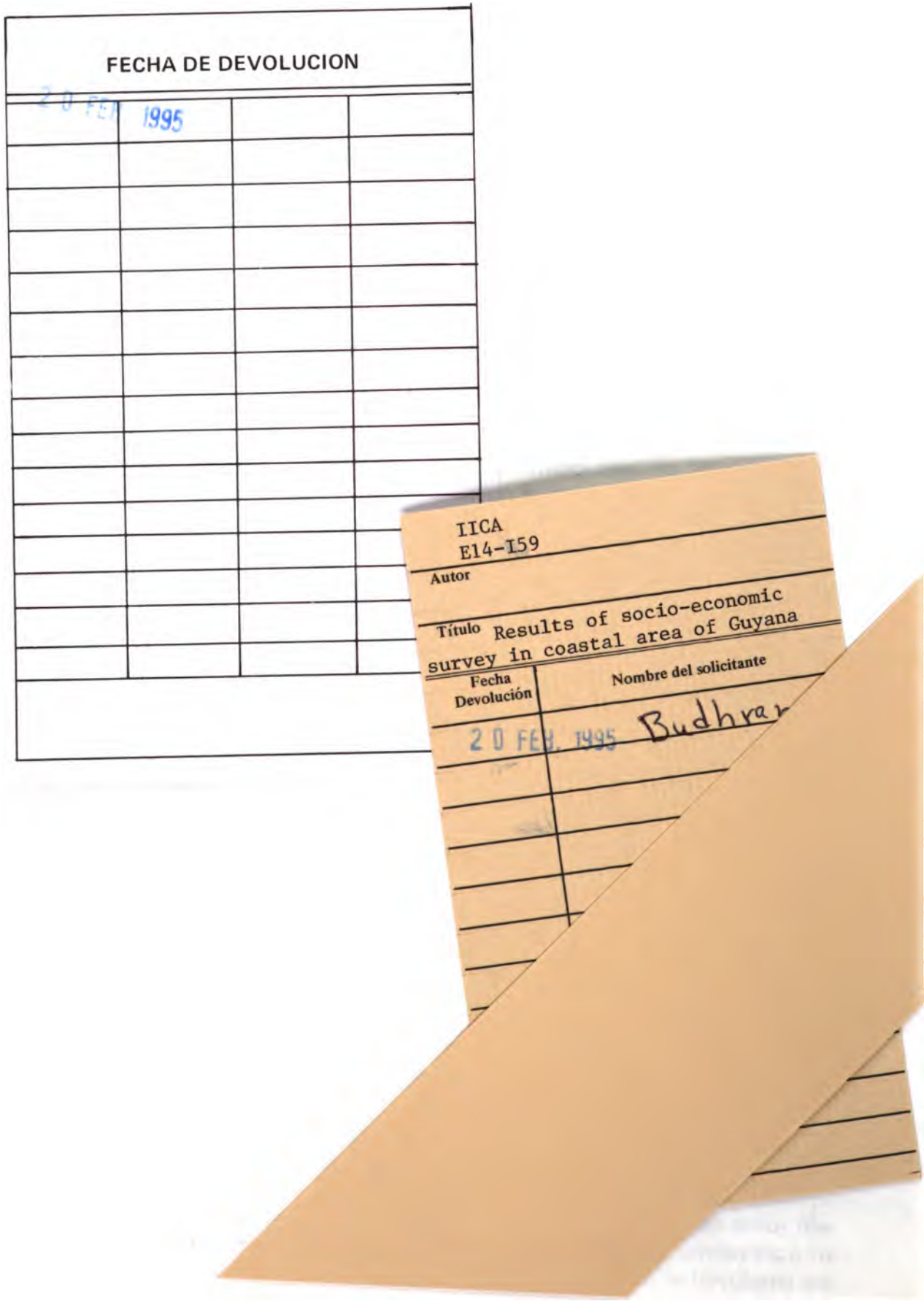
There are five health centres in the BBP area. As in the other surveyed areas, the level of health care offered is negatively affected by the substandard conditions at the clinics. Approximately 27 percent of the households in this area utilizes the health care services of health centres in the area. This is well below the average of 45 percent for the entire surveyed area. A relatively large number of households (34 percent) receive medical care from private doctors. Patients normally receive better medical attention from this source.

4.7 EMPLOYMENT, INCOME AND POVERTY

The BBP area is basically a farming area with almost 89 percent of the population living in farm households. Consequently, a large proportion of the population are self-employed, working full-time on their own farms.

Approximately 19 percent of the working population living in farm households are permanently employed off the farm. The sugar industry, the private non-farm and the public sector are sources of employment for this workforce.

A large section of the working population in the non-farm households (66 percent) are either self employed or temporarily employed. Self employment is provided in activities such as carpentry, mechanical and electrical repairs, commerce, processing and some amount of manufacturing. Some 16 percent of the non-farm population who are permanently employed, work in the private non-farm sector, while 9 percent are employed in the public sector.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