SOCIO-ECONOMIC SURVEY OF THE BEMINIWATTE AGRICULTURAL PRODUCTIVITY COMMITTEE AREA

AGRARIAN RESEARCH AND TRAINING INSTITUTE

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SOCIO-ECONOMIC SURVEY

OF THE

BEMINIWATTE

AGRICULTURAL PRODUCTIVITY COMMITTEE AREA

Agrarian Research and Training Institute
114 Wijerama Mawatha, P.O. Box 1522
SRI LANKA

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FOREWORD

Comprehensive and reliable data on the socio-economic conditions in the Institute's Field Laboratory area in Beminiwatte was needed as a preliminary to planning a series of action programmes. The present survey was undertaken with this end in view. It involved the collection and interpretation of data by nearly all of the desciplines in the Institute. Special mention however, must be made of the contributions made by the following officers:

Introduction	*A. Wanasinghe* *Miss T. Sanmugam*
Methodology	*Miss T. Sanmugam*
The Setting	*A. A. Khan (FAO)*
Population and Land	*W. Gooneratne* *R. D. Wanigaratne*
Agricultural Production and Management Practices	*A. Wanasinghe*
Employment and Income	*P. Wickramasekara*
Rural Institutions and Services	*A. A. Khan (FAO)*
Summary and Conclusions	*A. Wanasinghe* *P. Wickramasekara*
Recommendations	*A. Wanasinghe*

Mr. Wanasinghe co-ordinated the work relating to the preparation of the report and it is with pleasure that we record the splendid support given to him by Miss Sanmugam at all stages in the preparation of the report.

A number of action programmes have already been initiated on the basis of data that had been obtained.

The socio-economic information contained in this report would also provide bench-mark data for similar studies that may be conducted in Beminiwatte in the future.

C. Narayanasamy
Director
Agrarian Research and Training Institute

December 1975

ACKNOWLEDGEMENTS

We acknowledge and greatly appreciate the assistance given to us by the extension staff of the Department of Agriculture at Beminiwatte during the field investigations. The members of the Agricultural Productivity Committee and Cultivation Committees in Beminiwatte were of immense help in arranging interviews with farmers. We thank them for this assistance. Finally, we wish to express our deep gratitude to the villagers of Beminiwatte without whose unstinted co-operation this Study could not have been done.

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INTRODUCTION

The Beminiwatte Agricultural Productivity Committee (APC) area comprises the Field Laboratory of the Agrarian Research and Training Institute. The Field Laboratory has been set up mainly on the concept that studies in depth at grass-roots level were essential to supplement basic planning at higher levels for rural development. It was felt that the Field Laboratory should be sited in the mid-country wet zone mainly because no attempt at in-depth studies had been made in this zone. For this reason a "manageable" rural area considered to be typical of the mid-country wet zone had to be selected. Such an area had to be small enough for detailed study and experimentation, but large enough to be acceptable for administrative purposes by the State or the local authority. It was conceived that an APC area would constitute such a region. It was intended to conduct detailed studies of all or many of the various components contributing to rural development including not only the agricultural and related agro-industrial development but also of the whole basis of agrarian and social structure.

Therefore the following criteria were used for the selection of a suitable area:

1. Location in the wet zone and reasonably accessible all year round from Colombo and preferably also from Peradeniya;

2. Representativeness in the pattern of land tenure and close proximity to land being taken over under the Land Reform Law;

3. Availability of a representative range of crops and stock;

4. Absence of previous attempts at development through special projects initiated by Government or private organisations;

5. Possibility of obtaining the co-operation of farmers and local personnel as well as the interest and support of the Local Government officers.

Other sites examined in the Kegalle, Kurunegala and Colombo Districts were rejected because those sites did not satisfy the above criteria. In Kurunegala the crops were mainly confined to coconut and paddy. In the Colombo District many of the farmers are only part-time and proximity to Colombo would have made the agricultural pattern atypical. Beminiwatte was the best of several sites examined in the Kegalle District. The buildings for the APC had been complete at the time of selection and some weightage was given to the presence of the demonstration area of paddy and highland crops used for extension training in close proximity to the Agricultural Service Centre. The Government Agent had also informed that the area suggested could be kept free of other commitments if it was eventually selected. These reasons led to the selection of Beminiwatte as the Field Laboratory.

Once the selection was over the study of the area in detail commenced. These studies included a small farmer credit survey, a study of the cost of production of paddy and the socio-economic survey.

Objectives of the Socio-Economic Survey

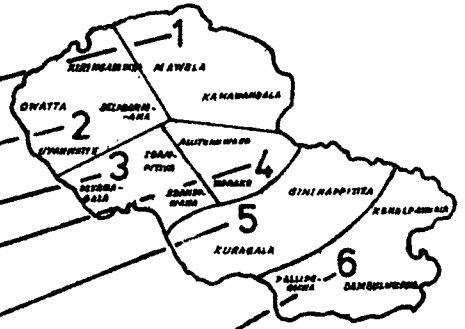
The main objective of the survey was to collect comprehensive data on agro-socio-economic conditions of the households in the area, the data serving as an inventory of socio-economic facts for (1) use in the planning for the development of the area, and (2) as bench-mark data.

The survey was also intended to throw light on the problems of the agricultural community. Problems revealed by the survey were to be considered for in-depth problem-oriented studies at a later stage.

DESIGN OF THE SOCIO-ECONOMIC SURVEY IN THE BEMINIWATTE FIELD LABORATORY

Stratified two stage random sample.

Method of collection of data : Interview using questionnaire.



N_i = Number of Villages in the stratum i

$N_1 = 19$	$N_2 = 15$	$N_3 = 23$	$N_4 = 16$	$N_5 = 19$	$N_6 = 13$

Total No. of Villages. N = 105

1st. STAGE

Villages selected with equal probability

n_i = Number of villages in the sample

$n_1 = 3$	$n_2 = 3$	$n_3 = 2$	$n_4 = 2$	$n_5 = 3$	$n_6 = 3$
Makadawara, Mawela, Weliwathura	Muruthawela, Hingula, Mawana	Thalapitiya, Devanagala	Medagoda, Alpitiya	Harankahawa, Dahanakamulla, Motigamuwa	Balathgamuwa, Nemmethogama, Palliperuwa

Total No. of Villages selected n = 18

M_{ij} = Number of households in the village j of stratum i

M_{11}	M_{12}	M_{13}	M_{21}	M_{22}	M_{23}	M_{31}	M_{32}	M_{41}	M_{42}	M_{51}	M_{52}	M_{53}	M_{61}	M_{62}	M_{63}
131	208	58	233	260	108	23	73	30	194	11	36	48	120	75	101

Total No. of Households in the selected villages M = 1709

Total No. of Households in the area = 7672

2nd STAGE

Households selected with equal probability

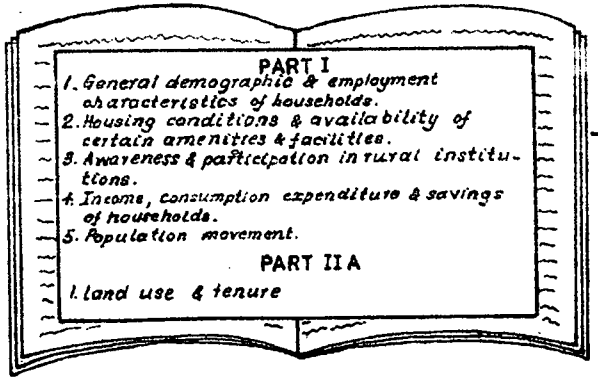
$m_{11} = 30$	$m_{12} = 40$	$m_{13} = 25$	$m_{21} = 40$	$m_{22} = 40$	$m_{23} = 30$	$m_{31} = 23$	$m_{32} = 25$	$m_{41} = 30$	$m_{42} = 30$	$m_{51} = 11$	$m_{52} = 25$	$m_{53} = 25$	$m_{61} = 30$	$m_{62} = 25$	$m_{63} = 30$

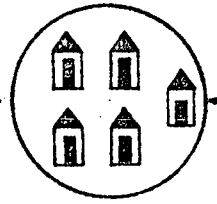
Total No. of Households selected m = 459

m_{ij} = Number of households selected from village j of stratum i

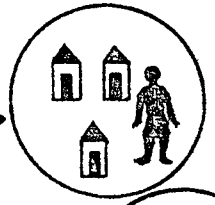
Total No. of Households Surveyed = 426

A SAMPLE OF HOUSEHOLDS

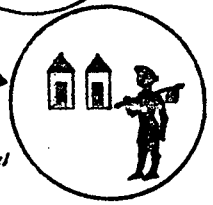


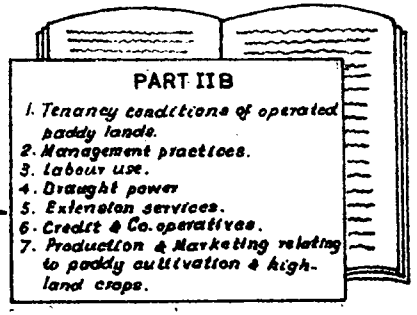


Households without agricultural operators



Households with agricultural operators.





Chapter 1

METHODOLOGY

1.1 Plan for the Survey

In working out a plan for the survey considerable thought was given to the fact that the data collected should be valuable for planning purposes. With this end in view a search for available information was made to select suitable socio-economic and agricultural characteristics as criteria for the stratification of villages, clusters of villages or any other suitable first stage unit of sampling. It was anticipated that some of the information obtained in the listing schedule AC/2 of the Agricultural Census could be used for this purpose.

1.2 Pilot Survey

While awaiting the processing of the census listing schedules a pilot survey was conducted in three villages viz: Puhulhena, Kehelpannala and Aluthnuwara. Puhulhena was completely enumerated and in the other two villages about 1/3 of the population of households was surveyed. This survey was conducted to test the questionnaire and provide information on variability between sample units. The intention of intensively studying the villages by taking fairly large samples in each village was to identify socio-economic aspects of village life which may have been overlooked in constructing the questionnaire. These three villages were chosen because of some experience or familiarity with them due to frequent visits by the research staff of the Institute as well as a study of the role of Cultivation Committees (CCs) in these areas.

The frame used for the selection of the households was the Food Controller's list of households.

The questionnaire was in two parts -

Part I - General socio-economic characteristics of the households;

Part II - Land and Agriculture.

Part II was further sub-divided into two sections -

(a) ownership, operations and distribution of land;
(b) agricultural activities

Information collected in the survey related to:

1. General demographic and employment characteristics of the household;
2. Housing conditions and availability of certain amenities and facilities;
3. Awareness of and participation in rural institutions;
4. Income, consumption expenditure and savings of households;
5. Land use and tenure;
6. Tenancy conditions of operated paddy lands;
7. (a) Management practices, (b) Labour use, (c) Draught power, (d) Extension services, (e) Credit and Co-operatives, (f) Production and Marketing relating to paddy cultivation and highland crops.

The Survey was conducted in two stages:

(a) Parts I and IIA of the questionnaire were administered in the first stage. Households with operators were identified based on the information collected in Stage I and information relating to operators collected in Part IIB of the questionnaire in Stage II.

It was decided to employ Investigators from the area to interview the farmers in order to inculcate a sense of participation by the people of the area in surveys of this nature. Sixteen youths with GCE (OL) qualifications were selected for this purpose. These Investigators were trained and instructed intensively on the purpose of this survey and the information to be collected. All interviews of Stage I of the survey were conducted by these Investigators closely supervised by the Research Officers. In Stage II of the survey, two permanent Investigators also participated in the investigations guiding the casual Investigators, as the information in this part of the survey was more complex and required the assistance of experienced Investigators.

(b) Field work was conducted during the period 28 November 1973 and 22 March 1974, in two stages.

Stage I	-	28 November 1973	to	1 December	1973
Stage II	-	18 December 1973	to	22 March	1974

The processing of data was done manually by the permanent Investigators of the Institute. Tables were prepared in respect of each village and estimates of agro-socio-economic parameters prepared for each village.

Based on the experiences of the pilot survey, the questionnaire was revised and a decision taken about the plan of the survey proper. Of the three villages surveyed, Puhulhena and Kehelpannala were in the Kehelpannala Cultivation Committee area and Aluthnuwara in the Aluthnuwara Cultivation Committee area. There was not much variability between enumeration units in respect of some quantitative characteristics (size of households, expenditure on food), but there was greater variation in extents of land owned or operated by the households. A large number of households had to be sampled in order to net at least a few units possessing certain specific attributes (e.g. borrowers from co-operatives, landless households). Marked inter-village differences were observed in respect of some characteristics (e.g. average size of holding per operator, distribution of land holdings by size, tenurewise distribution of land, extents of land under different crops).

1.3 The Final Survey

1.3.1 Universe

The Beminiwatte APC area comprises of sixteen CC areas. The Attapitiya Cultivation Committee contains a part of Ussapitiya Grama Sevaka (GS) Division. The major part of Ussapitiya GS Division falls within the Ussapitiya APC area. The universe for this survey excludes the part of Ussapitiya Division which falls within the Beminiwatte APC area.

1.3.2 Sample Design

A stratified two stage random sample design was adopted for the survey. The first stage units were villages and the second stage units were households.

The resources of the Institute did not permit a sample of more than around 450 ultimate units. With this limitation the choice was between surveying a large number of villages with a few households in each village or surveying a few villages intensively. It was decided that collection of data *per se* and obtaining overall estimates of parameters should not be the only objective of the survey and that the resources be employed so as to achieve the twin purposes of having a good understanding of a few villages by sampling them fairly intensively and also obtaining a fairly reliable picture of the entire area. Hence the choice of the following design for the survey. The listing schedules of the Agricultural Census were not available for use at the time the survey was planned. The basic information collected in Maha Oya-Kuda Oya Rural Community Development Project, 1972 (MOKO) and the Survey of the Village Planning conducted in 1973, by the Social Services Section of the Kegalle Kachcheri, were examined for selection of criteria for stratification of the villages. An attempt was made to classify villages on the similarity in respect of selected socio-economic, land and cropping pattern characteristics in order to form homogeneous areas to be considered as strata for the sampling scheme. In the absence of reliable information no rigid standards could be adopted for stratification and it was decided that the strata be areas comprising of one or more CC areas as CC areas would be the ultimate units for rural development. It would have been desirable to survey at least two villages within a stratum. The resources however, did not permit intensive surveys of thirty-two villages, i.e. two per Cultivation Committee. Therefore, CCs were combined to form six strata.

The nature of crops grown in the villages in each CC area, the average size and variation in size of villages in terms of households were taken into consideration in combining CCs to form strata. The variation in cropping patterns followed the gradation in the terrain and therefore, contiguous CCs fall into a strata. At its best this stratification was expected to bring out differences associated with different cropping patterns in the area when comparing strata. At its worst it provides an administrative stratification. However, this stratification provides a better spacial spread of the villages over the entire area and also ease the control of the field operations minimising cost of travel and other operations.

1.3.3 Sample Size

A total of sixteen villages were surveyed, a minimum of two villages being selected randomly with equal probability of selection from each of the six strata, the maximum number of villages in the strata being three. The APC area consists of 105 villages. About 15% of the villages were surveyed. Within each selected village households were selected randomly with equal probability. The size of the sample within each village varied with the population of households in the village. A complete enumeration was done in villages with twenty-five households or less. Twenty-five households were selected when the total number of households was 25 to 100 with the exception of Medagoda, where all thirty households were selected. Thirty households were selected when the population consisted of 101 - 200 households and forty when the population exceeded 200 households.

The selected sample consisted of 459 households. Replacements were made for sample units from a reserve list of households when a household had shifted from the area or the head of the household and in his absence

a responsible member of the household was not available for interviewing at any time during the period of survey in the village. Sample sizes were reduced in some villages due to insufficient time to complete the fixed sample size and in a few villages due to inadequate number of reserves being provided. The number of households in any one village exceeded 15% of the households surveyed in the villages.

In all 426 households were surveyed accounting for 5.5% of a total of 7,672 households.

1.3.4 Field Investigations

Based on the experiences of the pilot survey it was decided that the investigations in the final survey should be conducted by the permanent members of the Institute. Eleven Investigators participated in the field investigation. Six Research Officers also participated in investigating as well as supervising the investigations. Both parts of the schedules were administered together in this survey. The survey was begun on 10 October 1974 and concluded on 28 October 1974,with a break from 21 to 23 October.

1.3.5 Editing and Processing of Data

(a) the schedules were scrutinised in the field as well as in office for consistency and credibility of data.

(b) the data was tabulated for each village separately and basic statistical indicators of agro-socio-economic characteristics were computed for each village. Stratum estimates were built up based on the village estimates and overall estimates for the area computed.

1.3.6 Analysis of Data

The data has been analysed -

1. to provide a general picture of each of the sixteen villages surveyed and an overall picture of the area based on the computed estimates.

   Estimates were computed by the method of estimation appropriate to the sample design adopted, in respect of major variables of interest.

   When the number of observations relating to a characteristic was small in each village, the data has been analysed by aggregating the samples to form a composite whole and treating this sample as representative of the area;

2. to make a cross-section comparison of the villages highlighting village differences and similarities;

3. to integrate the findings of the cross-section comparative study and suggest strategies and areas for further research in development of the area.

No attempt has been made to provide a general picture of each stratum or make comparisons between strata as the survey did not bring out very striking similarities between villages within a stratum, or differences between strata in respect of characteristics like cropping patterns or average size of households. From a socio-economic standpoint, it could not be assumed that the stratification was effective in terms of homogeneity of primary sampling units.

1.4 Concepts and Definitions

Concepts and definitions particular to the survey are given below:

Household : A household is a group of persons living together in a housing unit and having common cooking arrangements or a person living alone.

Type of Household : The classification was based on the activities of the members of the household and not on types of income received by the members. Members receiving income from sources other than employment were classified according to the nature of their activity if they were employed or engaged in unpaid family work.

(a) Agricultural household is a household in which every single employed member or unpaid family worker is engaged only in agricultural work.

(b) Non-agricultural household is a household in which every single employed member or unpaid family worker is engaged in only non-agricultural work.

(c) Agricultural cum non-agricultural household is a household in which at least one member is engaged in both agricultural and non-agricultural work.

(d) Households in which no member is engaged in productive work, but members receive income from other sources (gratuities, pensions, land rent), are classified under a residual category 'others'. 'Beggars' too belong to this class of income receivers.

Agricultural Operational Holdings: An agricultural operational holding consists of all the land used wholly or partly for agricultural production operated under one management.

A holding is composed of one or more parcels irrespective of location of the land or ownership.

(a) Lowland Operational Holding: A lowland operational holding consists of only lowland.

(b) Highland Operational Holding: A highland operational holding consists of all highland including home-gardens greater than 1/2 acre in extent. All home-gardens of non-agricultural households have been excluded.

Home-gardens: A dwelling house and the surrounding land meant mainly for residential purposes and having any form of cultivation will constitute a home-garden.

Agricultural Operators: An agricultural operator is the person responsible for operating the holding.

Level of Technology: The extent of application of science in a cultural practice. This refers to the quality of the practices and differs from the rate of adoption of practices by the farmers.

Chapter 2

THE SETTING

2.1 Introduction

The Beminiwatte APC comes under the Galbode Korale DRO[1] Division of the District of Kegalle. The APC covers the area administered by the Village Committee of Aluthnuwara and part of the Town Council of Mawanella. The area comprises of sixteen entire GS divisions and a part of Ussapitiya GS Division with sixteen Cultivation Committees, (Appendix Table 2.1). Two primary Co-operative Societies[2] with thirty-three branches, fifty Rural Development Societies and a few *Kantha Samithies* service the area. A number of Death Donation Societies also function in the APC area.

2.2 Location and Physical Features

The Beminiwatte APC area is located to the South of the Colombo-Kandy road, approximately between the 56th and 63rd mile posts (Fig.1). The area comprises of approximately 25,000 acres in the mid-country wet zone of Sri Lanka, Topographically the land rises from 800 feet above sea level in the West to 1,000 feet above sea level in the East. Towards the Eastern boarders there are three jungle clad hills rising above 2,000 feet. The slopes are generally steeper in the East. The average rainfall of Beminiwatte is 100 inches per year and follows the typical bimodal pattern (Fig.2). The Yala season extending from March to August corresponds with the South West monsoon and receives more rain than Maha season which corresponds with the North East monsoon. The Yala rains are also more evenly distributed. Maha-Oya and its tributaries, Kuda-Oya and Hingula-Oya drain the area.

The major roads that run through the APC area are the Colombo-Kandy road and the Mawanella-Hemmathagama road. There is also access to the area from Gampola and Aranayake. A reasonably good network of minor roads is available within Beminiwatte. Mawanella, Hemmathagama and Hingula are towns within the APC area. Hingula, Makadawara, Mawela, Hemmathagama and Palliporuwa are the villages in the sample close to these urban centres.

The highland areas except the very steep slopes are generally cultivated with tea, rubber, coconut and home-garden crops. Paddy is cultivated in the gently sloping tracts and valley bottoms. While irrigation is essential for successful cultivation of paddy, it is almost entirely rain-fed. There are no major irrigation schemes.[3] The uncertainty of water for irrigation is a common problem, though there is scope for developing minor irrigation by storing rain water in tanks and diverting streams.

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[1] Divisional Revenue Officer

[2] A branch of the Bank of Ceylon is attached to the APC and a Rural Bank is attached to each Primary Co-operative Society.

[3] Refer Section 4.2.1

BEMINIWATTA FIELD LABORATORY

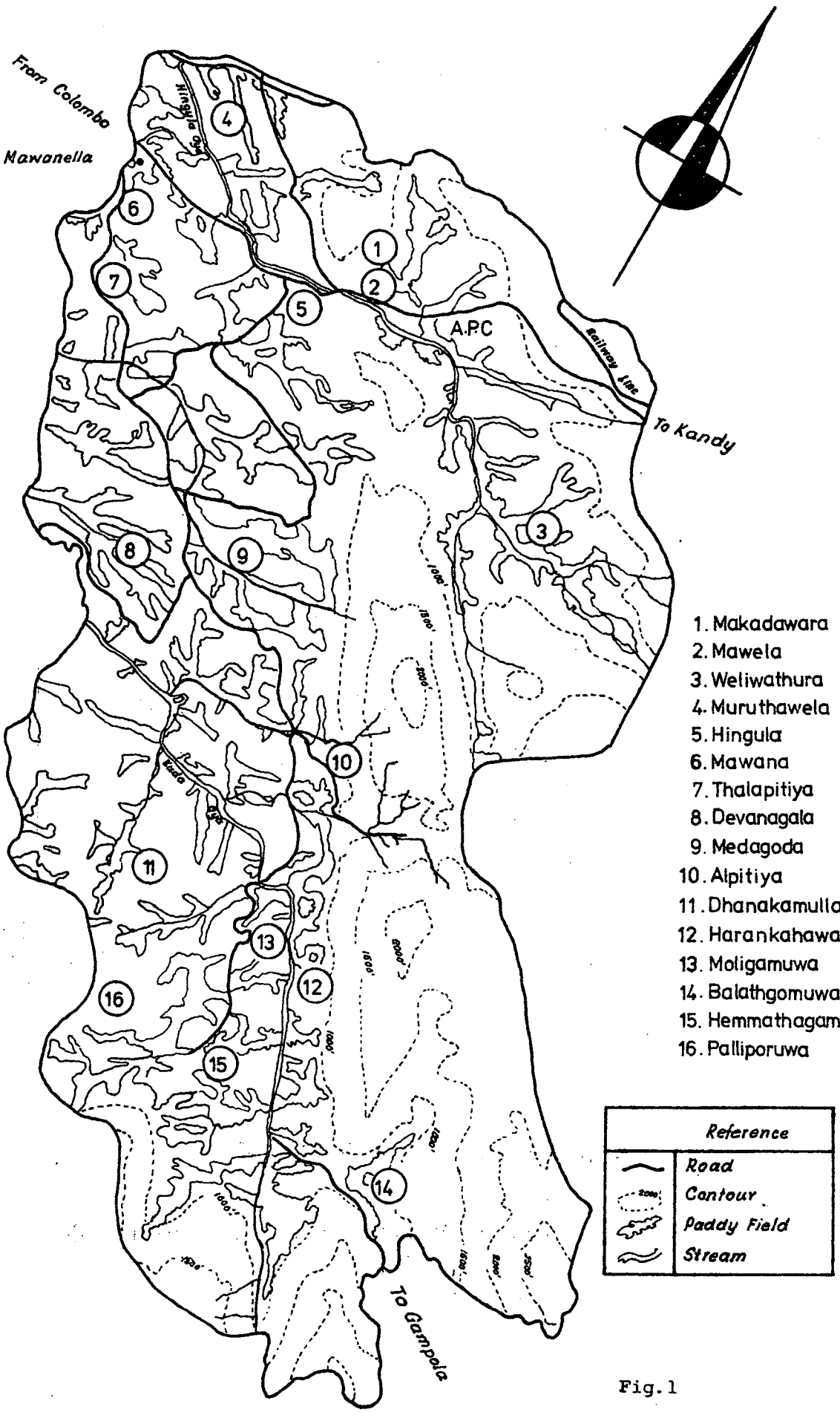
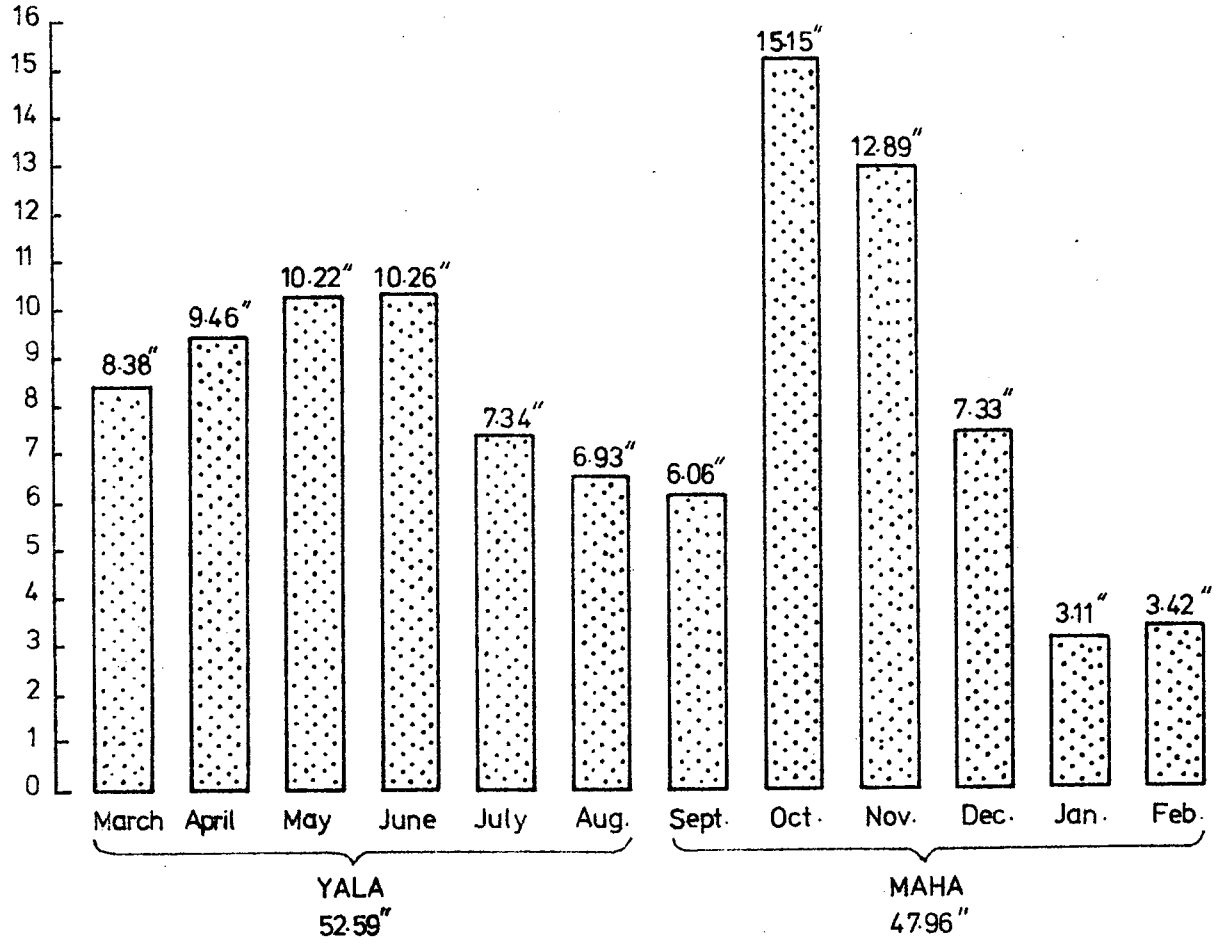


Fig. 1

Scale: One Inch to One Mile : 1:63360

RAINFALL (KEGALLE)

650ft. above M.S.L.



Mean annual Rainfall 100·55 in.

Source:

Report of the Colombo Observatory-1966

Fig. 2

2.3 Socio-economic Characteristics

With a population density of 1,344 persons per square mile,[1] Beminiwatte is one of the densely populated areas of the mid-country wet zone. This heavy population pressure, particularly on paddy land in the villages has resulted in fragmentation of the land which in turn has brought about a series of inter-related maladjustments in the man-land relationships as landlessness, micro-holdings, joint ownerships, tenancy, etc., all of which are important problems of the paddy-centred economy.[2]

The average size of a household is 6.4 persons which is slightly higher than the average size of a household (5.6) for the rural sector in Sri Lanka.[3] The average number of males and females in a household were 3.3 and 3.1 respectively. This disclosed a near even distribution of population between males and females. The important feature in the age structure of the population was the heavy concentration at the lower ages; 56.1% of the population were found to be less than 21 years of age while almost 38% were below 14 years of age. Nearly 81% of the population was found to be literate.[4] Illiteracy was more among females than males. In the distribution of all persons of households on the basis of education it appears that about 41.6% of them went up to 5th Standard, 33.1% to GCE (OL) and 8% passed GCE (OL).

There are basically two ethnic groups in the population of the area, viz. Sinhalese and Muslims. Muslims are more concentrated in the urban centres especially in Mawanella, Hingula Bazaar and Hemmathagama. They are mainly merchants involved in the marketing of rubber, other cash crops and consumable goods. The Sinhalese people are dispersed all over the area. They are mainly farmers but a few of them are white and blue collar workers in the urban centres.

Almost all the Sinhalese people are Buddhists and they usually attend their own village temples that belong to the order *(Nikaya)* which suits their caste. For example the *Goigama* people like to patronize a *"Siyam Nikaya"* temple. The Muslims are mostly *"Sunni"* by sect.

Because of their social intercourse with the Sinhalese in different fields such as trade, education and rural development, most Muslims speak Sinhala fluently, though their mother tongue is Tamil. A few of them even have Sinhalese names along with their Arabic names. The total number of the Hindu Tamils in the area is negligible and they live in highland estates.

Caste structure in the area is very similar to the caste structure one would find in the up-country. *Goigama* caste is the dominant caste in the villages with one exception. In Talgamuwa village *Karawa* caste

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[1] Source: computation based on the figures for population and area provided by the Statistical Branch of Kegalle Kachcheri, Kegalle District 1016/Sq.M. St.A 1971.

[2] For details see Chapter 3.

[3] Survey of Sri Lanka's Consumer Finances 1973, Central Bank of Ceylon.

[4] The literacy rate for the rural sector in Sri Lanka according to the Socio-Economic Survey of Sri Lanka 1969-70 was 84%.

dominates over the other castes. In the social order *Goigama* caste is followed by other castes like *Yahumpura, Berawa, Bathgama* and *Rodi*. Caste considerations are still important in social functions and to some extent in land sale and tenancy matters.

The main economic activity of the area is agriculture. Home-gardens with mixed crops constitute 33%, rubber 27%, coconut 19%, paddy 14% and tea 7%, of the total 25,720 acres of land.[1] Paddy occupies only a comparatively small extent in the area. Yet, in the village economy paddy cultivation is the central agricultural activity, though it is practised mostly for home consumption. A considerable amount of income is also derived from highland perennial crops.[2]

2.3.1 Living Conditions

Income and Expenditure

Data on income and expenditure in a survey of this nature are generally not very reliable. The estimated annual average income from all sources and annual average expenditure were reported as Rs.2,925 and Rs.3,804 per household respectively.[3]

Housing Units

Nearly 79% of the families were living in their own houses and the rest were residing either in rented houses or in houses owned by relatives. 47% of the families were living in brick houses with permanent roofs, while 25% were living in thatched mud houses but not whitewashed and 22% in thatched mud whitewashed houses. A few lived in mud houses with permanent roofs, thatched brick houses, etc. Houses had three to five living rooms.

Amenities and Equipment

Only some households in Palliporuwa, Hingula, Medagoda, Makadawara and Hemmathagama villages reported having electricity in their houses, which constituted 14%, 3%, 4% and 22% respectively of the total households surveyed in these villages.

41% of families owned wells while more than 50% shared wells with their neighbours or used public wells. 86% of households reported having separate lavatories. Most of them were of the pit variety while a small number were of the water-seal type. About 79% of the households had separate kitchens.

In all villages with the exception of Makadawara, Mawela and Medagoda more than 40% of the households were accessible by a motorable or cart road. In Makadawara and Mawela villages nearly 28% and 21% of the houses were accessible by a motorable or cart road.

Being in the rural area households in Beminiwatte are usually less equipped than those in the urban sector. The commonest types of equipment available in the households of the survey area were 'petromax' lamps (28%), radios (21%), sewing machines (19%), and wall clocks (17%). All these valuables averaged one item per reporting household. A very small percentage of the households had other items such as cycles, cars, lorries, refrigerators, etc.

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[1] Based on the Study of Basic Village Statistics conducted by the Statistical Branch of Kegalle Kachcheri in 1969.

[2] Details are in Chapter 4.

[3] Refer Chapter on 'Employment and Income'.

Chapter 3

POPULATION AND LAND

According to the survey the total population of the APC area was 48,876. In the 16 villages studied the population ranged from 59 to 1,586 (Appendix Table 3.1). Considering the fact that the area under study is mainly agricultural, the population pressure on land is high in most of the villages.[1] The extent of land available per head of population is small being only 0.27 acres consisting of 0.21 acres of highland and 0.06 acres of lowland (Table 3-I).

Table 3-I Highland and Lowland per head of population and per household

Type of Land	Land per head of population acres	Land per household acres
Highland	0.21	1.34
Lowland	0.06	0.39
Highland and Lowland	0.27	1.72

The inter-village variations in land ratio values ranged along a continuum of land-man ratios bracketed at either end by the highest value of 0.68 acres per individual (Balathgamuwa) and the lowest value of 0.04 (Thalapitiya), (Appendix Table 3.2).

3.1 Patterns of Land Ownership

3.1.1 Ownership of Land

More households owned highland and lowland holdings as single owners than under joint or any other form of ownership. However, more single owner households were found within highland than within lowland (Table 3-II). The relative prominance of joint ownership of lowland indicates the high degree of paddy land fragmentation which had occurred in the area.

Table 3-II Ownership of Land

Households by tenurial category	Households owning Highland %	Lowland %	Both Highland and Lowland %
Only singly-owned	75	44	66
Only jointly-owned	17	29	22
Others *	8	27	12
Total	100	100	100

* "Others" refer to households that had rented/leased/mortgaged out their lands and households that held land under more than one form of ownership.

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[1] It must be noted that all the households or their members in the villages surveyed do not depend on agriculture for their livelihood. 28% of the households in the study villages depended on non-agricultural occupations. Hingula, Palliporuwa, Mawana and Thalapitiya have predominantly non-agricultural occupations. In Hingula, a Town Council area, non-agricultural occupations are important. In Thalapitiya, a *Rodiya* caste village, begging is the main activity. See also Chapter 5.

More highland extents were under single ownership than under joint ownership in all the villages, except Mawana, which had more highland under joint ownership (Appendix Table 3.3). The highest proportions of highland under single ownership (above 95%) were found in the villages of Balathgamuwa, Palliporuwa and Muruthawela, while the lowest (around 50%) were found in Hingula and Mawana. On the average 76% of the owned highland was under single ownership.

A more complex situation exists in the case of lowland. On the average 42% of the owned lowland was under single ownership, while 38% was held under joint ownership. The rest (20%) was mostly rented out and to a lesser extent mortgaged or leased out land. Eight of the sixteen villages studied showed more lowland under joint and other forms of ownership than under single ownership (Appendix Table 3.4).

3.1.2 Size of Owned Holdings

23% of households indicated that they did not own any land, while 33% owned half-acre or less (Table 3-III).

Table 3-III Percentage distribution of households by type of household and size class of owned land

Type of Households	No.of House-holds	Percentages of households reporting: No Land %	½ acre or less %	Above ½ - 1 acre %	Above 1-2 acres %	Above 2 acres %	Total acres %
Highland:							
Agricultural	118	16.1	39.0	15.3	8.8	22.9	100
Agric.cum non-agric.	169	11.8	34.3	17.8	12.4	23.7	100
Non-agricultural	124	46.8	41.3	9.5	0.8	1.6	100
Other	15	40.0	46.7	6.7	6.7	-	100
Total	426	23.7	38.5	14.3	7.5	16.0	100
Lowland:							
Agricultural	118	64.4	16.1	7.6	6.8	5.1	100
Agric.cum non-agric.	169	52.7	20.7	11.2	8.9	6.5	100
Non-agricultural	124	96.0	3.2	0.8	-	-	100
Other	15	93.3	-	6.7	-	-	100
Total	426	70.0	13.6	7.0	5.4	4.0	100
Lowland and Highland							
Agricultural	118	15.3	33.1	19.5	6.8	25.4	100
Agric.cum non-agric.	169	10.7	24.7	18.9	16.0	30.2	100
Non-agricultural	124	44.8	43.2	9.6	1.6	0.8	100
Other	15	42.9	42.9	7.1	-	7.1	100
Total	426	23.0	32.9	16.0	8.7	19.5	100

Landlessness was prevalent more among non-agricultural and "other" types of households than among agricultural and agricultural cum non-agricultural households. It may be noted that the former groups do not depend entirely on land for their livelihood. The proportion of agricultural households claiming landlessness was higher than that of agricultural cum non-agricultural households.

Three villages Hingula, Muruthawela and Mawana, showed the most acute landlessness, while in three others Devanagala, Balathgamuwa and Dahanakamulla, landlessness was least acute, (Appendix Table 3.5). In the villages of the former group non-agricultural and 'other' households formed an appreciable segment of the total households. In the latter group these categories of households formed only a small part of the total households.

Table 3-IV Extent of Highland and Lowland owned by types of households

Type of Household	No. of households	Highland Acres	%	Lowland Acres	%
Agricultural	118	206.6	*35.5*	47.0	*30.8*
Agric.cum non-agric.	169	341.6	*58.7*	102.6	*67.2*
Non-agricultural	124	29.6	*5.1*	2.1	*1.3*
Other	15	4.4	*0.7*	1.0	*0.7*
Total	426	582.2	*100.0*	152.7	*100.0*

Agricultural and agricultural cum non-agricultural households taken together owned a large portion of the owned highland and lowland (Table 3-IV). However, of the households of either category which stated that they had some land, approximately 40-45% said that their holdings were extremely small, i.e. holdings up to half acre and below (Table 3-V).

Table 3-V Households reporting ownership of land half acre or less in extent

Type of Household	No. of Households owning land	Households owning ½ acre or less: Highland No.	%	Lowland No.	%
Agricultural	100	46	*46.5*	19	*45.2*
Agric.cum non-agric.	151	59	*38.9*	35	*43.8*

The above factor is especially important in view of the fact that both household types are fully or partially engaged in agricultural pursuits. The smallness of owned extents of a majority of households is a result of shortage of land available to villagers, fragmentation of land in the absence of other means of livelihood and adverse tenurial patterns nurturing fragmentation. It may also be due to the concentration of considerable extents of land in the hands of a few.

In nine of the sixteen villages more than 30% of households owned ½ acre or less of land per household. In Alpitiya and Dahanakamulla more than half the number of households owned ½ acre or less in extent. In these two villages, very high proportions of households (70% and 81% respectively) were dependent entirely or partially on agriculture for their livelihood, (Appendix Table 3.5).

An inequitable distribution of owned highland was seen in a large number of villages. In certain villages a small proportion of owners controlled a very large proportion of the owned highland (e.g. Makadawara, Weliwathura, and Palliporuwa). In such villages a very large proportion of owners had at their disposal only extremely small extents (½ acre or less) of highland, (Appendix Table 3.6).

With the exception of Hemmathagama and Hingula, the concentration of large extents of lowland in the hands of a few was not so marked as in the case of highland. Generally, a majority of the owners held lowland holdings of below one acre in extent - exceptions were found in Mawana and Alpitiya, where more than 50% of the owners owned above one acre holdings. In eight villages 50% of the owners have holdings of ½ acre or less in extent, (Appendix Table 3.7).

3.2 Patterns of Land Operations[1]

3.2.1 Population and operated land

The land-man ratio for operated land among the study villages was 0.26 acres, (Appendix Table 3.8).

Four villages (Weliwathura, Hemmathagama, Hingula and Balathgamuwa) showed the highest land-man ratio values, showing that operational land situation was less adverse here than in other villages. At the other extreme, three villages (Thalapitiya, Mawana and Palliporuwa), showed very low land-man ratios (below 0.1).

Generally, operated highland was higher than the extent of operated lowlands within the villages.

3.2.2 Size characteristics of operational holdings (highland and lowland)

The average holding of an operator was 3.05 acres, comprising of 2.26 acres of highland and 0.79 acres of lowland. In 5 villages (Mawana, Devanagala, Harankahawa, Moligamuwa and Palliporuwa), the average holding was between 1-2 acres. In Hingula it was 9 acres and in Balathgamuwa 5 acres. In the remaining villages the average overall holding stood between 2-4 acres.

The size distribution of the holdings gives a better picture of the operational extents in individual villages than the average (Appendix Table 3.9). In seven villages (Makadawara, Devanagala, Medagoda, Alpitiya, Harankahawa, Moligamuwa and Palliporuwa), 40% or more of the holdings were less than 1 acre in extent. Smallness of the operational holding presents a major problem in such villages. In Weliwathura, Hingula, Dahanakamulla Hemmathagama and Balathgamuwa over 50% of the holdings were above 2 acres in extent indicating a relatively satisfactory land situation. In such villages opportunities for improving land productivity are considerable.

Operational land is of course distributed unequally. In many villages the bulk of the operated land is worked by a small proportion of operators. In villages like Makadawara and Devanagala, about 20% of the operators with holdings over 2 acres operated as much as 70% of the total land, thus leaving only a small proportion of land in the hands of the bulk of the operators. In Hingula, for instance, where the average overall holding is 9.3 acres, 46% of the operators cultivated only 6% of the total extent operated. In these circumstances, the satisfactory land position as shown by land-man and land-household ratios has to be treated with some caution.

3.2.3 Tenure and Size Characteristics of highland holdings

Highland was operated under various forms of tenure (Table 3-VI). The differences in the tenurial patterns of ownership and operation of highland were not so marked as in the case of lowland. 83% of the total number of highland operators were owners and they operated 90% of the total highland. 63% were sole owner operators while the rest were joint owners or joint owners-cum-sole owners. About 17% categorised as 'other' operated leased-in lands, allotments under the LDO[2] or encroached

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[1] Refer definition - Chapter 1

[2] Land Development Ordinance

land. It is important to note that in the villages studied, 21% of the highland was jointly operated. The high degree of land fragmentation aided by laws of inheritance, in the absence of a substantial outshift of population from rural areas seems to contribute to the problem of joint ownership. Joint ownership generally discourages investment and development of land and leads to low productivity due to lack of a unified system of management. Though a system of joint ownership may prevent further fragmentation of holdings, it certainly does not offer encouragement for the development of land in the long term.

Table 3-VI Tenure of Highland Operational Holdings

		Sole owners	Joint owners	Sole-cum joint owners	Others	All operational holdings No./Acres)
Operators	%	63	11	9	17	169
Extent	%	63	6	21	10	533
Average holding	(acres)	3.1	1.8	7.3	2	3.2

The average highland operational holding for the area was 3.2 acres. In eight villages the average size of holding was less than 2 acres, (Appendix Table 3.10).

In the majority of the villages over 60% of the operated highland was in holdings above 2 acres in extent. But in most of such villages a relatively smaller proportion of operators worked the bulk of the land, indicating a skewed distribution of operated highland, leaving in the hands of a large number of operators only a very small proportion of the land. For the entire area 40% of highland operators had holdings less than 1 acre and operated only 8% of the total extent, (Appendix Table 3.10).

Parcelization does not seem to be a serious problem in the highland operational holdings. The smallest holdings are composed of one parcel while the larger holdings consisted of above 2-3 parcels, (Table 3-VII). A situation of holdings consisting of several parcels was not serious since a majority of the operational holdings were small. The smallness of the holdings itself presented a more serious problem.

Table 3-VII Parcelization of Highland Operated Holdings

Size of Holding	No. of holdings	No. of parcels	Avg.No.of parcels per holding
½ acre or less	23	26	1.1
Above ½ acre to 1 acre	44	48	1.1
Above 1 acre to 2 acres	37	62	1.7
Above 2 acres	65	174	2.7
Overall	169	310	1.8

About 28% of the agricultural operators did not operate any highland, (Appendix Table 3.12). In Makadawara and Harankahawa, the percentage of highland operators were least, 50% of the total number of operators.[1] Most of them would have had home-gardens less than ½ acre in extent.

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[1] It is in these villages that the 'other' groups were also predominant, indicating resettlement of landless in village expansion schemes.

3.2.4 Tenure and Size Characteristics of lowland holdings

One-hundred and sixty-two acres of lowland were operated in Maha 1973/74 by 164 cultivators in the sample. An estimated extent of 2,992 acres in Maha 1973/74 were cultivated by an estimated number of 3,010 operators in the Beminiwatte area. 65% of all agricultural and agricultural cum non-agricultural households were engaged in paddy cultivation. Among the agricultural operators 79% were engaged in paddy cultivation, indicating the continuing importance of this activity in the village economy.

Paddy cultivation in the area is practised under various forms of tenure, (Table 3-VIII).

Table 3-VIII Percentage distribution of lowland operators and extents by tenurial category

	Sole owners	Joint owners	Tenants	Part-tenants
Operators %	35	14	40	11
Extent %	35	14	36	15

Tenancy is an important factor affecting paddy cultivation. Certain forms of joint ownership like *Thattumaru* and *Kattimaru* are also found in the area. 36% of the paddy area is operated by tenants and another 15% is worked by owners who are also part-tenants. Thus 46% of the paddy area is tenant-operated. The area could thus be considered as one with a high incidence of tenancy. Altogether 40% of operators were tenants and 11% were part-tenants. The sole owner-operators accounted for 35% and joint owner-operators 14% of all operators. Tenancy is found in all the villages studied except Thalapitiya.

In Mawela, Makadawara, Harankahawa and Moligamuwa, the pure tenants accounted for more than 50% of all operators. In Harankahawa 83% of the operators were tenants and the rest part-tenants. There were no pure owner-operators.

Joint ownership is an expression of the desire of the owners to cling on to a piece of land however small it may be, mainly for reasons of economic security. Ownership of land also tends to enhance the social prestige of the individual. The operation of jointly owned land takes place under two different systems, namely:

1. *Thattumaru*, where two or more co-owners take turns and operate the same piece of land; and
2. *Kattimaru*, where the co-owners rotate on several pieces of land.

Thattumaru and *Kattimaru* systems tend to depress productivity due to lack of improvement to the land as the management of operations are transistory.[1]

Among the villages studied the average extent of paddy land operated is small and was about 1 acre per operator. This is basically due to limited availability of paddy land in relation to the agricultural population. Thirteen villages had average holdings varying between 0.75 acres to 1.25 acres. The average holding exceeded 1.25 acres only in two villages (Appendix Table 3.11).

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[1] I.K. Weerawardena and I. Collonnege - "Too many hands in too few lands". *Thattumaru* and *Kattimaru* Study - Mahagama South Cultivation Committee, Kalutara District, 1971.

The size distribution of holdings shows more dramatically the predominance of small-holdings in the area, (Appendix Table 3.11). 36% of the sample operators worked on paddy holdings below ½ acre in extent, and only 8% operated holdings over 2 acres in extent. Nearly 70% operated holdings less than 1 acre in extent. In 5 villages (excluding Thalapitiya, which is an exception), none of the operational holdings exceeded 2 acres. In the villages of Hingula, Devanagala and Medagoda, one could notice a relatively higher concentration of land among operators of over 2 acres. Generally in such villages the number of operators of small-holdings (less than ½ acre), was also very large. In approximately 50% of the villages the proportion of holdings below ½ acre is over 35%.

Table 3-IX Distribution of operators of paddy land by tenurial category and size of operational holdings (Maha 1973/74)

		½ acre or less		Above ½ - 1 acre		Above 1 - 2 acres		Above 2 acres		Total acres		Average size of holding acres
		No.	%	No.	%	No.	%	No.	%	No.	%	
Sole Owners	No.	30	*48*	10	*19*	12	*33*	6	*50*	58	*35*	0.95
	%	*52*		*17*		*21*		*10*		*100*		
Joint "	No.	5	*8*	7	*13*	8	*8*	3	*25*	23	*14*	0.96
	%	*22*		*30*		*58*		*13*		*100*		
Tenants	No.	19	*31*	31	*57*	13	*36*	1	*8*	64	*39*	0.91
	%	*30*		*48*		*20*		*2*		*100*		
Part Tenants	No.	8	*13*	6	*11*	3	*8*	2	*17*	19	*12*	1.39
	%	*42*		*32*		*16*		*11*		*100*		
All tenurial Categories	No.	62	*100*	54	*100*	36	*100*	12	*100*	164	*100*	0.99
	%	*38*		*33*		*22*		*7*		*100*		

There are no marked differences in the size of holdings among different tenurial categories (Table 3-IX). However, a higher proportion of owners operate less than ½ acre.

Table 3-X Parcelization of Lowland Holdings

Size of Holdings	No. of parcels per holding
½ acre or less	1.1
Above ½ acre to 1 acre	1.3
Above 1 acre to 2 acres	2.1
Above 2 acres	3.1
All sizes	1.6

The operational paddy holdings are usually parcelized, but this is not a very serious problem in a majority of the small-holdings, which consist of less than two parcels (Table 3-X). It is only in the larger holdings over 2 acres that the number of parcels are greater than three per holding, but such holdings are few compared with smaller holdings. Smallness of the operational holding, tenancy and joint ownership are the improtant problems of the paddy sector.

3.2.5 Economic and social aspects of tenancy

Tenancy, as noted earlier, is widespread in the area. The total number of operators working on tenanted lands accounted for almost 50% of the total number of cultivators. In a large number of villages (excluding Hingula, Mawana, Thalapitiya and Dahanakamulla, which had few operators), neither the tenanted extents nor the number of tenant operators was less than 20%. In seven villages acreage cultivated under *'ande'* was higher than 50%. In these villages *'ande'* was the most predominant form of paddy land operation.

Table 3-XI Land Rent paid by tenants * (All villages)

	Total	Cash Rent	Fixed Rent	Rent in kind					
				After payment for inputs			Before payment for inputs		
				1/4	1/2	Above 1/2	1/4	1/2	Above 1/2
No.	114	8	1	-	84	4	1	13	3
%	100	7	1	-	74	4	1	11	3

* Tenants have been double counted once for each landlord. Excludes 5 tenants who had not reported the mode of payment of rent.

The land rent was paid basically in kind as a share of the crop (Table 3-XI). 91% of the tenants paid half share or more of the produce to their landlords. 6 tenants (5%) paid a rent as high as 3/4 of the produce.

The payment of half share of crop as rent takes place under two forms:

1. The landlord and tenant share the crop equally.
2. The tenant pays in paddy for the landlords' input and the remainder is equally shared.

In the second method which is the most prevalent before apportioning the produce on a fifty-fifty basis, an amount of paddy equal to the value of the inputs provided by the landlord including the interest due on them is deducted from the total produce. The balance is then divided in half and the tenant thus retains less than half the total produce. In the first method half the entire crop is paid as rent and the payment for inputs is by the tenant from his share, unless the inputs are provided free as in the case of a few who receive only fertilizer free of charge. This shows that the majority of the tenants theoretically paying half share of the produce are in fact paying more than half to the landlord.

Only one tenant in the sample pays 1/4 of the produce as stipulated in the Paddy Lands Act. Only one paid a fixed rent and eight paid the rent in cash.

65% of the tenants who pay half share or more of the produce as rent receive some kind of collateral help from their landlords. 28% of these tenants receive half their requirements of one or more inputs and 65% receive the full requirements of the inputs supplied. All tenants who pay half share or more of the produce before deduction for inputs receive inputs from their landlords while only 59% of those who pay after deducting for inputs receive at least one input (Table 3-XII).

Table 3-XII Tenants receiving inputs from their landlords

	Payments of half share or more of produce								
	After deducting for inputs			Before deducting for inputs			Total		
	No.	%	%	No.	%	%	No.	%	%
All Tenants	88	100		16	100		104	100	
Tenants who receive inputs*	52	59	100	16	100	100	68	65	100
Half inputs	18		35	1		6	19		28
Full inputs	30		58	14		88	44		65

*Includes 5 tenants who receive more than half but less than full inputs.

The most important inputs provided are fertilizer, seed paddy and agro-chemicals, (Table 3-XIII). Of those receiving inputs 72% receive two or more inputs. Only 15% get three or more inputs 88% received fertilizer 56% receiving the full amount. 60% of the tenants receive seed paddy, 43% receive the full amount. Among the input combinations, the seed-fertilizer combination was the most important. 32% of tenants received this combination of inputs.

Table 3-XIII Inputs received by tenants

	Tenants paying 1/2 share or more of produce		
	Total* No.	Number receiving 1/2 inputs	Number receiving full inputs
Fertilizer	11	3	5
Fertilizer and seed	22	3	18
Seed	8	2	6
Fertilizer and agro-chemicals	16	6	10
Fertilizer,seed & agro- "	10	4	5
Seed and agro-chemicals	1	1	-
Total	68	19	44

* Includes 5 tenants who receive more than 1/2 but less than full inputs

The data indicate that a smaller percentage of tenants (48%) received collateral help from relatives, while a greater proportion (57%) received collateral help from landlords without close kinship ties. The latter may have provided collateral help in order to extract a high rent and also to prevent the tenants acting according to the Paddy Lands Act.

Payment for inputs provided by the landlord is usually settled at the time of sharing the produce for each season. 29% of the tenants paid more than 150% of the value of the inputs received,(Table 3-XIV). This indicates that a fairly large proportion of tenants paid very high interest. Such high interests were generally paid to landlords who were outsiders.

Table 3-XIV Repayment for Inputs provided by Landlords

Relationship of tenants to landlords	Repayment rate (%) 100 or less	101-150	151-200	Over 200	Total
Relatives	3	6	2	-	11
Neighbours	4	6	3	1	14
Friends	4	2	1	1	8
Outsiders	9	8	4	5	26
Temple/*Devale*	-	-	-	-	-
Total	20	22	10	7	59

Landlords

Most *ande* landlords are either from the same village (44%) or from neighbouring villages (43%). 13% are absentee landlords living outside the immediate environs. Considering the scarcity of paddy land in the area, even the small percentage of landlord absenteeism appears to be important. This can have an adverse impact on productivity especially when the tenant has to pay a high rent and is insecure on the land. In certain villages like Alpitiya, Palliporuwa and Moligamuwa, the percentage of absentee landlords to the total was over 25%.

A considerable proportion of landlords are in salaried employment or engaged in professional work (25%). 13% were traders. It is quite likely that at least a part of the 10% of landlords categorised as 'others' fall into these categories. Only 22% of the landlords were mentioned as cultivators and another 27% were land owners. The latter are obviously those with substantial extents of other land in their possession.[1] It must however be mentioned that 83% or so of landlords in salaried employment and in trade are resident in the village or neighbouring villages and are not necessarily absentees who have foreclosed land of the villagers. Many of them are people of the area who have secured better employment and who get their lands, perhaps small extents, cultivated on the basis of *ande*. Although there is no clearcut pattern in the distribution of a particular landlord class, in certain villages such as Palliporuwa, Alpitiya, Balathgamuwa, Hemmatagama and Muruthawela, those in salaried employment or in trade formed a prominent group of landlords.

The largest percentage of tenants (34%) had no specific relationship with landlords. They were mentioned as outsiders. 23% were relatives while friends and neighbours together accounted for 38% and 5% were priests, (Table 3-XV).

Ande cultivation is still dominated by uncertainty and insecurity. Only 41% of the tenants had their names registered in the Paddy Lands Register,[2] which forms the only legal document guaranteeing security of

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[1]Generally those who own substantial extents of paddy land also have more highland - see Agrarian Situation, Kandy Report and Class II Coconut Lands - Interim Report.

[2]Maintained by the Cultivation Committees established under the Paddy Lands Act of 1958. This act was replaced by the Agricultural Lands Law of 1973.

tenancy (Table 3-XV). The rest have not been able to get themselves registered for fear of eviction. A larger percentage of tenants (54%), whose landlords are outsiders have got themselves registered, than tenants whose landlords are relatives (19%). Among tenants, whose landlords are friends and neighbours 42% were registered. This shows that when land is obtained from outsiders who have no kinship ties or other social obligations towards the tenants, more tenants attempted to secure their legal status of tenancy.

Table 3-XV Distribution of Registered Tenants by relationship to landlords (all villages)

Relationship	All Tenants		Registered Tenants	Percentage of Total tenants
	No.	%	No.	
Relatives	27	23	5	19
Friends and neighbours	45	38	19	42
Outsiders	41	34	22	54
Temple/*Devale*	6	5	3	50
Total	119	100	49	41

It appears that insecurity has forced the bulk of the tenants to pay a very high rent. Even the registered cultivators are not immune to eviction. This is shown by the fact that the bulk of the tenants who are registered cultivators continue to pay half the produce to the landlord. A large proportion of the tenants are unable to obtain the full benefits of the Paddy Lands Act through fear of eviction. An eviction under the existing conditions of acute competition for land among tenants and the absence of other means of livelihood could place a tenant in a worse plight than paying off a high rent.

Table 3-XVI Gifts offered and services performed by tenants for landlords free of charge

Relationship	Total No. of tenants	Tenants offering gifts		Tenants performing services[1]	
		In kind	In cash	Work in landlords' fields	Unspecified
Relatives	27	6	-	4	1
Friends and neighbours	45	17	-	1	-
Outsiders	41	17	-	2	-
Temple/*Devale*	6	2	-	-	-
Total	119	42	-	7	1

Certain other social and economic features associated with tenancy also bring to focus insecurity and oppression associated with *ande* system. 42% of the tenants had offered gifts in kind, or performed various free services, obviously as tokens for requesting renewal of tenancy, (Table 3-XVI). A large percentage of tenants whose landlords are outsiders offer gifts than tenants whose landlords are relatives. Performance of free services is most common among tenants who cultivate lands of relatives or friends.

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[1] Household work is work in landlords' fields free of charge

Chapter 4

AGRICULTURAL PRODUCTION AND MANAGEMENT PRACTICES

Agriculture is the main economic activity of the people of Beminiwatte. This chapter examines the land use patterns, the socio-economic factors and management practices that directly affect the agricultural production, based on the data obtained during the survey and also on the observations made during the two years of association with the area. The total land extent of the Beminiwatte Field Laboratory area is approximately 25,000 acres. The estimated extent of agricultural lands operated by the small farmers is 13,000 acres. The remaining 12,000 acres are crown land and estates. Of the 13,000 acres operated by farmers 9,700 acres are comprised of highlands and the balance 3,300 acres are paddy lands. It is seen therefore that 74% of the agricultural lands operated by farmers are highlands. The distribution of highlands and lowlands among the sixteen villages studied is shown in Appendix Table 3.8. In this chapter highland cultivation and paddy cultivation are discussed separately.[1]

4.1 Highland Cultivation

The highland cultivation in the area can be broadly divided into -

(a) Plantation crops
(b) Other highland crops

4.1.1 Plantation crops[2]

The general data pertaining to plantation crops are shown in Table 4-I. In the sample of sixteen villages studied, only five villages - Hingula, Balathgamuwa, Muruthawela, Weliwathura and Hemmathagama, have extents of 20 or more acres under the plantation crops - rubber, coconut and tea. Four villages, Mawela, Makadawara, Medagoda and Dahanakamulla had extents between 10 and 20 acres under plantation crops. The other villages had less than 10 acres of plantation crops. Of these three crops, the largest extents were under rubber with coconut next and tea occupying the smallest extent. Tea plantations were absent in nine villages, rubber plantations were not present in three villages and coconut plantations were absent in two villages.

When the sample area is viewed as a whole, 47% of the highland extent is under plantation crops. Of this extent, 63% is rubber, 29% coconut and 8% tea.

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[1] The village Thalapitiya is omitted from this discussion because its sample contained only two agricultural operators. A large majority of the population of this village mainly resorted to begging.

[2] In this chapter plantation crops refer to Tea, Rubber and Coconut in pure stands of over half acre in extent.

Table 4-I

Plantation Crops

Number of Holdings and Extents

Village	Rubber			Coconut			Tea			All Plantation Crops		
	No.of holdings	Extent acres	% of total extent*	No.of holdings	Extent acres	% of total extent*	No.of holdings	Extent acres	% of total extent*	No.of holdings	Extent acres	% of total extent
Makadawara	2	9.5	73	2	3.5	27	-	-	-	4	13.0	100
Mawela	1	3.0	22	4	10.4	77	-	-	-	5	13.5	100
Weliwathura	5	13.0	64	1	0.6	3	5	6.8	33	11	20.4	100
Muruthawela	9	12.9	45	4	12.8	45	2	2.7	10	15	28.4	100
Hingula	5	50.3	69	6	17.6	24	2	5.0	7	13	72.8	100
Mawana	-	-	-	1	1.0	100	-	-	-	1	1.0	100
Thalapitiya	-	-	-	-	-	-	-	-	-	-	-	-
Devanagala	2	1.3	31	2	1.5	38	2	1.3	31	6	4.0	100
Medagoda	5	5.6	50	4	3.6	32	1	2.0	18	10	11.2	100
Alpitiya	2	3.0	57	1	2.3	43	-	-	-	3	5.3	100
Dahanakamulla	4	9.0	90	1	1.0	10	-	-	-	5	10.0	100
Harankahawa	1	1.0	100	-	-	-	-	-	-	1	1.0	100
Moligamuwa	-	-	-	2	0.9	100	-	-	-	2	0.9	100
Balathgamuwa	10	42.5	80	3	10.3	20	-	-	-	13	52.8	100
Hemmathagama	4	8.3	42	3	9.0	46	1	2.3	12	8	19.6	100
Palliporuwa	1	0.5	40	1	0.8	60	-	-	-	2	1.3	100

* Total extent here refers to the extent under the three plantation crops.

(a) Rubber

There were fifty-one holdings of rubber in the sample. Balathgamuwa and Muruthawela had ten and nine holdings respectively. Weliwathura, Hingula and Medagoda had five holdings each. These are the main rubber growing villages in the sample. All the other villages together had seventeen holdings of rubber among them. 57% of these holdings were less than 2 acres in extent. The largest holding of 34 acres was in Hingula. Only thirteen holdings comprising 25% of the total number in the sample were fertilized. The average rate of application of fertilizer was 1.9 cwt per acre with a range from 1-3 cwt per acre. Thirty-one of the holdings (61%) were planted with clonal seedlings.

An average yield of rubber computed from the marketing information reported by the farmers (Appendix Table 6.1) is about 700 lb per acre per year. An annual yield of 800 lb per acre can be obtained even from averagely managed plantations in the Kegalle District. The discrepancy between reported and expected yields could be due to the poor management practices adopted and also due to under-reporting. The rubber grown in this area belongs to the clone PB 86 which is an average yielder that responds well to good management. The latex of this clone in the Mawenella area is known to be of exceptionally high purity and capable of producing high quality block rubber.

(b) Coconut

The total number of coconut holdings in the sample was thirty-five. 77% of these small-holdings were under 2 acres in extent. The largest pure stand reported was 6 acres.

Only six of these plantations were fertilized during the period studied. Three of these operators availed themselves of the subsidy scheme for the purchase of fertilizer. The average annual yield of these plantations as reported by the farmers is 986 nuts per acre. This is a very poor yield since 2,500 nuts per acre can be obtained under average conditions. Even allowing for under-reporting it is still possible that the yields are low due to the poor management of these plantations.

Intercropping under coconut was practised only in seven villages, viz. Moligamuwa, Balathgamuwa, Mawela, Muruthawela, Makadawara, Hemmathagama and Medagoda. The extents thus intercropped were very small. Intercropping under coconut was practised by owner-operators only.

(c) T e a

Tea was cultivated only in six villages viz. Weliwathura, Hingula, Muruthawela, Hemmathagama, Medagoda and Devanagala. There were thirteen plantations in these villages. Of these eleven were under 2 acres in extent. The largest plantation of 4 acres in extent was in Hingula. Only one plantation in Devanagala reported replanting and none of the plantations in the entire sample had been fertilized.

Based on the marketing data (Appendix Table 6.1), the average annual yield of tea in the sample is 630 lb per acre. This is a poor yield compatible with the neglected plantations. The possibility of under-reporting exists. Even then it must be noted that tea in small-holdings is not very remunerative because of market and transport conditions.

Plantation crops in general and tea in particular are poorly managed and low in productivity. The advantage of these small plantations to their operators is that they normally yield a steady though small income, even at such low levels of management.

4.1.2 Other highland crops

It was mentioned earlier that only 47% of the highland extents were under plantation crops. The balance 53% is mostly in the form of forest gardens which produce only 20% of the value of highland crops. The most popular trees grown are arecanut, jak, coffee, breadfruit and mango (Table 4-II). It is seen that these gardens usually have a large density of plants. The annual vegetable and food crops grown are mainly the low-country vegetables and manioc, sweet potato and *Colocasia* type yams. These were grown in extents so small that they do not lend themselves to meaningful quantification.

In these highlands were also grown plantains and minor export crops which were economically important. Hingula, Weliwathura, Muruthawela, Medagoda, Hemmathagama and Balathgamuwa were the villages where bananas were grown extensively. Minor export crops were grown in Hingula, Weliwathura, Hemmathagama and Balathgamuwa, on a scale relatively larger than in the other villages. Pepper was the most popular minor export crop grown in the area. In Balathgamuwa, there was a relatively large extent of cacao.

The low value of crop produce recorded during the survey may be due to deliberate under-reporting and/or "recall lapse". McConell and Dharmapala (1973), in a study of mixed forest-gardens of 1-5 acre extent in the Kandy District found that these gardens provide "generally a better-than-reasonable level of living for farm families in terms of cash income and subsistence produce". It is doubtful whether this will hold true for Beminiwatte where a majority (60%) of the mixed gardens are less than 1 acre in extent.

4.1.3 Productivity of highland cultivation

The data regarding yields from highland cultivation were collected in various units. For this analysis they were reduced to money terms using the prevailing market prices of those crops (Appendix Table 4.1) In the entire sample the major contribution to income from highlands is from rubber (33%), coconut (32%), bananas (14%) and minor export crops (10%), respectively.[1] These four crops provided almost 90% of the value of highland crop produce.

All other crops contributed only 10% of the value derived from highland cultivation. Apart from plantation crops, banana was the single most popular crop grown in the majority of the villages. It also yields a relatively higher income. There is good potential for the increase in yields from bananas with the introduction of a few simple management practices. The feasibility of such practices under actual farm conditions are to be examined under the highland development programme mentioned later.

4.1.4 Animal Husbandry

Eighty-three of the two-hundred and twenty-two operators (37%) practised animal husbandry (Table 4-III). The total value produced from

[1] Income is computed as the value of the crops produced.

Table 4-II Mixed Highland Crops (Forest-gardens) plants/acre

Village	Mixed garden extents in the Sample acres	Arecanut	Coconut	Coffee	Jak	Bread-fruit	Banana	Mango	All plants
Makadawara	12	12	27	27	6	2	30	1	114
Mawela	22	98	17	52	7	-	28	3	205
Weliwathura	30	166	42	52	26	12	128	6	432
Muruthawela	21	82	19	9	5	4	68	-	180
Hingula	41	8	4	32	2	-	18	-	64
Mawana	7	17	19	10	9	-	48	-	103
Thalapitiya	1	-	34	-	20	-	250	-	304
Devanagala	25	38	14	8	2	1	30	3	96
Medagoda	16	114	23	83	5	2	72	4	303
Alpitiya	11	54	14	35	9	-	37	1	150
Dahanakamulla	3	36	14	50	64	-	8	-	172
Harankahawa	9	80	11	11	4	-	16	-	122
Moligamuwa	12	15	8	-	2	-	10	4	39
Balathgamuwa	39	90	19	62	26	3	23	27	250
Hemmathagama	23	80	20	87	2	6	62	2	259
Palliporuwa	7	21	14	22	5	2	58	2	124

this enterprise is Rs.3,160 per year which is about Rs.38.00 per operator per year. The number of livestock operators in the villages was very small. In the villages surveyed, livestock keeping does not feature as an important economic enterprise. However, animal husbandry has much potential for development in this area.

Table 4-III Animal Husbandry - Operators and Production

Village	Total No.of operators	Livestock operators	Livestock operators as a % of all operators.	Value of produce Rs.	Value of produce per operator
Makadawara	14	9	64	550	61
Mawala	21	4	19	-	-
Weliwathura	15	5	33	242	48
Muruthawela	17	7	41	300	43
Hingula	13	3	23	435	145
Mawana	6	1	17	-	-
Thalapitiya	2	-	-	-	-
Devanagala	20	4	20	75	19
Medagoda	21	11	52	-	-
Alpitiya	13	2	15	180	90
Dahanakamulla	6	2	33	-	-
Harankahawa	13	8	62	-	-
Moligamuwa	9	7	78	150	21
Balathgamuwa	21	10	48	1,091	109
Hemmathagama	19	6	32	15	2
Palliporuwa	12	4	33	123	31
Total	222	83	37	3,161	38

Only a small proportion of the total agricultural operators reared cattle, whereas, extents of highland suitable for this purpose are available. Twenty-eight households (9.8%) kept forty cows which amounted to 1.4 head per reporting household. Poultry reported by the twenty-seven (9.4%) households averaged five birds per household. Goats and pigs were kept by an insignificant number of farm households.

The fact that animal husbandry is not undertaken on a wider scale may be due to the absence of a concerted effort to improve animal husbandry in the area with the provision of credit, veterinary services, marketing of produce and other facilities. There is also a religious and traditional bias among the villagers against the keeping of poultry and pigs.

4.1.5 Income from Highlands

The total value of produce from the crops and livestock enterprise on the highlands during the twelve month period surveyed was Rs.194,826. This works out to Rs.337 per acre of highland per year for the entire APC area. This is a very small amount even allowing for a large error in reporting, which indicates that the productivity of highlands is low. This is supported by field observations.

The foregoing analysis leads to the conclusion that the highlands in Beminiwatte constitute an under-utilised resource. If the full potential of these highlands are tapped it will significantly increase the productivity of the area. For this purpose it is necessary to formulate a co-ordinated highland development programme for the area. Such a programme should include agricultural extension, supply of inputs, supply of agricultural credit and provision of facilities for efficient processing,

storage and marketing of the produce. It should also cater to both crop and animal husbandry. It also needs the identification of various types of highland cultivation systems extant in the area. All these aspects that need to be integrated into a common plan must be studied in further detail to understand their interactions under the conditions available in Beminiwatte, so that the most effective ways of their utilisation could be incorporated into the development programme.[1]

4.2 Lowland Cultivation

When all the lands in the sample area are considered, the value derived from agricultural enterprises is Rs.536,444. Of this amount 64% is derived from paddy cultivation. Therefore, paddy constitutes the major economic crop of the area at present. However, paddy occupies only 25% of the total agricultural lands cultivated in small holdings in Beminiwatte.

Beminiwatte is considered to be a relatively high productive area in Kegalle. The estimated yields obtained from the survey for Maha 1973/74 and Yala 1974 are 34.6 and 28.5 bushels/acre respectively.[2] These figures are low when compared with the official estimates of the Department of Census and Statistics for the Kegalle District (54.31 and 39.29 respectively), based on an objective method of obtaining yields by conducting crop cutting surveys.

The Agrarian Research and Training Institute (ARTI) conducted a Cost of Production Study in the Beminiwatte area during Maha 1973/74 by maintaining records of farmers selected on the basis of a stratified random sample design.[3] The yield figures in this study were obtained by interviewing the farmers immediately after the harvest by the Agricultural Instructor who was maintaining the records and "recall lapse" was therefore almost completely eliminated in the study. The estimated yield based on this study was 31.8 bushels/acre. Thus, it is seen that the estimates of yields obtained from the surveys conducted by the ARTI had been generally lower than the crop cutting survey estimates. This could be partly explained by under-reporting of farmers either deliberately or due to "recall lapse".

The present survey covered sixteen villages and not even one showed an average yield greater than the official estimate for Kegalle in Maha, the highest yield being 49 bushels/acre. In Yala, two villages had average yields close to the crop cutting estimates. The extent of bias in the estimated yield obtained from this survey cannot be assessed.

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[1] A research-cum-action programme on these lines for the development of highlands has already been launched with the participation of the Department of Agriculture, the Department of Minor Export Crops and the Faculty of Agriculture of the University of Sri Lanka.

[2] The 95% confidence intervals of these estimates are 28.7, 40.5 and 24.8, 32.4 bushels per acre for Maha 1973/74 and Yala 1974 respectively.

[3] Unpublished data for the study on Cost of Production of Paddy - Maha 1973/74 - A.S. Ranatunga.

The survey revealed that in this area 82% of the operators cultivated new high yielding varieties, 80% of the extent cultivated was transplanted and 90% of it fertilized. These findings prompt one to ponder why the full potential of the new high yielding varieties was not realised, though large extents were transplanted and applied with fertilizer and crop protection methods were reported to be widely adopted. Large extents being applied with fertilizer do not necessarily indicate that the correct quanta of fertilizer were applied at the correct times. Similarly, the impact of crop protection measures can be evaluated only if information is available on how such measures were employed.

The data available indicates only the rates of adoption of the factors that determine yield and not the actual efficiency of the factors. Stemming from these considerations the ARTI in a preliminary report of this survey recommended that detailed studies in paddy cultivation be conducted in the field laboratory area at Beminiwatte to indentify all the factors inhibiting the realisation of maximum yields by the farmers.

This investigation is now in progress in the form of continuous monitoring of twenty-four selected farms. Preliminary observations of these farms indicate that the efficiency of these practices as adopted by the farmers is low. Therefore, the possibility exists that the yields in the area are lower than what is officially claimed.

In view of the extreme importance of paddy in the economy of the area, some factors that may affect paddy production were studied in detail. These factors can be divided into three broad groups:

1. Physical factors;
2. Socio-economic factors; and
3. Management practices.

In the section that follows, data on management practices and productivity levels are discussed. In this context it must be pointed out that intervillage comparisons of averages may not be very meaningful. It would have been more useful to study these associations for a homogenous entity such as one single village. This was not possible because of the smallness of the number of observations available at such a level of disaggregation.

4.2.1 Physical factors

(a) Availability of supplementary irrigation

The sample revealed that 71% of the paddy extents were entirely rainfed, 14% served by natural waterways and 15% by constructed irrigation systems.[1] Thus, supplementary irrigation was available only to 29% of the paddy lands. Some of these supplementary irrigation sources are likely to dry-up during severe droughts because most of them are dependent on limited catchments for their water.

Water is one of the most important inputs for paddy cultivation as practiced by a very large majority of farmers in Sri Lanka. The farmers of Beminiwatte are no exception. Commencement of cultivation, application of fertilizer and adoption of crop protection methods are all dependent on the availability of water. When the farmer is not confident about a regular source of water and suspects that there might be a failure

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[1] Constructed irrigation systems are the traditional small reservoirs called *"Pathahas"* and the diversion of the natural streams with anicuts.

of rains he is understandably reluctant to invest in costly improved management practices because their benefits could be negated by the effects of a drought. Therefore, the availability of a dependable source of irrigation is crucial to the intensification of paddy production in Beminiwatte.

As mentioned earlier, supplementary irrigation is available from natural waterways and constructed irrigation systems. The latter are mostly diversions and small surface storage facilities called "*Pathahas*". The possibilities of developing these further are limited. However, the possibility exists that there are considerable resources of sub-surface water that could be economically obtained for irrigation of paddy fields during periods when water stress can be critical. Therefore, the investigation of these water resources and their exploitation if found to be economically feasible is bound to boost paddy production in this area.

4.2.2 Socio-economic factors

(a) Operational distribution of lowland

Appendix Table 3.11 shows the distribution of operational paddy holdings within the villages[1]. 36% of the holdings are 0.5 acres or less in extent ranging from 11% to 67% among the villages. The majority of the operational holdings in Devanagala and Medagoda fall into this size class. 33% of the holdings are 0.5 to 1 acre in extent (range 13% to 45%). In Makadawara, Devanagala, Medagoda, Harankahawa and Moligamuwa over 75% of the holdings are less than or equal to 1 acre. Majority of the holdings in Mawana and Alpitiya are over 1 acre in extent.

A majority (69%) of the operated lowlands in Beminiwatte are in extents of 1 acre or less. Some aspects of this were discussed in the previous chapter. Smallness of holdings is often a disincentive to higher production. This will be especially so under conditions of uncertainty of water for irrigation which was considered earlier. Therefore, it seems that the smallness of the operated holdings is a constraint to paddy production in Beminiwatte.

(b) Land tenure

Table 4-IV shows the distribution of average yields per acre among the various tenurial categories. This indicates that tenants as a group obtained higher yields per acre in a large majority of the villages studied during Maha. The situation was similar in Yala too.

This shows that ownership *per se* does not necessarily lead to higher productivity in very small holdings. Owners with such holdings hesitate to invest additional labour and capital because the increase in yield may not be commensurate with the additional investments. The fact that tenants have obtained higher yields does not in any way suggest that tenancy as presently practised is a desirable form of land operation. Under the present tenancy conditions one would even expect the tenants to produce very high yields in order to adequately feed their families after the payment of the high rents and interests. But this is obviously not so because the yield difference between the two groups is only about 10 bushels per acre.

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[1]Operational holding means the extent cultivated by one operator. This may include several parcels spatially distributed.

Table 4-IV Average Yield of paddy classified by tenurial category (Maha 1973/74) (Bushels per Acre)

Village	Sole owner	Joint owner	Owner-tenant	Tenant	All Categories
Makadawara	34.8	28.6	-	36.1	35.4
Mawela	25.6	18.8	-	32.4	28.9
Weliwathura	33.7	36.0	-	40.0	36.0
Muruthawela	11.7	-	18.9	11.2	12.8
Hingula	44.8	-	-	35.0	42.8
Mawana	2.1	-	-	30.2	25.3
Thalapitiya	12.7	-	-	-	12.7
Devanagala	25.7	30.7	22.2	29.6	26.0
Medagoda	22.6	25.4	-	28.2	24.1
Alpitiya	47.3	11.4	50.0	42.7	39.6
Dahanakamulla	22.7	15.3	-	-	12.0
Harankahawa	-	-	18.2	43.1	32.7
Moligamuwa	21.6	-	34.0	45.2	34.9
Balathgamuwa	42.5	-	54.6	40.8	46.2
Hemmathagama	38.7	33.8	38.9	40.4	38.3
Palliporuwa	40.0	50.0	30.9	66.9	45.9
Sample average	28.0	27.8	33.5	37.8	30.9

(c) Availability of draught power

The most common source of draught power used in paddy cultivation was the buffalo. Buffaloes were used by a large majority (90%) of the operators for land preparation and threshing. 9% of the operators used tractors for threshing, 2% for land preparation. This is an indication of the importance of the buffalo as a source of draught power in the area. This is expected because the small size of the holdings and parcels makes it uneconomical for them to be worked with tractors. Another reason for the popularity of buffaloes is that usually hire charges are paid at the end of the season with interest whereas tractors are usually available only on immediate payment of cash.

In the sample studied, forty-eight operators owned sixty-five draught animals. This shows that the number of draught animals owned by operators is very small. Therefore, it is to be expected that there is a large demand for buffaloes during peak periods. Part of this demand is met by buffaloes owned by non-operators and by animals being brought from neighbouring areas. This is one of the major constraints faced by the operators in their attempts at timely cultivation. The problems connected with availability of draught power and the ownership of buffaloes warrant further detailed exploration.

(d) Use of agricultural implements

Mammoties were the commonest agricultural implements owned by the farmers (80% of the households had two or more mammoties).[1] Other traditional implements like wooden ploughs and levelling boards were also owned though to a lesser extent. Only three farmers owned sprayers. No other machinery was recorded from among the respondents.

[1] Many farmers stressed the efficiency of "Crocodile" brand mammoties and the difficulty of obtaining them. It would be interesting to find out whether the shortage of this brand of mammoty was actually a drawback to cultivation as claimed by the farmers.

A large amount of manual labour is utilised for the various cultivation operations. Except for land preparation and threshing all other operations are exclusively done by manual labour. Even land preparation and threshing consume a substantial amount of labour. Mammoties are used extensively for land preparation.

On an average the Cultivation Committees have about two sprayers for hiring out. But this is inadequate in view of the crop protection regimes that are recommended. Rotary weeders and row seeders were never used. Lack of knowledge regarding the usefulness of these practices and the high cost of some of these equipment are the reasons that prevent their wider use.

4.2.3 Management practices

(a) Use of high yielding varieties

98% of the paddy extents in both Yala and Maha are cultivated with high yielding varieties. The percentage extents vary from 90% to 100% among villages. Only three villages show extents less than 100% being planted with high yielding varieties and these three villages also show yields less than the average for the sample area.

(b) Transplanting

80% of the extents in both Yala and Maha are transplanted (Table 4-V). This constitutes 84% of the total number of holdings. Extents often varied from 43% to 100% with six villages adopting transplanting only. It is observed that high yields are not necessarily associated with the villages where the adoption of transplanting is high. However, in the villages where only less than 50% of the extents were transplanted (Muruthawela, Dewanagala and Medagoda), the yields have been below average. This shows that though transplanting by itself does not lead to high yields because of many other factors that affect yields, low yields could result where paddy is broadcast extensively mainly due to the inadequacy of weed control.

(c) Use of Fertilizer

Fertilizer was applied to 79% of the holdings. The intensity of fertilizer use in the villages is shown in (Appendix Table 4.2). The fertilizer recommendation for the area is 2.25 to 3.25 cwt per acre. Only three villages in the sample viz. Moligamuwa, Palliporuwa and Balathgamuwa had approached this level of fertilizer application. Two of these villages, Balathgamuwa and Palliporuwa show high yields. This survey did not attempt to determine the timeliness of the application of the various split doses of fertilizer in relation to the stage of growth of the paddy crop, because the farmers would not have been able to recall these with any accuracy.

The farmers do not apply adequate quantities of fertilizer due to many reasons. During the monitoring of paddy farms it was observed that fertilizer was usually not available in the Co-operative Stores when it was needed by the farmers or they were short of cash to buy it. Discussions with farmers in the course of field laboratory work have revealed that they are reluctant to obtain credit for cultivation because their holdings are small. Some farmers believe that once fertilizer is applied the soil gets used to it which necessitates the continuous use of fertilizer subsequently.

Table 4-V

Rates of adoption of management practices

(Villages ranked according to yield per acre)

Village	Yield/ acre	Estimated paddy extents acre	% of extent with supplementary irrigation	% of extent cultivated with HYV	% of extent trans-plant-ed	Rate of fertilizer application cwt/acre	% of hold-ings weeded	% of operators adopting pest and disease control methods
Balathgamuwa	42.6	90.0	59	100	69	2.4	47	85
Makadawara	40.5	65.0	53	100	100	1.2	92	81
Hingula	39.6	43.0	-	100	75	0.9	100	63
Hemmathagama	35.5	77.0	-	100	95	1.9	82	79
Palliporuwa	35.3	32.0	18	100	94	2.3	81	100
Alpitiya	32.7	93.0	55	100	100	1.3	75	94
Moligamuwa	32.0	15.0	3	100	97	2.9	100	75
Weliwathura	31.1	28.0	81	100	100	1.5	96	77
Harankahawa	30.7	20.0	40	100	-	1.6	88	92
Mawela	26.5	91.0	58	100	90	1.1	86	72
Devanagala	25.0	40.0	2	94	43	1.5	83	45
Medagoda	24.8	20.0	21	98	47	2.1	94	59
Mawana	22.2	19.0	-	100	98	0.6	67	100
Muruthawela	16.8	70.0	17	90	48	1.8	71	71
Thalapitiya	16.7	0.7	-	100	90	0.4	100	-
Dahanakamulla	14.2	5.0	-	100	100	1.6	89	78

(d) Weed control

Chemical and/or manual weed control operations were carried out in 82% of the holdings among the sixteen villages. The effectiveness of these weeding operations and their timeliness could not be determined due to the difficulties mentioned earlier. Our field observations reveal that adequate weed control measures are not practised.

(e) Pest and disease control

Pest control measures were adopted on 74% of the holdings, ranging from 45% to 100% among the villages in the sample; only eighteen operators reporting incidence of pest attack or disease failed to adopt control measures. No attempt was made to ascertain whether the diagnosis of the farmers regarding pest attack was correct or whether the control measures adopted were adequate and timely because of the difficulties associated with "recall lapse".

4.2.4 Comparison of villages

Table 4-V shows the factors discussed above in relation to the villages ranked according to the yield per acre. Though the rates of adoption of improved practices in the 'low yield'[1] group are lesser than in the 'high yield' group there seems to be only little difference in these rates between the two groups, except perhaps in relation to the availability of supplementary irrigation.

The 'low yield' villages have comparatively small extents of paddy with the exception of Muruthawela. In this context Muruthawela might be considered as a possible village for further study and perhaps for an action programme to improve yields.

Among the 'high yield' villages Balathgamuwa, Hemmathagama and Palliporuwa fall into the same stratum. Further, the observations made in the earlier chapters regarding population pressure on land and incomes also suggest that Balathgamuwa, Hemmathagama and Hingula have high land/man ratios and are also comparatively favourably placed regarding ownership of land and size of holdings. Further, Hingula and Hemmathagama have the highest per capita incomes among all the villages studied and Balathgamuwa, Makadawara and Palliporuwa also have comparatively reasonable per capita incomes.

The observations regarding paddy cultivation in Beminiwatte have indicated several constraints to obtaining higher yields. The most important among them are the fragmentation of land, non-availability of supplementary irrigation facilities, shortage of draught power and poor adoption of improved management practices. The last constraint arises partly from the previous ones and partly due to the absence of a proper agricultural extension effort coupled with an efficient programme for the supply of inputs and credit. Apart from these factors there may be several important sociological and environmental factors that hinder higher production. Detailed studies are necessary to identify these.

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[1] The yield limits can arbitrarily be chosen as those above 35 bushels per acre to constitute the 'high yield' group and those below 25 bushels per acre to constitute the 'low yield' group.

An attempt to improve the paddy cultivation must take into account all the problems and must adopt a co-ordinated approach to the removal of all these constraints. The removal of one or two of these constraints will have only marginal beneficial effects. Further detailed investigations are necessary and this should include the study of labour available for agriculture under conditions of intensive cultivation of both highlands and lowlands.[1]

Any programme for the development of agriculture in the area will have to be implemented in the socio-economic matrix of the people of Beminiwatte. It is therefore very important that the farmers and the farmers' organisations and agencies in the area are closely involved in the project formulation at all stages. The programme will also have to be implemented through these organisations.

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[1] Based on the preliminary report of this survey the ARTI in association with the Department of Agriculture and the Faculty of Agriculture, has initiated several research-cum-action programmes. Among them are the monitoring of selected paddy farms for the identification of the nature and extent of the various constraints, and the "Wells Programme" for the supply of supplementary irrigation to paddy tracts that are adversely affected by droughts.

Chapter 5

EMPLOYMENT AND INCOME

Introduction

The objective of this chapter is to present a cross-section picture of the employment-income situation of Beminiwatte.[1] The first part deals with employment aspects while the second section concentrates on the income situation.

5.1 Employment and Unemployment

5.1.1 Activity status of population

In the enumeration, household members were placed in the following categories: (a) employed, (b) student, (c) unpaid family workers (excluding students) over 14 years, (d) unemployed and (e) disabled, young and old.

The economically active population or the *labour force* was defined to include the employed, (including unpaid family workers) and the unemployed at the time of the survey. The *work force* consists of those who actually supplied labour for production purposes and therefore excludes the unemployed from the labour force.

Villagewise data is given in Table 5-I and estimates for the Beminiwatte APC area are given below:-

A. Total population	48,900 *
B. Number 14 years and above	30,300
a. Employed	12,700
b. Unpaid family workers..	4,900
c. Unemployed	6,800
d. Student	11,700
e. Disabled and too young	12,700

* rounded-off to the nearest hundred

The villagewise variation in the activity status could be explained in terms of age, sex and education factors. The dependency ratio $\frac{c + d + e}{a + b}$ is fairly high, (Table 5-I).

Participation rates are high, the crude and net activity rates being 50% and 80% respectively.[2] One reason for the relatively high level may be due to unemployment figures inflated by inclusion of some housewives into the ranks of the unemployed. High female participation rates also may have resulted from this. Hence, the data on economically active population should be regarded as an over-estimate.

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[1] The household category 'others' has been omitted due to the limited number involved.

[2] Activity rates as defined here are: Crude activity rate = $\frac{a + b + c}{A}$: Net activity rate = $\frac{a + b + c}{B}$

The Consumer Finances Survey (1973) estimates the crude activity rate for the rural sector at 32%, (p.45). Survey of Sri Lanka's Consumer Finances, 1973, Central Bank, 1974.

Table 5-I Distribution of population by nature of activity

Village	Total population*	Age 14 years and above %	Employed %	Unemployed %	Unpaid family workers %	Student %	Disabled, old, too young %	Dependency ratio	Crude activity rate	Male activity rate	Female activity rate
Makadawara	807	60	28	11	10	22	28	1.6	49.4	47.4	51.3
Mawela	1,478	64	29	13	10	18	29	1.5	52.5	57.0	47.1
Weliwathura	371	63	29	11	11	22	28	1.5	50.6	50.0	51.4
Muruthawela	1,439	57	19	16	7	32	27	2.9	41.7	46.7	37.0
Hingula	1,586	64	24	23	7	21	25	2.2	56.1	55.1	57.3
Mawana	733	58	22	22	2	24	26	3.3	45.3	53.1	37.2
Thalapitiya	158	50	18	28	1	16	37	4.1	47.2	45.6	49.2
Devanagala	468	62	30	8	12	27	23	1.4	50.0	48.8	51.9
Medagoda	214	62	25	6	20	18	31	1.2	51.1	48.0	55.1
Alpitiya	1,035	67	31	12	10	22	25	1.4	52.8	60.6	45.2
Dahanakamulla	59	78	25	19	12	25	19	1.7	55.9	57.1	54.2
Harankahawa	239	60	27	13	12	23	25	1.6	52.1	55.3	14.6
Moligamuwa	327	68	28	13	9	25	25	1.7	50.0	52.0	48.0
Balathgamuwa	762	62	24	8	21	23	24	1.2	52.7	56.6	48.8
Hemmathagama	460	77	30	12	16	23	19	1.2	57.4	59.5	55.2
Palliporuwa	700	53	15	18	6	30	30	3.6	40.3	38.8	41.7
Beminiwatte	48,876	62	26	14	10	24	26	2.0	50.0		

* estimated

In relation to other groups, the 14-20 year group has a lesser proportion taking part in economic activity. This is because students and the unemployed numbers are high in this group.

5.1.2 Employment

72% of the labour force is employed (including unpaid family workers). On a villagewise basis, the employed proportion varies between 20-46% of total population. As a proportion of labour force it varies from 39% (Thalapitiya) to 88% (Medagoda).

Estimates for the Beminiwatte area are as follows:-

	Number	Percentage of population
Employed	12,700	26.0
Unpaid family workers	4,900	10.0
Total	17,600	36.0
Labour force	24,400	50.0

a) Education and Employment

The educational attainments of the labour force are useful for employment planning. They go some way in explaining the levels of remuneration as well. The level of education has an impact on the employment status, i.e. unpaid family workers are mostly drawn from those with low educational standards.

The educational standards of the labour force may be observed from (Appendix Table 5.1). Only in Hingula and Hemmathagama more than 20% of the labour force have at least GCE (O) Level qualifications. Thalapitiya has the highest proportion of no-schooling labour force. However, the type of education obtained is not clear from the survey. The survey did not attempt a determination of vocational training and skills.[1] What the data refer to is formal education. It is clear from the data on occupational patterns that various skills acquired through informal training are found in the area.

b) Employment pattern of work force

The employed can be put into three categories depending on the nature of work, (Table 5-II).

i. Agricultural workers (agricultural and agricultural-cum-non-agricultural households);
ii. Non-agricultural workers (non-agricultural and agricultural-cum-non-agricultural households);
iii. Agricultural cum non-agricultural workers (agricultural-cum-non-agricultural households).

(i) Agricultural work force: The proportion of work force in the agricultural sector is consistently high being above 40% with the two exceptions of Thalapitiya and Mawana. The latter two are depressed areas with low productivity non-agricultural employment. Part-time farmers/ farm workers are found in the agricultural and non-agricultural group and this forms a very important group.

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[1] Facilities for vocational training have been limited in Sri Lanka

Table 5-II Employed workers by type of activity

Village	Agricultural workers	%	Agric.cum-non-agric.workers	%	Non-agric. workers	%	Total
Makadawara	38	64.4	10	16.9	11	18.6	59
Mawela	58	54.2	18	16.8	31	29.0	107
Weliwathura	41	63.1	10	15.4	14	21.5	65
Muruthawela	31	48.4	9	14.1	24	37.5	64
Hingula	27	35.1	9	11.7	41	53.2	77
Mawana	7	15.9	9	20.4	28	63.6	44
Thalapitiya	4	14.3	2	7.1	22	78.6	28
Devanagala	37	57.8	13	20.3	14	21.9	64
Medagoda	60	75.0	14	17.5	6	7.5	80
Alpitiya	33	55.9	7	11.9	19	32.2	59
Dahanakamulla	17	77.3	2	9.1	3	13.6	22
Harankahawa	43	75.4	4	7.0	10	17.5	57
Moligamuwa	32	58.2	6	10.9	17	30.9	55
Balathgamuwa	53	71.6	6	8.1	15	20.3	74
Hemmathagama	43	67.2	4	6.3	17	26.6	64
Palliporuwa	18	40.9	8	18.2	18	40.9	44

The agricultural labour force could be analysed in terms of employment status. Classification here is on the basis of main employment only but multiple job holding is not uncommon in the rural areas. The following categories of employment status were identified: operators, labourers and unpaid family workers. The total number of agricultural operators for the Beminiwatte area is estimated at 4,100.

The villagewise data show that agricultural workers may operate in more than one capacity. An operator may work as an agricultural labourer part of the time to supplement his income. An unpaid family worker would supply his labour to other farms in addition to work performed on the family farm. The respective proportions of the various categories differ in the 'agricultural' and 'agricultural-cum-non-agricultural' categories of households. The latter type obviously has a smaller proportion of agricultural labourers and their employment is more diversified.

Operators have access to the land resources (not necessarily on an owned-basis), while agricultural labourers are landless. Operators and unpaid family workers work on family farms, but labourers have to find work on other farms, paddy or highland. Also, villages may be characterised by a labour surplus and migration on a limited scale might take place. Data on migration indicates that there is seasonal migration to dry zone areas, mainly Polonnaruwa and Anuradhapura to help in farm work as hired labourers or otherwise. Mawela, Weliwathura, Medagoda and Alpitiya are the most important labour supplying areas for this purpose. The number of agricultural workers also is relatively high in these areas and the limited availability of land may act as a 'push' factor in this respect. This is an interesting area for further research.

(ii) Non-agricultural occupations: The pattern of non-agricultural employment indicates the predominantly rural character of the village economies surveyed, and it is similar to the position in Kandupalatha[1]

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[1] ARTI Document Series No.6, ACARRD (FAO) - ARTI Field Level Consultation on Problems of Smallholdings in Areas of Traditional Rainfed Farming, Colombo - April 1974 (ACARRD - ARTI Report).

(Table 5-III). In most villages, traditional crafts such as carpentry are common. Petty traders are a consequence of low employment opportunities. The services sector can absorb more people thereby depressing average earnings of all others in this sector.

Table 5-III Non-agricultural occupations (within the sample)

Village	White collar salaried	Non salaried.	Trade and Commerce	Skilled jobs	Beedi wrapping	Labour	Minor employees or own account workers	Total
Makadawara	2	-	4	-	4	3	3	16
Mawela	4	1	8	7	-	24	2	46
Weliwathura	2	-	2	5	1	13	1	24
Muruthawela	4	1	9	3	5	9	2	33
Hingula	6	1	7	4	2	15	14	49
Mawana	-	2	4	9	-	19	3	37
Thalapitiya	2	-	1	2	-	14	4	23
Devanagala	7	-	8	2	1	8	3	29
Medagoda	1	1	3	5	-	6	3	19
Alpitiya	2	1	5	7	-	4	5	24
Dahanakamulla	-	-	-	1	2	-	1	4
Harankahawa	-	-	3	3	-	2	2	10
Moligamuwa	1	-	1	4	5	7	2	20
Balathgamuwa	4	-	6	-	6	2	1	19
Hemmathagama	11	-	1	4	-	3	-	19
Palliporuwa	4	-	8	1	2	6	5	26

Hingula, Palliporuwa, Mawana and Thalapitiya carry predominantly non-agricultural occupations. Hingula is mainly a Town Council area and this may explain its high ranking in terms of non-agricultural pursuits. Thalapitiya with hardly any agricultural land has to resort to non-agricultural avenues of low productivity.

Three key (non-agricultural) employment outlets in the village economy were identified:-

1. labour;
2. trader/businessmen; and
3. teachers and clerks signifying white collar employment.

The first category is numerically the most important; it is the main outlet in Thalapitiya, Mawana, Mawela and Weliwathura. It is possibly the lowest in terms of remuneration and social status. The low incidence of white collar employment in the villages may reflect the lack of opportunities for such employment in the area. Government jobs other than the above are those which require limited skills or training (peons, drivers, etc.,). No employment status data is available for the non-agricultural sector.

An attempt was made to infer what type of industries were prevalent in the area on the basis of the employment pattern of family members. Carpentry, beedi-wrapping, timber sawing, mat-making and weaving have been reported. This shows a high degree of similarity between Kandupalatha and Beminiwatte in the pattern of economic activity.[1] However, this may not be representative of the pattern of industries.

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[1] ACARRD - ARTI Report, 1974, *op.cit.*

5.1.3 Unemployment

"Waste" of labour resources may be reflected in (a) unemployment; and (b) under-employment. In the rural sector, open unemployment rates may not be high and under-utilisation is more reflected in under-employment.

What is the degree of unemployment in Beminiwatte area? The survey figure is as high as 15% of total population which is rather high for the rural sector. The unemployment totals have been inflated however, by the inclusion of housewives in labour force. As no separate listing of housewives or those mainly engaged in household work had been provided for, they have been put into the category of the unemployed. The majority of the (unemployed) female population beyond 30 years or so in rural Sri Lanka work only on a limited scale. The male rates are here used to assess the unemployment problem. This is justified especially as the female unemployment rates are generally less than the male unemployment rates, as ascertained through other surveys.

Table 5-IV Unemployment Status

Village	Unemployed % of population	Male Unemployed as a % of male population	Male Unemployed as a % of male labour force
Makadawara	11	3.8	8.1
Mawela	13	6.7	11.8
Weliwathura	11	2.3	4.7
Muruthawela	16	7.5	15.8
Hingula	23	10.2	18.6
Mawana	22	14.6	27.5
Thalapitiya	28	22.8	50.0
Devanagala	8	2.3	4.8
Medagoda	6	5.0	10.4
Alpitiya	12	5.6	9.3
Dahanakamulla	19	14.3	24.0
Harankahawa	13	9.2	16.3
Moligamuwa	13	5.3	10.3
Balathgamuwa	8	2.4	4.2
Hemmathagama	12	8.1	13.6
Palliporuwa	18	8.2	21.1
Beminwatte		7.1	14.0

The recalculated rates are more consistent with the expected patterns in the rural sector (Table 5-IV). The unemployment rate for Beminiwatte is estimated to be 7.1% of total population. As a proportion of the labour force it is 14.0%. On this basis the total unemployed are estimated to be about 3,400. On a villagewise basis the unemployment problem is most acute in Thalapitiya, Mawana and Dahanakamulla.[1] The rates are high by average standards in a fair number of villages. Unemployment data was analysed by age and educational levels. The bulk of the unemployed are concentrated in the age group 14-25, i.e. 16 out of 18 in Thalapitiya, 10 out of 14 (Hingula) and 13 out of 14 (Mawana).

[1] The small number of households in Dahanakamulla may give a distorted picture.

As far as educational levels are concerned, most of them had some form of secondary education; only a few had GCE (O) Level or any higher qualifications.[1]

While the survey did not collect any information on employment aspirations of the unemployed, some data is available on this from a survey carried out by the Kegalle Kachcheri.[2]

Type of job sought	Percentage
White-collar	*53.4*
Semi-skilled	*14.8*
Un-skilled	*21.0*

The number desiring white collar jobs is not consistent with the educational levels found in the area. In fact the above survey found that only 11% had passed GCE (O) Level. Hence, the revealed job preference pattern is not realistic.

5.1.4 Labour force growth

The present employment situation in the Beminiwatte area was analysed in the preceding section. In discussing the employment problem, however, a longer term perspective is required. Increasing numbers would have to be found employment over the years. For projection of the economically active population by 1980, additional information on population in various age groups, age-sex specific participation rates, births, deaths, migration, etc., is required. As estimates on these were not available, a simple though admittedly crude, method was used to ascertain the addition to the labour force. Assuming a population growth rate of 2% per annum (which is consistent with recent trends), the terminal population by 1980 is estimated at 55,100. Applying the crude activity rate of 50% estimated for the Beminiwatte area, a labour force of 27,500 is computed. This means an addition of about 3,100 new entrants to the labour force over the next five years.[3] Hence, employment opportunities would have to increase substantially to absorb these numbers and the present unemployed.

5.1.5 Employment planning

The unemployment situation and the growth in labour force in the next few years have been discussed earlier. Another aspect of the problem is the employment of low levels of productivity reflected in short hours of work, low incomes, or both. No data on this aspect is available but one can expect a fair amount of under-employment in rural areas. In view

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[1] A similar situation was found in the village surveyed in the coconut area. See Interim Report - Class II Coconut Lands in the Colombo District, ARTI, March 1975.

[2] The reliability of these is not known.

[3] This ignores the changing age composition, improvement in educational facilities which may reduce participation rates in lower age ranges and a host of other factors. Moreover, the activity rate of 50% seems high relatively to the activity rate for the rural sector (32% according to the Consumer Finances Survey of the Central Bank, 1973, p.45). Even at this rate the addition to the labour force would be about 2,000.

of this, employment planning assumes increasing importance. Such planning has to be integrated into a general development programme. Some observations of a general nature on employment are offered below:

a) Agriculture

Intensification of agricultural production could be expected to generate more employment. As shown in the section on land use, there is considerable under-utilisation of the land resource in the area, especially highland. The introduction of new crops, animal husbandry and cultivation of other field crops in paddy fields are some possible avenues for better utilisation. Hence, an evaluation of the employment potential of suggested crop and livestock development plans is useful. The MOKO Project found that a large number of households were prepared to take up animal husbandry.

b) Non-agriculture

i. It is necessary to ascertain constraints to expansion of employment in existing industries. These constraints may be the lack of capital and/or technical know-how, marketing problems, etc.

ii. Establishment or promotion of cottage industries should be based on available raw materials and skills in each village or group of villages. The MOKO Project found that a substantial number of households were willing to take up cottage industries. Some information on skills of the population is available for a survey carried out by the Kegalle Kachcheri.[1] Steps must be taken to develop new skills at the same time. As the bulk of the unemployed are in the young age group, retraining them for various trades could be considered. The facilities available in the area for this task (i.e. training centres) have to be ascertained.

iii. The seasonality of agricultural operations and their impact on employment have to be analysed. Rural under-employment is usually of a seasonal nature and activities which do not compete with cultivation during the peak season may be promoted in these areas.

iv. Rural work programmes are a commonly used method of unemployment relief. However, specific recommendations can be made only on the basis of specific needs of each area. Observations made in the area indicate that there is much scope for construction and restoration of minor irrigation projects.

5.2 Income and Expenditure

Income and expenditure data are broad indicators of the levels of living. While the concept of the level of living is multi-dimensional, the above provide rough measures. The final objective of any development programme is the upliftment of the standard of living of the population.

5.2.1 Income: Level and Composition

a) Definitions and limitations

Generally income data are found to be the least reliable type of information gathered in a socio-economic survey. This problem is much more acute in ascertaining incomes in rural areas where no systematic

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[1] Kegalle Kachcheri, Village data summarised in ගමෙන් ගමට යෑමේ සිතිවි (Planning for each village). We have not been able to analyse the information collected or its reliability yet.

records are kept. One reason is that the non-monetised component of income is bound to be large in rural areas. In our survey income was ascertained separately for agricultural operators, labourers and other earners. Income as defined here is net income consisting of both cash and non-cash income. Income in kind was generally asigned to the household as allocation to different income receiving units was difficult. Certain forms of income were not accounted for.

i. imputed income for owner-occupied dwellings;

ii. value of free goods and services supplied by the State.[1]

As imputing values by different investigators could result in some biases, these items were left out. It has to be kept in mind when the data is being used for inter-sectoral comparisons, i.e. studying rural-urban income differentials etc. The effect of the above would be to understate incomes.

Apart from this, considerable resistance was encountered in the course of the survey to supplying information on incomes. As later sections show, income data very often falls short of reported expenditures. Hence, discussion of poverty levels etc., is beset with difficulties due to different degrees of biases inherent in reported data on incomes.

b) Levels of income

In discussing levels of income, three different averages may be used:-

i. Household income
ii. Per capita income
iii. Income per income receiver

The first concept indicates the family incomes of the household which is the normal spending unit. The second measure corrects this for differences in family size. The third concept is more an indication of the earning capacity or level of remuneration of employed members. Certain households may have only one income receiver while the probability of having more than one increases with larger family sizes.

Similarly, one could receive incomes from several sources. Earners can be ranked according to their contribution to average family income. While all these measures share the inherent weaknesses of averages, they could be used to cross-check/supplement the picture conveyed by one only.

The estimated annual income for the Beminiwatte area is Rs.2,925.00 per household (Rs.245.00 per month). Only seven villages have incomes exceeding this (Table 5-V). Hemmathagama and Hingula being town areas with more non-agricultural activities enjoy the highest levels of income. On a monthly basis the average village income ranged from Rs.136.00 to Rs.385.00 (Hemmathagama). As a cross-check on income levels expenditure -income ratios for each village have been computed and the likelihood of substantial under-estimation is confirmed. Except in Hingula, all other

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[1] In Sri Lanka, the Government provides a certain quantity of rice free under its ration programme every week.

areas disclose an excess of expenditure over income.[1] In Harankahawa and Medagoda reported expenditures are more than double the average income. It is quite common that expenditure is exaggerated and income understated by respondents.

Table 5-V Income and expenditure - summary indicators

Village	Annual average income	Per capita income	Income per income receiver	Expenditure as % of household income	Annual average expenditure	Agricultural income as % of total income
	Rs.	Rs.	Rs.		Rs.	
Makadawara	2,549	430	1,123	114	2,902	55.4
Mawela	3,436	484	1,220	115	3,970	26.0
Weliwathura	2,892	443	1,106	119	3,424	54.1
Muruthawela	2,640	428	1,625	133	3,513	38.3
Hingula	4,309	706	2,238	83	3,585	39.0
Mawana	2,051	302	1,305	157	3,227	14.4
Thalapitiya	2,589	378	1,942	138	3,573	9.2
Devanagala	3,439	536	1,270	134	4,617	27.7
Medagoda	1,884	265	589	225	4,244	52.3
Alpitiya	2,152	404	985	123	2,654	48.5
Dahanakamulla	1,936	361	968	113	2,719	71.2
Harankahawa	1,638	247	611	222	3,629	55.7
Moligamuwa	1,890	277	756	198	3,736	64.3
Balathgamuwa	2,945	464	1,021	137	4,038	70.4
Hemmathagama	4,624	754	1,662	115	5,337	49.5
Palliporuwa	2,979	430	1,963	158	4,715	13.2
Beminiwatte	2,925			130	3,804	

The level of income is highest in households with both types of activities — agricultural and non-agricultural. They earn more than double that of agricultural households.

The Table below provides the estimated income for the Beminiwatte APC area.[2]

	Annual Averages	
	Household income Rs.	Expenditure Rs.
Agricultural	.. 1,936 = 100	3,079 = 100
Non-agricultural.. ..	.. 2,351 = 121	3,460 = 112
Agricultural-cum-non-agricultural	.. 3,991 = 206	4,926 = 160

[1] Data on borrowings do not indicate this as a possibility. Moreover, such generalised borrowing is implausible. According to the Consumer Finances Survey for 1973, the average household income for the rural sector was about Rs.292.00. Considering the fact that the above survey used a more comprehensive definition of income and the underestimation referred to above, the average income for the Beminiwatte area can be assumed to be close to the rural sector average of around Rs.300.00 per month.

[2] In Kandupalatha the average annual incomes were: Agricultural households Rs.1,601.00; Agricultural cum-non-agricultural households Rs.3,408.00 (p.56) ACARRD-ARTI Report,1974. These are gross incomes.

Per capita incomes (annual) range from 754 (Hemmathagama) to 247 (Harankahawa). The income per income receiver is given in Table 5-V. The problem that arises here is the inclusion of unpaid family members. Though they share in the work they do not receive income directly. However, the total income generated in a given period of time includes their contribution as well. In the formation of family incomes, the average size of family, the number of income receivers and the dependency ratio are relevant.

The dependency ratio for the area is 2.0,that is two dependents for each working member. The dependency ratio for Thalapitiya is the highest, indicating that each earner has to support 4.1 members. As Thalapitiya is a socially depressed village avenues for employment for its people are restricted; hence, the employed few have to bear a high burden. A solution to this problem would have to be sought in the non-agricultural sphere as there is hardly any agricultural land available in Thalapitiya.

The villages were ranked according to the above three measures of income. There is broad conformity between the three rankings. However, these are not very consistent with ranking on an expenditure basis.[1] (Table 5-VI). There is reason to believe that incomes have been substantially understated especially in Harankahawa, Moligamuwa and Medagoda. The expenditure pattern shows a high concentration on food (62%-87% of total).

Table 5-VI Villages ranked by Indices of Income and Expenditure

Village	Household income	Per Capita	Income per income receiver	Household Expenditure
		Rank		
Makadawara	10	7	9	14
Mawela	4	4	8	6
Weliwathura	7	6	10	12
Muruthawela	8	9	5	11
Hingula	2	2	1	9
Mawana	12	13	6	13
Thalapitiya	9	11	3	10
Devanagala	3	3	7	2
Medagoda	15	15	16	4
Alpitiya	11	10	12	16
Dahanakamulla	13	12	13	15
Harankahawa	16	16	15	8
Moligamuwa	14	14	14	7
Balathgamuwa	6	5	11	5
Hemmathagama	1	1	4	1
Palliporuwa	5	7	2	3

[1] Expenditure data have their own limitations arising from recall lapse and tendency to exaggerate on the part of respondents.

(c) Composition of Income

The average household income may consist of several components. These could be identified as either i) cash and non-cash components or ii) agricultural and non-agricultural components.

The non-cash component may include consumption of home produce, free goods and services and other receipts in kind. In the survey analysis, separation of these two was not attempted.

The average income per household in each village is the average of the incomes of three types of household categories listed earlier. Hence, the relative shares would roughly indicate the importance of agriculture as a form of livelihood in the area. Agricultural income is received by household categories, agricultural and agricultural-cum non-agricultural, while non-agricultural income is received by non-agricultural and agricultural-cum-non-agricultural households.

The agricultural component forms more than 50% of total income in seven villages (Table 5-V). There is broad conformity in the classification of households as agricultural and non-agricultural in terms of employment on the one hand and in terms of income on the other.

Accordingly the villages are categorised as follows:

Mainly agricultural		Mainly non-agricultural	
Dahanakamulla,	Harankahawa,	Hingula,	Devanagala,*
Balathgamuwa,	Medagoda,	Palliporuwa,	Thalapitiya,
Hemmathagama,	Makadawara,	Mawela,	Alpitiya,*
Moligamuwa,	Weliwathura.	Muruthawela,	Mawana.

* borderline cases

The contribution of different sources to agricultural income is of importance. The classification of the sources is given below, (Appendix Table 5.2).

Source of Income	Income Receivers
1. Crop	Operators
(a) Paddy	
(b) Other crops	
2. Livestock	
3. Supply of agricultural labour	Agricultural labour
4. Land rent	Landlords

There are two aspects here:-

i. Percentage contribution of each source to average agricultural income per household in the area;

ii. Average income per reporting household.

i. The first indicates the role of various sources in the agricultural income of the area. The basic features that emerge are:-

a. The contribution of livestock is very limited.

b. Paddy gives the major contribution to agricultural income in seven villages (above 50% of total agricultural income).

c. Agricultural labourers contribute a large share of family income in some villages (Dahanakamulla, Harankahawa and Moliga-muwa). Labourers' earnings show marked variation across villages. (These figures have to be treated with some caution because of the small number of observations). As the wage rates do not vary so much, the differences may be traced to the number of working days one is able to secure in the year.

ii. The second aspect is the income per household reporting the possible source. This is an indication of the profitability of various crops and livestock (Appendix Table 5.2). A word of caution is necessary as these incomes may not be very reliable and probably biased downwards. The highest level of paddy income reported is Rs.125.00 per month. Income from other crops is also low ranging from Rs.400.00 to Rs.2,150.00 per annum.[1]

The income from livestock is very low and obviously far below potential.[2] All in all, the reported data show considerable scope for expansion and improvement of incomes in the agricultural enterprises of the area.

5.2.2 Distribution of Income

The distribution of household income can be classified in a number of different ways such as by size of income, by occupation or by socio-economic groups of operators, etc. The distribution of income among socio-economic classes is more meaningful in the rural context. However, the data[3] available pertains to a size distribution of incomes Table 5-VII). The percentage of households earning a monthly income below Rs.200.00 is 60% for Beminiwatte. Only 11% earn above Rs.600.00. On a villagewise basis, the proportion varies from 77% (Moligamuwa and Harankahawa), to 50% (Devanagala). Households receiving more than Rs.500.00 per month range from 4% (Alpitiya) to 30% (Hemmathagama). The bulk of the population are concentrated in the lower income groups. The pattern is similar to that in Kandupalatha where 70% of the households obtain less than Rs.250.00 per month.[4]

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[1] Leaving out extreme cases.

[2] Reporting households were few in number.

[3] The data should be interpreted with some caution because of possible understatement referred to earlier.

[4] ACARRD-ARTI Report 1974, *op.cit* (p.51). The Kandupalatha data refers to gross income.

Table 5-VII Percentage distribution of households by group of income

Village	Rupees				
	Up to 1,200	1,201-2,400	2,401-4,800	4,801-7,200	Above 7,201
Makadawara	28.0	32.0	28.0	8.0	4.0
Mawela	28.9	31.6	26.3	2.6	10.5
Weliwathura	16.0	34.0	40.0	12.0	-
Muruthawela	32.5	32.5	17.5	12.5	5.0
Hingula	20.0	27.5	30.0	7.5	15.0
Mawana	32.2	39.4	25.0	3.5	-
Thalapitiya	9.5	47.6	33.8	9.5	-
Devanagala	29.2	20.8	29.2	8.3	12.5
Medagoda	40.0	32.0	20.0	-	4.0
Alpitiya	33.3	37.0	26.0	-	3.7
Dahanakamulla	36.4	36.4	18.2	9.1	-
Harankahawa	59.1	18.2	13.7	9.1	-
Moligamuwa	50.0	27.3	18.2	-	4.5
Balathgamuwa	30.8	34.6	23.1	3.9	7.7
Hemmathagama	21.7	26.1	17.4	4.4	30.4
Palliporuwa	24.1	27.6	21.0	13.8	3.5
APC area	29.0	31.4	24.4	6.4	7.8

Another aspect of distribution is the share of total income generated in the period concerned accruing to each size group. The villagewise data show a highly skewed distribution in which the lowest two groups comprising 16%-56% of total households[1] receive between 2%-23% of total income. The highest two groups receive more than 45% of total income in Mawela, Hingula and Hemmathagama, (Appendix Table 5.3). Hence, the problem of low incomes is accentuated by an unequal pattern of distribution.

The distribution of income alone is not sufficient to convey the relative economic position of households. The patterns of ownership of wealth, i.e. property, means of production, durable assests, etc., would determine the relative economic strength of various socio-economic groups in the village setting. While no comprehensive data was collected on these aspects, data on ownership of land which is undoubtedly one of the most important forms of wealth, shows a skewed distribution.

[1] Leaving out Thalapitiya which was an extreme case.

Chapter 6

RURAL INSTITUTIONS AND SERVICES

This chapter deals with institutional problems with particular reference to membership of households in various institutions and credit, marketing and extension. Deficiencies of existing rural institutions are their inability to -

i. have an effective base in the rural community for serving the mass of rural people;

ii. play an effective role in agrarian development; and

iii. have better co-ordination with each other in catering to the needs of the rural people. Data collected from the survey throw some light on these problems, especially in respect of a few major services - credit, marketing and extension - made available to the rural people.

6.1 Membership of Institutions

The households surveyed had members in a number of rural institutions, viz. Co-operatives, Cultivation Committees, Rural Development Societies, *Janatha* Committees, *Kantha Samithies*, Divisional Development Councils, Religious Societies and Political Organisations. From the point of view of agricultural and economic activities the most important among these institutions were the Co-operative Societies, the Cultivation Committees and the Agricultural Productivity Committees.

Membership in the Co-operative Societies varied from village to village; 7% in Mawana to 64% in Weliwathura, with an average of 23%.[1] Of a total of thirty-two respondents from Thalapitiya and Dahanakamulla villages none reported being members of a Co-operative Society. The membership in Co-operatives among agricultural operators in the villages was comparatively high, ranging from 23% in Hingula to 89% in Moligamuwa, with an average of 51%. According to the survey of "Small Farmer Credit"[2] conducted in 1973 in two Grama Sevaka Divisions of the same area, the average co-operative membership among lowland operators was approximately 61% which falls within the above range.

The farmers were asked whether they knew about the Agricultural Productivity Committee and 56% of them reported in the affirmative though this institution was established only a year ago. Awareness of the Agricultural Productivity Committee was high in most villages. The Agricultural Productivity Committee has taken action to develop farming in the area. This has been done in the form of distribution of seeds, agro-chemicals, sprayers, etc., and organisation of training programmes for farmers through Cultivation Committees.

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[1] Co-operative membership among all types of households. The major activity of the Co-operative is the distribution of consumer goods (rations) and every citizen is entitled to use this facility. Membership of the Co-operative has significance for those who are agricultural operators and may like to obtain inputs or credit from the Co-operative which is only possible after becoming a member.

[2] ARTI Research Study Series No.3

6.2 Credit

Cultivation loans

29% of the lowland operators borrowed during Maha 1973/74 and Yala 1974, for paddy cultivation. 39% of these loans were from institutional sources such as Co-operative and Banks.[1] The non-institutional sources consisted mainly of friends, relations and traders. The amount borrowed from institutional sources constituted 39% of total borrowings. The average loan from all sources was Rs.270.00 per borrowing household.

There were a few villages like Dahanakamulla, Harankahawa, Hingula and Thalapitiya, where not even a single case of borrowing from any source was reported. At the other end of the scale 60% and 55% of the lowland operators were borrowers in Palliporuwa and Moligamuwa respectively.

Table 6-I Source of Loan for Paddy during Maha 1973/74 and Yala 1974

	Co-op	Banks	Friends, Relatives	Traders	Money lenders	Others	Total
No.of loans	14	7	24	11	2	1	59
%	23.7	11.9	40.7	18.6	3.4	1.7	100
Amount borrowed in Rs.	4,312	1,830*	5,750	1,588	1,650	800	15,930
%	27.1	11.5	36.1	10.0	10.4	5.0	100
Avg.amount per borrower in Rs.	269.5	261.4	261.4	144.4	825.0	800	270

* One borrower stated that he borrowed Rs.805/- for household needs. Credit for crops other than paddy or livestock was not mentioned.

An analysis of lowland operators who were borrowers according to their tenurial categories showed that in both seasons tenants obtained 40% of the total number of loans, sole owners 26.7%, joint owners 21.7% and tenant owners 11.7%. Of the total amount sole owners borrowed 35.7%, tenants 28.6%, joint owners 19.6% and tenant owners 16.1%. Though a larger percentage of tenants utilised credit they obtained a smaller share of the total borrowings. Sole owners obtained a larger amount but formed a lesser proportion of the borrowers. This may be due to an association of their credit-worthiness with tenurial positions.

Reasons for not borrowing from institutional sources

Only 12% of the lowland operators borrowed from institutional sources. Those who did not attempt to obtain a loan mentioned as reasons: fear of inability to repay due to uncertainty of harvest, procedural difficulties which were sometimes beyond the understanding of many of the average farmers and tenurial problems. Due to private arrangements with landlords some tenants were unregistered as cultivators and therefore were debarred from obtaining institutional credit.

Rates of Interest

The rates of interest charged by traders and money lenders were usually high amounting to as much as 150% per annum in some cases. The period of repayment was less than one year. Some of the borrowers

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[1] One loan was from the People's Bank and the other six loans from the Rural Bank under Co-operatives.

reported that they obtained interest-free loans from their friends and relatives.

Though loans were available at a lesser rate of interest from institutions, farmers continued to borrow from private sources at higher interest rates mainly because of the ready availability of the loan from private sources at the time of need. Therefore, it appears that the timely supply of credit is the determining factor in the choice of the source of credit.

Repayment of loans

Of the total amount of Rs.6,142 borrowed from the Co-operatives and Banks, an amount of Rs.3,771 was reported as outstanding at the time of interviewing. While 61.4% of the total loans borrowed from institutional sources was not repaid, 38% of loans from the private traders remained unpaid. This indicates a greater tendency to repay loans obtained from private sources.

Table 6-II Repayment of loans classified by sources during Maha 1973/74 and Yala 1974

	Co-op.	Banks	Friends and Relatives	*Mudalalis* (traders)	Money lenders	Others	Total
Total amount borrowed (Rs)	4,312	1,830	5,750	1,588	1,650	800	15,930
Amount repaid ..	2,346	25	3,538	1,678*	-	400	7,987
Amount outstanding (Rs)	1,966	1,805	2,212	580	1,650	400	8,613
Outstanding loan as % of the total amount	45.6	98.6	38.5	36.5	100.0	50.0	54.1

* One borrower repaid in kind, 30 bushels of paddy for his loan of Rs.350.00. The amount repaid (Rs.900.00) was calculated at the rate of Rs.30.00 per bushel and added to the total.

Savings Deposits (Capital formation)

Under the present institutional framework, there is no system of compulsory thrift deposits. Those who accumulated savings did so on their own initiative. 24% of the total households in the survey mentioned that they had one savings account and 20% reported having more than one savings account either with Banks or with the Post Office.

A rural banking system can work effectively if it is linked with other Rural Institutions and Agricultural Extension. This scheme should be such that it could attract a large number of farmers and also provide avenues for efficient investments of the capital saved. The recent drive launched by the Government through the National Savings Bank and the opening of branches of the Bank of Ceylon in rural areas might encourage the mobilisation of rural sources for capital formation. But this needs further development as a comprehensive system of rural banking.

6.3 Marketing

The Agricultural products marketed by the respondents through various channels, both institutional organisations and private dealers were paddy,

plantains, coconut, rubber, tea, pepper, cloves, eggs and milk.[1] (Appendix Table 6.1). 15% of the total production of paddy was reported as sold, 95% of the sales being channelled through the co-operatives and the balance 5% through private dealers - mostly village and outside traders. The guaranteed price of paddy was Rs.25.00 for a bushel in 1973 and Rs.30.00 in 1974. The outside traders paid a higher price, Rs.35.00 to Rs.40.00 a bushel. The reported quantity of paddy sold to private sources constituted a small proportion of the total sales. This should be viewed in the light of the fact that the Co-operative has a legal monopoly over the purchase of paddy. The paddy produced in the area is used mainly for consumption purposes. There is reason to believe that the amount available for disposal exceeds the reported sales and that under-reporting may have occurred regarding the sales to private traders (see Chapter 4).

It was reported that 84% of the Banana produced was sold to private dealers, both from within and outside village. The village traders made 79% of the total purchase at prices ranging from Rs.3.60 to Rs.8.00 a bunch while outside traders purchased the balance at prices of Rs.4.00-8.50. The average sale price of the Marketing Department in Colombo ranges from Rs.8.00 to Rs.16.00 a bunch. The price in the open market is still higher. This shows a big gap between the price received by the producers and the price paid by the consumers. Since the farmers of the area are improving and expanding the cultivation of banana - an important produce of the mixed gardens - the situation may further deteriorate for the producers unless some institutional arrangements can be made immediately in order to give them a fair price.

The marketing of minor export crops such as pepper and cloves was beset with similar problems. Channelling of goods was only through the village and outside traders who paid unfair prices. For example a pound of pepper fetches Rs.12.00 to Rs.16.00 and a pound of cloves Rs.35.00 to Rs.40.00 in the open market while farmers receive Rs.2.00 to Rs.5.50 for a pound of pepper and Rs.12.00 to Rs.25.00 per pound of cloves. These products are non-perishable and can be processed locally but because of the weak bargaining position of the farmers and their lack of access to better marketing channels they are forced to sell at whatever price the trader offers them.

Rubber being a commercial agricultural product, a number of marketing organisations like the latex collecting centres opened by the Block Rubber Project at Mawanella, private traders, Commodity Purchase Department and Co-operatives were involved in its purchase both in the form of latex and sheet. Of these organisations the latex collecting centres purchased 54% of the total production of latex at the rate of 30 cents to Rs.1.05, while the private traders collected 34% of the total at the rate of 23 cents to Rs.1.00 per pound. Private traders purchased 47% of the total quantity of rubber sheets sold and paid better prices than other agencies, i.e. 35 cents to Rs.1.40 per pound. The farmers benefited from these competitive prices. If the latex collecting centres are organised to provide inputs as well as other services along with the collection of latex, cultivation of rubber can flourish in the interests of the producers.

The sales of coconut and tea constituting 45% and 100% of the total produce respectively benefited mainly the private traders and neighbours. The price of coconut varied from 23 cents to 42 cents a nut, while tea (green leaves) was sold from 16 cents to 35 cents a pound.

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[1] Other crops such as manioc and fruits were also sold by respondents but these were an insignificant proportion and hence are not included.

Eggs were mostly consumed at home with only 34% of the total produce sold to village traders at the rate of 30 cents to 50 cents per egg.

The above discussion focuses attention on the need for better marketing organisations; particularly for those agricultural products over which the middleman has a virtual monopoly. These organisations should operate in the interest of producers by performing activities such as transporting, storing, financing, grading, providing information, risk taking, buying and selling. Under the present set up, the Agricultural Productivity Committees and the Co-operatives can play an important role in this respect. The Agricultural Productivity Committee can act as an agent on behalf of the producers in providing the necessary information on the different aspects of marketing, while the Co-operatives can engage in marketing activities and ensure fair prices to farmers.

A dynamic marketing system, can assist in creation of new jobs, with the development of new associated services. It also opens up avenues for greater investment and gives incentives for production.

6.4 Extension

Extension work concentrated on educating the farmers on improved cultural practices of paddy and other highland crops such as tea, rubber and coconut and minor export crops. The most common extension techniques in practice were farmers' visits to demonstration plots, visits of extension personnel to individual farmers, agricultural film shows and farmer training classes.

Table 6-III Extension Services utilised by lowland (paddy) operators

Types of Services	Maha 1973/1974 No.of households reporting:			Y a l a 1974 No.of households reporting		
	One	two	three or more	One	two	three or more
Visits to extension centres	18	5	2	18	4	2
Attendance at farmer training classes	19	3	1	16	2	2
Visits of extension workers:						
a. AI	6	2	2	5	3	1
b. KVSs	19	5	4	18	3	1
Visits to demonstration plots	91	1	3	83	-	2
Viewing agricultural film shows	46	1	1	30	-	-
Use of production kits	6	-	-	6	-	-
Visits to extension workers	18	4	3	16	2	3

32% of the farmers mentioned visits to demonstration plots during Maha 1973/74 to obtain information on cultural practices and 10% obtained their agricultural information from extension personnel who visited their farms. A few farmers reported visiting an extension centre or extension

workers and attending training classes to acquire agricultural knowledge (Table 6-III). In respect of other crops (Table 6-IV), twenty-eight reported receiving advice on rubber, six on coconut, four on tea and two on minor export crops, through extension personnel visiting their farms. Some also obtained planting material, particularly rubber and minor export crops along with the technical advice. The extension activities for all these crops were not regular, occurring about once in a season or year.

Table 6-IV Utilisation of extension services for crops other than paddy

		Tea		Rubber		Coconut		Minor Export Crops	
		Planting material	Advice	Planting material	Advice	Planting material	Advice	Planting material	Advice
Operators reporting	No.	-	4	10	28	-	6	2	2
Percentage of total		-	28.6	19.2	53.8	-	17.1	2.3	2.3

Of the mass media utilised in propagating agricultural information, films and advisory leaflets were mentioned by 16% and 12% respectively of the agricultural operators and the radio by 8% as sources of information.

Extension work is not broadbased. Important aspects of agricultural development such as principles of marketing, agricultural credit and capital formation are not being covered. The extension network should be reorganised in an integrated manner under the existing institutional framework of the APC/CC to cover all the important aspects of agrarian development and reach the total farming population effectively and regularly.

The APC could draw from the following categories of personnel for its training and extension work.

Agricultural Instructors
Krushikarma Viyapathi Sevakas (KVSs)
Divisional Officer
Extension Officers
Co-operative Inspector
Managers of Multi-Purpose Co-operative Societies

In addition, some progressive farmers, their leaders and also the sixteen Administrative Secretaries of the CCs could be trained to work as extension agents, in the Beminiwatte APC area. Training and extension work must be geared towards solving the problems of the area within the framework of the existing institutions.

The ultimate goal of the different institutions is to support the development of the rural communities in the area. A close co-ordination and integration of the activities of all these institutions must be effectively brought about in order to achieve this goal.

Chapter 7

SUMMARY AND CONCLUSIONS

Beminiwatte is a typical mid-country Agricultural Productivity Committee area of approximately 25,000 acres, in the Galboda Korale Revenue Division of the Kegalle District. The rainfall is about 100 inches per year. The density of population is 1,300 per sq.mile. The size of the average household is 6.4 persons. The people of the area have a high rate of literacy consistent with the rest of the country. Housing conditions in the area and civic amenities available to the people are consonant with an economy predominately agriculture in character.

7.1 Land

In the area studied, the per capita availability of land is 0.27 acres. Taken villagewise land availability ranged from 0.04 acre per individual in Thalapitiya to 0.68 acre per individual in Balathgamuwa. Land hunger was most acute in Thalapitiya, Harankahawa, Mawana and Palliporuwa. The most favourable villages in this respect were Balathgamuwa, Hingula, Hemmathagama and Weliwathura.

23% of the households studied did not own any land and 33% owned 0.5 acre or less. 20% of the households owned extents exceeding 2.0 acres. 33% of the respondents who claimed landlessness were dependent totally or partially on agriculture. Most of them were apparently working as tenant cultivators or agricultural labourers. Landlessness was naturally more prevalent amongst non-agricultural and 'other' types of households.

The existence of definite land hunger conditions is a direct result of a combination of large population, inadequacy of cultivable land belonging to individual villagers, the inability to physically expand the land frontier beyond the present village borders, and an inequitable distribution of land among the villagers.

The most prevalent form of operational holding was single ownership. The proportion of highland holdings operated by sole owners (63%) is greater than the proportion of lowland holding operated by sole owners (35%); 46% of the paddy area is tenant-operated, 40% of the lowland operators are tenants and 11% part-tenants; 21% of the highland is jointly owned and operated.

In many villages paddy land operation is characterised by a high degree of tenancy, various forms of joint ownership and the dominance of micro-size holdings. Economic problems notably unemployment and underemployment arise from land hunger, in the absence of opportunities for a substantial shift of village population into avenues of livelihood outside agriculture.

7.2 Tenancy Conditions

Rent is usually paid in paddy. The normal rate is half-share. 91% of tenants paid this rate or more. Only one tenant in the sample paid the quarter share stipulated by the Paddy Lands Act. 65% of the tenants who paid 1/2 share or more received some kind of collateral help from the owners. The scale of such help showed considerable variation. The commonest inputs supplied by the landlords are seed, fertilizer and agro-chemicals. The repayment rates of these inputs in some cases exceed 150%.

'*Ande*' cultivation is still dominated by uncertainty and insecurity. Only 41% of the *ande* cultivators have got themselves registered as tenants under the provisions of the Paddy Lands Act. Most of the tenants so registered have outsiders as their landlords. However, the bulk of such tenants continued to pay the half share. The tenants also offer gifts and perform services to their landlords for the renewal of tenancy. Thus, the Paddy Lands Act has been almost totally ineffective in this area.

7.3 Agriculture

74% of the agricultural lands operated by small farmers are highlands. 47% of the highlands are cultivated with plantation crops that yield 90% of the value of all highland crop produce. Rubber is the most important among the plantation crops. All plantation crops are poorly managed. Tea appears to be almost neglected and is uneconomical and its replacement with more profitable crops is indicated.

53% of the highlands are mainly in the form of forest gardens with very little vegetable and food crops. Banana and minor export crops which are also grown in these lands have a great economic potential which needs to be exploited through a systematic programme of development.

Highland in general yield only about Rs.337/- worth of produce per acre per year indicating a low level of productivity. There is great potential for highland development, including the development of the live-stock enterprises which at present comprise only a very small part of the agricultural activities. However, further detailed investigations are necessary before long-term action programmes can be formulated.

Paddy continues as the traditional basis of domestic agriculture occupying 26% of the agricultural lands and yielding about 64% of the value of all crop produce. There is a disparity between the yields computed on crop cutting surveys and those reported by farmers. The actual yield is probably between the two but still quite low in terms of the national average. A large proportion of the paddy holdings are less than 1 acre in extent, and usually fragmented. It is interesting that contrary to normal expectations, tenant operators obtain higher yields than owner operators in this area. Generally, villages with large extents of paddy show high yields and those with small extents show low yields.

There is a high reliance on buffaloes as a source of draught power and a low availability of them to the operators. Manual work with the aid of mammoties features importantly in land preparation. All other operations with the possible exception of threshing are exclusively done manually. This constitutes an important constraint to cultivation that necessitates further detailed exploration for the estimation of draught power needs of the area relating to both economy and labour availability for the preparation of a plan to provide these requirements.

There is a high rate of adoption of management practices. But the technology adopted in such practices is low. Observation indicates that smallness of holdings, lack of an assured supply of water, inefficient service facilities and the inability of the farmers to incur the cost of these practices are the factors contributing to the low level of technology in particular and poor productivity in general.

7.4 Employment

The employment pattern in the Beminiwatte Agricultural Productivity

Committee area is in conformity with observations on the rural sector situation in general and especially that of Kandupalatha (as indicated by a related study).

There is a high incidence of part-time farming as shown by the number of workers in both agricultural and non-agricultural activities. This may also contribute to the observed low productivity of land and warrants further study.

The number of landless agricultural labourers is fairly high in some villages. Seasonal migration to dry zone areas in search of temporary employment in farming is common in these villages.

The non-agricultural occupations are diverse in nature, but services and trades with low productivity predominate.

The unemployment problem is high and is concentrated among the youth between 14-25 years who constitute the new entrants to the labour force. Given the present age composition of the population at Beminiwatte, this is bound to aggravate over time. Hence, possibilities for employment generation in both agricultural and non-agricultural spheres must be found.

7.5 Income

Income levels are close to the rural sector average. However, there are wide disparities between villages. Households with agricultural-cum-non-agricultural activity consistently earn high incomes in relation to other households. Agricultural households obtain the lowest level of income.

The composition of agricultural incomes show a low level of returns from various agricultural enterprises. Income from livestock farming is insignificant in all the villages surveyed.

The distribution of income is uneven, with 60% households in the Beminiwatte area earning less than Rs.200.00 per month.

Further research is necessary to find out the relative position of specific socio-economic groups such as landless agricultural labourers, landlords, tenants, white collar/salaried workers, etc., in the village economy.

7.6 Rural Institutions

The more important rural institutions present in the area are the Multi-Purpose Co-operative Societies, Agricultural Productivity Committees and the Cultivation Committees. The Multi-Purpose Co-operative Societies which have been fairly long established together with the more recent Agricultural Productivity Committee and the newly constituted Cultivation Committees have so far failed to - (a) have an effective base in the rural community; (b) play an active role in agricultural and agrarian development of the entire area; and (c) co-ordinate with and complement each other in their multifarious and overlapping spheres of activities.

The average membership in co-operative societies among the agricultural operators is 49%. The intervillage variation ranged from 23% to 89%. Though membership is not necessarily an indication of the amount of participation in the activities of the co-operatives, this low membership denotes that the operators have little to do in the activities of the co-operatives. About half the households expressed awareness of the newly created Agricultural Productivity Committees.

7.7 Credit

Only 21% of the agricultural operators borrowed money for cultivation. 39% of such loans and the amounts so borrowed were from institutional sources. The average loan was Rs.270/-. The rates of interest ranged from 0-150% for non-institutional sources and 7½-12% for institutional sources. Among those who obtained cultivation loans tenants comprised the largest group. The reasons given for not obtaining cultivation loans were availability of financial resources, fear of inability to repay because of uncertainty of yields, procedural difficulties and tenurial problems.

The rate of defaulting was greater for institutional sources than for private sources. This has been an inherent weakness of the institutional credit system.

Only a few households reported having savings accounts with any of the state sponsored institutions. There is no system of compulsory thrift deposits under any institutional framework. Available agricultural credit systems should be linked to such a savings system.

7.8 Marketing

The main agricultural products marketed by the producers are - paddy, banana, rubber, coconut, tea, pepper and cloves. Except for paddy for which the co-operatives have monopoly purchase rights — a major portion of all other produce was marketed through private traders mainly because there was no proper system for marketing them through institutions. As a result of this the farmers were in a weak bargaining position and tended to receive relatively low prices for their produce. This indicates the necessity for an efficient marketing system to be organised and managed by the institutions.

7.9 Agricultural Extension

The Agricultural Extension Service available to the farmers was generally inadequate, especially in respect of highland cultivation. The extension activities were independent of the other services like provision of inputs, credit and marketing facilities. This suggests the need for the integration of extension activities of the Department of Agriculture to the other programmes of the rural institutions and also to the activities of the related departments and other Government agencies.

Chapter 8

RECOMMENDATIONS

The following recommendations are intended to improve the socio-economic conditions of Beminiwatte. Being a Field Laboratory Project, some of these recommendations are experimental in nature and may have to be modified while being implemented or rejected if found to be impracticable or unsuccessful. Action to be taken on these recommendations will be short-term, medium-term or long-term. Most of the recommendations are complementary to one another so that their full benefits will be received only if they are formulated and implemented together in a co-ordinated and integrated programme of development. Such a programme will require the concerted action of all the Government Departments and agencies within whose purview the individual programmes will come and of the people's organisations which have been charged with rural development under the recent laws.

Before the implementation of development programmes in Beminiwatte the resources available in the area including human resources must be carefully assessed. Special efforts must be taken to involve the educated youth of the area in this action programme. It is suggested that a small area in Beminiwatte be selected for the implementation of the recommendations and evaluation of their usefullness before it is extended to the rest of the APC areas. This unit must be selected on the availability of resources for development and not on any administrative division. Due consideration must be given to the physical boundaries and availability of infrastructures necessary for development. This programme must also be synchronised with infrastructural development such as roads and health facilities for full realisation of the benefits. A continuous evaluation of the programme is essential to find out bottle-necks and make the necessary modifications.

The limited land resources, the rapid increase in population and the dearth of existing alternatives to agricultural employment in Beminiwatte can limit the impact of development efforts. However, there is scope for improving the present conditions by undertaking corrective action on several fronts. This calls for new and energetic measures to overcome a situation of stagnation with its inevitable economic and social consequences.

8.1 Short and Medium Term Programmes

8.1.1 This study indicated the low productivity of the highlands. A medium-term programme to systematise the highland mixed gardens by the removal of less productive crops like arecanut and the introduction of minor export crops and food crops, with supporting service facilities such as storage, transport and marketing will provide increased stable incomes.

8.1.2 Very few people in Beminiwatte practise livestock keeping. This is mainly because of traditional biases against livestock keeping and the absence of supporting services for animal husbandry. A short-term programme to assist the existing livestock enterprises by supplying advice and veterinary support, combined with a medium term programme to introduce livestock keeping on a wider scale with credit, stock supply, veterinary and marketing support will provide an additional source of income for the farmer and also create more employment opportunities.

8.1.3 An important reason for the low yield from paddy in the Beminiwatte area is the low level of technology of the management practices adopted by the farmers. This can be corrected by improving the efficiency of the management practices in paddy cultivation through farmer education and training.

8.1.4 Holdings of tea, rubber and coconut in pure stands which occupy 47% of the highland extents are poorly managed and low yielding. Rubber and coconut can be improved by replantation, application of fertilizer and adoption of better management practices. The tea plantations which are usually small in extent could be replaced with more remunerative crops. These can include fruit crops, minor export crops and fodder grass.

8.1.5 Further studies are necessary to ascertain the requirements of draught power for the area and the constraints that apply to its supply. Once these are known a project can be formulated and implemented to enable the farmer to obtain draught power requirements when necessary without delay.

8.1.6 The existing facilities for the supply, storage, transport and marketing of farm produce are minimal. These should be improved by streamlining the institutional structure to undertake the provision of these facilities. These can be done within the framework of the Agricultural Productivity Law in co-ordination with the Multi-Purpose Co-operative Services.

8.1.7 The development of highland cultivation could be hampered by the absence of a credit scheme for highland crops. A credit scheme must be developed for highland cultivation after working out profitable cropping patterns for various highland situations. Such a credit scheme which should be tied up with compulsory savings and insurance practices should be first implemented in a selected small area and then extended to the rest of Beminiwatte if found successful.

8.1.8 The survey revealed that the extension service in the Beminiwatte area is poor. The development of this service should involve the leader farmers and local leaders as informal extension agents on a medium term programme. The activities of extension agents must be directed at small groups of farmers rather than on individuals.

8.1.9 The existing cottage industry needs detailed study for the formulation of a programme for their development and wider adaptation.

8.2 Long-term Programmes

8.2.1 Fragmentation of land in Beminiwatte is considered to be a constraint to higher levels of agricultural production. This could be overcome with the formulation and implementation of land consolidation and group production programmes. Such groups, with three or more farmers, can undertake several agricultural enterprises jointly though the land will be privately and separately owned by them. There is a great potential for such schemes on both highlands and lowlands due to the variety of enterprises possible. To be successful, these programmes will have to be combined with positive incentives to the participating farmers. These incentives can be in the form of subsidies for their inputs and services and assured markets for their produce at reasonable prices. Such schemes might require policy decisions at a higher level.

8.2.2 The land-man ratio in Beminiwatte has been found to be low. Further, the growth of population in the area will lead to increasing pressures on the existing resources for the provision of welfare facilities and employ-

ment opportunities. Therefore, a comprehensive programme for family planning needs to be implemented. In this connection, it is further recommended that village level workers of all Government agencies working in the Beminiwatte area, including the agricultural extension workers, be given a training in guidance counselling on these subjects.

8.3 Areas for further research

8.3.1 Determine the levels of motivation of the people and possible ways of motivating them towards greater achievement.

8.3.2 Investigate the relative positions of the different socio-economic groups like landless agricultural labour, landlords, tenants,etc., with the view of determining their specific needs so that the limited resources for development can be allocated to the most needy.

8.3.3 A detailed study of existing marketing facilities and the possible ways of improving them. This study should provide recommendations for the organisation of a marketing system for agricultural produce to cater to the present needs and also for the development of this system to enable it to handle the increased agricultural production envisaged in the future.

8.3.4 Study of the conditions relating to the seasonal migration of agricultural labour.

8.3.5 Nature of part-time farming

8.3.6 Pattern of availability, utilisation and distribution of agricultural labour between highland and lowland cultivations.

8.3.7 Examination of the resources of the area in respect of potential for additional employment.

8.4 Since Beminiwatte is a Field Laboratory Project, the Agrarian Research and Training Institute has initiated several research and action programmes based on the findings of the preliminary report of this survey, other studies conducted in the area and on field observations made in the area. These programmes have been launched in close co-ordination with the Department of Agriculture, the Department of Minor Export Crops, the Faculty of Agriculture of the University of Sri Lanka and the Agricultural Productivity Committee. These programmes are stated below:

Action Programmes

8.4.1 It has been found that the highlands of Beminiwatte yield relatively small incomes to the farmers. It is not practicable to induce the farmers to adopt costly and sophisticated methods to improve their incomes from these highlands. However, in the short run, highland agriculture can be improved by adopting low cost low technology methods like crop sanitation, removal of unnecessary shade, organic manuring, adoption of soil conservation methods, etc. The present highland development programme attempts to induce the farmers to adopt these practices by way of demonstrations in different types of highland.

8.4.2 A home-garden project to demonstrate to the farmers the possibilities and advantages of growing their own vegetable requirements for consumption is well underway.

8.4.3 Training of Extension Officers in subject matter and extension methods.

8.4.4 Provision of wells for supplementary irrigation of paddy tracts. This is being implemented through the Cultivation Committees.

Research Studies

8.4.5 Continuous monitoring of selected paddy farms to determine the factors that affect paddy yields. This study will cover the two seasons, Yala 1975 and Maha 1975/76.

8.4.6 Case Study of two villages to determine the social factors influencing the agrarian situation, i.e. structure of groupings (caste, political and power groups), and lines of influence shaping the access to the use of essential resources (land, labour, inputs, etc.).

8.4.7 Identify the leaders of the area through whom most of the programmes could be projected to the people and who could help to bring about changes in the attitudes of the people for development.

8.4.8 Study the channels of communication and propagation of information in the area.

8.4.9 Maintenance of records of selected farms with the objective of determining patterns of labour and input distribution among various crops. This data will be useful for farm planning. This is also expected to demonstrate to the farmer the value of record-keeping.

APPENDIX TABLE 2.1

Cultivation Committees in the Beminiwatte APC area

Cultivation Committee Number	Name of Cultivation Committee Division	Ward No.	Name of Village Council or Town Council
22/4/1	Mawela - Makadawara	1 & 2	Aluthnuwara Village Council
22/4/2	Kahawandala - Heenetipane	3 & 4	"
22/4/3	Aluthnuwara - Rukulagama	5 & 6	"
22/4/4	Edanduwawa	11	"
22/4/5	Owatte - Hinguloya	8 & 9	"
22/4/6	Idampitiya - Uyanawatte	7 & 10	"
22/4/7	Devanagala - Ruwandeniya	13 & 12	"
22/4/8	Kuragala	18	"
22/4/9	Ginihappitiya - Thambawita	16 & 17	"
22/4/10	Werake - Kumbalgama	14 & 15	"
22/4/11	Kehelpannala	22	"
22/4/12	Dumbuluwawa - Madulbowa	20 & 21	"
22/4/13	Palliporuwa	19	"
22/4/14	Uthuwankande	1,2 & 3	Mawanella Town Council
22/4/15	Kiringadeniya	4,5 & 6	"
22/4/16	Beligammana	7 & 8	"

APPENDIX TABLE 3.1

Population and Land[1]

(Distribution of owned land between lowland and highland)

Village	Population	Total (acres)	Extent of Land Highland (acres)	%	Lowland (acres)	%
Makadawara	807	181.61	154.89	85.3	26.72	14.7
Mawela	1,478	227.71	190.76	84.5	36.95	15.5
Weliwathura	371	161.58	132.26	82.0	29.32	18.0
Muruthawela	1,439	336.10	291.89	86.8	44.21	13.2
Hingula	1,586	916.37	744.96	81.5	171.41	18.5
Mawana	733	66.99	55.46	80.1	11.53	19.9
Thalapitiya	158	5.91	4.95	83.8	0.96	16.2
Devanagala	468	107.78	91.00	75.5	16.78	24.5
Medagoda	214	53.44	33.87	36.2	19.57	63.8
Alpitiya	1,034	164.06	112.76	68.5	51.30	31.5
Dahanakamulla	59	18.02	14.65	81.2	3.37	18.8
Harankahawa	239	17.83	14.56	81.6	3.27	18.4
Moligamuwa	327	38.55	27.66	75.1	10.89	24.9
Balathgamuwa	762	520.20	456.37	87.6	63.83	12.4
Hemmathagama	460	244.92	155.25	63.5	89.67	36.5
Palliporuwa	700	69.55	52.80	74.0	16.75	26.0
Beminiwatte	48,876	12,727.82	10,046.91	78.9	2,680.91	21.1

[1]Estimates

APPENDIX TABLE 3.2

Land-Man and Land-Household Ratios

Village	Land-Man Ratios	Land-Household Ratios
Balathgamuwa	0.68	4.34
Hingula	0.58	3.52
Hemmathagama	0.53	3.27
Weliwathura	0.44	2.79
Dahanakamulla	0.31	1.64
Medagoda	0.25	1.78
Devanagala	0.23	1.48
Muruthawela	0.23	1.44
Makadawara	0.23	1.39
Alpitiya	0.16	0.85
Mawela	0.15	1.09
Moligamuwa	0.12	0.80
Palliporuwa	0.10	0.69
Mawana	0.09	0.62
Harankahawa	0.07	0.50
Thalapitiya	0.04	0.26

APPENDIX TABLE 3.3

Ownership of Highland

Village		Singly owned Extent	Jointly owned Extent	Rented/Leased/ Mortguated-out Extent
Makadawara	Acres	23.31	5.25	2.00
	%	*76*	*17*	*7*
Mawela	Acres	28.86	5.49	2.50
	%	*78*	*15*	*7*
Weliwathura	Acres	40.15	13.81	3.50
	%	*70*	*24*	*6*
Muruthawela	Acres	49.74	0.38	-
	%	*99*	*1*	-
Hingula	Acres	60.46	56.00	-
	%	*52*	*48*	-
Mawana	Acres	5.79	6.27	-
	%	*48*	*52*	-
Thalapitiya	Acres	5.52	0.13	-
	%	*98*	*2*	-
Devanagala	Acres	23.46	8.08	-
	%	*74*	*26*	-
Medagoda	Acres	25.86	2.62	0.25
	%	*90*	*9*	*1*
Alpitiya	Acres	12.78	2.74	-
	%	*82*	*18*	-
Dahanakamulla	Acres	10.53	4.07	-
	%	*72*	*28*	-
Harankahawa	Acres	7.08	1.56	0.25
	%	*80*	*18*	*3*
Moligamuwa	Acres	8.56	4.75	1.75
	%	*57*	*32*	*12*
Balathgamuwa	Acres	95.88	1.50	-
	%	*99*	*1*	-
Hemmathagama	Acres	32.36	13.75	1.50
	%	*68*	*29*	*3*
Palliporuwa	Acres	13.21	0.50	-
	%	*96*	*4*	-
Total	Acres	443.55	126.90	11.75
	%	*76*	*22*	*2*

APPENDIX TABLE 3.4

Ownership of Lowland

Village		Singly owned Extent	Jointly owned Extent	Rented/Leased/ Mortguated-out Extent
Makadawara	Acres	4.00	1.10	-
	%	*78*	*22*	-
Mawela	Acres	2.37	3.38	1.00
	%	*35*	*50*	*15*
Weliwathura	Acres	3.34	6.49	2.81
	%	*26*	*51*	*22*
Muruthawela	Acres	5.57	0.39	1.63
	%	*73*	*5*	*21*
Hingula	Acres	4.38	21.99	-
	%	*17*	*83*	-
Mawana	Acres	0.48	1.01	1.50
	%	*16*	*34*	*50*
Thalapitiya	Acres	0.63	-	0.25
	%	*72*	-	*28*
Devanagala	Acres	5.38	3.11	2.00
	%	*51*	*30*	*19*
Medagoda	Acres	8.57	5.00	2.74
	%	*53*	*31*	*2*
Alpitiya	Acres	4.01	2.00	1.13
	%	*56*	*28*	*16*
Dahanakamulla	Acres	1.62	1.75	-
	%	*48*	*52*	-
Harankahawa	Acres	0.50	1.50	-
	%	*25*	*75*	-
Moligamuwa	Acres	2.15	1.59	1.25
	%	*43*	*32*	*25*
Balathgamuwa	Acres	8.58	-	5.25
	%	*62*	-	*38*
Hemmathagama	Acres	10.00	6.00	11.50
	%	*38*	*13*	*43*
Palliporuwa	Acres	2.81	2.00	-
	%	*58*	*42*	-
Total	Acres	64.39	57.31	31.06
	%	*42*	*38*	*20*

APPENDIX TABLE 3.5

Degrees of Landlessness

Village	Percentage of households reporting Landlessness	Percentage of households reporting ownership of ½ acre or less of land
Devanagala	0	29
Balathgamuwa	8	15
Dahanakamulla	9	55
Medagoda	12	28
Weliwathura	12	20
Mawela	13	34
Hemmathagama	13	17
Alpitiya	19	56
Moligamuwa	23	41
Palliporuwa	24	45
Harankahawa	27	41
Makadawara	28	36
Thalapitiya	29	71
Mawana	36	39
Muruthawela	40	23
Hingula	45	25

APPENDIX TABLE 3.6

Percentage distribution of owners and extents of highland holdings (including home-gardens) by size of holding

Village		Size of holdings (acres) ½ acre or less %	Above ½ - 1 acre %	Above 1 - 2 acres %	Above 2 acres %	Total Owner/ Extent (No. Acres)	Total house-holds No.
Makadawara	Owners	50	28	11	11	18	25
	Extent	10	13	13	64	30.56	
Mawela	Owners	52	36	6	6	33	38
	Extent	14	29	11	46	36.85	
Weliwathura	Owners	27	18	5	50	22	25
	Extent	2	6	2	90	57.46	
Muruthawela	Owner	50	13	17	21	24	40
	Extent	7	5	15	74	50.12	
Hingula	Owners	41	18	14	27	22	40
	Extent	2	3	4	91	116.46	
Mawana	Owners	53	35	6	6	17	28
	Extent	15	42	12	30	12.05	
Thalapitiya	Owners	93	-	7	-	15	21
	Extent	78	-	22	-	5.65	
Devanagala	Owner	46	21	13	21	24	24
	Extent	8	14	15	62	31.54	
Medagoda	Owners	50	18	14	18	22	25
	Extent	14	13	19	55	28.73	
Alpitiya	Owners	68	18	-	14	22	27
	Extent	24	23	-	53	15.52	
Dahanakamulla	Owners	60	-	10	30	10	11
	Extent	9	-	10	81	14.59	
Harankahawa	Owner	63	31	-	6	16	22
	Extent	31	43	-	25	8.89	
Moligamuwa	Owner	59	6	24	12	17	22
	Extent	15	7	40	39	15.06	
Balathgamuwa	Owners	21	17	8	54	24	26
	Extent	2	4	3	91	97.38	
Hemmathagama	Owners	26	11	32	32	19	23
	Extent	3	3	22	72	47.61	
Palliporuwa	Owners	80	10	-	10	20	29
	Extent	39	10	-	51	13.71	
Overall	Owners	51	19	10	20	325	426
	Extent	8	9	9	73	582.18	

APPENDIX TABLE 3.7

Percentage distribution of owners and extents of lowland holdings by size of holding

Village		Size of holdings (acres) ½ acre or less %	Above ½ - 1 acres %	Above 1 - 2 acres %	Above 2 acres %	Total Owner/ Extent (No. Acres)	Total house-holds No.
Makadawara	Owners	40	20	20	20	5	25
	Extent	7	20	29	44	5.10	
Mawela	Owners	29	57	-	14	7	38
	Extent	13	54	-	33	6.75	
Weliwathura	Owners	21	50	21	7	14	25
	Extent	12	41	29	18	12.64	
Muruthawela	Owners	50	20	30	-	10	40
	Extent	17	24	59	-	7.59	
Hingula	Owners	38	-	38	25	8	40
	Extent	4	-	16	80	26.37	
Mawana	Owners	50	-	50	-	4	28
	Extent	13	-	87	-	2.99	
Thalapitiya	Owners	100	-	-	-	3	21
	Extent	100	-	-	-	0.88	
Devanagala	Owners	54	23	15	8	13	24
	Extent	19	27	33	21	10.49	
Medagoda	Owners	57	7	14	21	14	25
	Extent	23	5	23	49	16.31	
Alpitiya	Owners	20	20	40	20	5	27
	Extent	7	14	51	28	7.14	
Dahanakamulla	Owners	25	50	25	-	4	11
	Extent	7	48	45	-	3.37	
Harankahawa	Owners	33	67	-	-	3	22
	Extent	25	75	-	-	2.00	
Moligamuwa	Owners	63	13	25	-	8	22
	Extent	22	20	58	-	4.99	
Balathgamuwa	Owners	50	10	30	10	10	26
	Extent	11	5	31	52	13.83	
Hemmathagama	Owners	46	8	8	38	13	23
	Extent	10	4	4	82	27.50	
Palliporuwa	Owners	57	43	-	-	7	29
	Extent	38	62	-	-	4.81	
Overall	Owners	45	23	20	13	128	426
	Extent	14	16	24	46	152.76	

APPENDIX TABLE 3.8

Distribution of Operated Land by Type of Land

Village	Land-Man Ratio	Highland %	Lowland %
Makadawara	0.24	*66.3*	*33.7*
Mawela	0.19	*68.2*	*31.8*
Weliwathura	0.39	*80.8*	*19.2*
Muruthawela	0.25	*80.1*	*19.9*
Hingula	0.49	*94.5*	*5.5*
Mawana	0.07	*60.8*	*39.2*
Thalapitiya	0.01	*61.3*	*38.7*
Devanagala	0.27	*68.3*	*31.7*
Medagoda	0.25	*62.6*	*37.4*
Alpitiya	0.21	*56.2*	*43.8*
Dahanakamulla	0.30	*74.1*	*25.9*
Harankahawa	0.15	*43.4*	*56.6*
Moligamuwa	0.13	*65.1*	*34.9*
Balathgamuwa	0.68	*82.1*	*17.9*
Hemmathagama	0.46	*64.0*	*36.0*
Palliporuwa	0.09	*46.0*	*54.0*
Total	0.26	*74.2*	*25.8*

APPENDIX TABLE 3.9

Percentage Distribution of Operators * and Extent Operated by Size of Holding

Village		Size of Holding (acres) ½ acre or less %	Above ½ - 1 acre %	Above 1 - 2 acres %	Above 2 acres %	Total Operators/ Extent (No. acres)	Average size of holding (acres)
Makadawara	Operators	14	29	36	21	14	
	Extent	2	9	19	70	36.98	2.64
Mawela	Operators	19	10	43	29	21	
	Extent	3	3	28	67	52.25	2.49
Weliwathura	Operators	6	12	12	71	17	
	Extent	1	3	4	92	62.90	3.70
Muruthawela	Operators	17	22	22	39	18	
	Extent	2	5	12	81	60.65	3.38
Hingula	Operators	8	15	23	54	13	
	Extent	..	2	4	94	120.50	9.27
Mawana	Operators	14	14	57	14	7	
	Extent	4	4	54	38	12.78	1.82
Thalapitiya	Operators	50	-	50	-	2	
	Extent	8	-	92	-	1.63	0.82
Devanagala	Operators	30	30	17	22	23	
	Extent	6	14	13	68	41.75	1.82
Medagoda	Operators	33	10	19	38	21	
	Extent	7	3	15	75	44.84	2.13
Alpitiya	Operators	21	21	14	43	14	
	Extent	4	9	8	78	29.57	2.11
Dahanakamulla	Operators	17	-	17	66	6	
	Extent	1	-	7	92	17.87	2.98
Harankahawa	Operators	19	31	31	19	16	
	Extent	7	19	34	41	22.10	1.38
Moligamuwa	Operators	9	36	18	36	11	
	Extent	3	16	13	69	19.80	1.80
Balathgamuwa	Operators	5	18	9	68	22	
	Extent	..	3	3	93	111.71	5.08
Hemmathagama	Operators	5	16	21	58	19	
	Extent	1	4	10	85	65.37	3.44
Palliporuwa	Operators	33	25	25	17	12	
	Extent	11	16	28	45	18.18	1.52
Overall	Operators	17	20	23	40	236	
	Extent	2	5	12	80	718.88	3.05

* Including agricultural labourers with home-gardens above 0.5 acres

.. *Less than 1 per cent*

APPENDIX TABLE 3.10

Percentage distribution of highland operators* and extent operated by size of holding

Village		Size of Holding (acres) ½ acre or less %	Above ½ - 1 acres %	Above 1 - 2 acres %	Above 2 acres %	Total Operators/ Extent (No. acres)	Average size of holding (acres)
Makadawara	Operators	-	57	14	28	7	
	Extent	-	13	8	79	24.50	3.50
Mawela	Operators	14	43	21	21	14	
	Extent	1	16	16	67	35.63	2.54
Weliwathura	Operators	6	19	12	62	16	
	Extent	..	5	5	89	50.82	3.18
Muruthawela	Operators	15	8	23	54	13	
	Extent	2	1	11	86	48.56	3.74
Hingula	Operators	8	8	33	50	12	
	Extent	..	..	6	93	113.87	9.49
Mawana	Operators	33	33	17	17	6	
	Extent	11	23	19	47	7.77	1.30
Thalapitiya	Operators	-	100	-	-	1	
	Extent	-	100	-	-	1.00	1.00
Devanagala	Operators	24	35	12	29	17	
	Extent	4	18	9	68	28.51	1.68
Medagoda	Operators	19	31	25	25	16	
	Extent	4	16	24	56	28.09	1.76
Alpitiya	Operators	30	30	10	30	10	
	Extent	5	17	12	66	16.63	1.66
Dahanakamulla	Operators	-	-	25	75	4	
	Extent	-	-	11	89	13.25	3.31
Harankahawa	Operators	12	62	-	25	8	
	Extent	5	40	-	55	9.60	1.20
Moligamuwa	Operators	-	29	43	29	7	
	Extent	-	16	39	46	12.88	1.84
Balathgamuwa	Operators	-	17	22	61	18	
	Extent	-	3	8	89	91.75	5.10
Hemmathagama	Operators	7	7	57	29	14	
	Extent	1	2	33	64	41.86	2.99
Palliporuwa	Operators	50	17	-	33	6	
	Extent	10	12	-	78	8.37	1.40
Overall	Operators	14	26	22	38	169	
	Extent	1	7	12	79	533.09	3.15

* Including agricultural labourers with home-gardens above 0.5

.. *less than 1 per cent*

APPENDIX TABLE 3.11

Percentage distribution of lowland operators and extent operated by size of holding

Village		Size of Holding (acres) ½ acre or less %	Above ½ - 1 acres %	Above 1 - 2 acres %	Above 2 acres %	Total Operators/ Extent (No. acres)	Average size of holding (acres)
Makadawara	Operators	40	45	10	5	14	
	Extent	19	50	18	14	12.48	0.89
Mawela	Operators	36	36	21	7	20	
	Extent	13	33	36	18	16.62	0.83
Weliwathura	Operators	31	39	23	8	13	
	Extent	15	33	34	19	12.08	0.93
Muruthawela	Operators	36	18	36	9	12	
	Extent	15	12	56	17	12.09	1.01
Hingula	Operators	40	20	20	20	5	
	Extent	13	15	19	53	6.63	1.33
Mawana	Operators	20	20	60	-	5	
	Extent	3	20	77	-	5.01	1.00
Thalapitiya	Operators	100	-	-	-	2	
	Extent	100	-	-	-	0.63	0.31
Devanagala	Operators	67	13	7	13	15	
	Extent	27	12	11	51	13.24	0.88
Medagoda	Operators	56	22	6	17	18	
	Extent	24	21	10	45	16.75	0.93
Alpitiya	Operators	11	33	45	11	9	
	Extent	4	20	51	25	12.94	1.44
Dahanakamulla	Operators	20	40	40	-	5	
	Extent	5	35	60	-	4.62	0.92
Harankahawa	Operators	39	39	15	8	13	
	Extent	20	38	24	18	12.50	0.96
Moligamuwa	Operators	33	44	22	-	9	
	Extent	17	44	38	-	6.92	0.77
Balathgamuwa	Operators	17	44	39	-	18	
	Extent	8	36	56	-	19.96	1.11
Hemmathagama	Operators	21	37	26	16	19	
	Extent	9	26	31	34	23.51	1.24
Palliporuwa	Operators	30	40	30	-	10	
	Extent	15	39	46	-	9.81	0.98
Overall	Operators	36	33	23	8	187	
	Extent	15	29	35	22	185.79	0.99

APPENDIX TABLE 3.12

Percentage distribution of highland operators and extent operated by tenurial category of operators

Village		Sole owners %	Joint owners %	Sole/ Joint %	Others %	Total highland Operators/Ext. (No. acres)	Total agricultural operators No.	Highland Operators as a proportion of all Operators %
Makadawara	Operators	57	43	-	-	7	14	50.0
	Extent	85	15	-	-	24.50		
Mawela	Operators	50	7	7	36	14	21	66.7
	Extent	37	3	27	34	35.63		
Weliwathura	Operators	56	12	31	-	16	17	94.1
	Extent	36	8	56	-	50.82		
Muruthawela	Operators	77	-	-	23	13	18	72.2
	Extent	85	-	-	15	48.56		
Hingula	Operators	58	-	17	25	12	13	92.3
	Extent	46	-	49	5	113.87		
Mawana	Operators	50	17	33	-	6	7	85.7
	Extent	35	13	52	-	7.77		
Thalapitiya	Operators	100	-	-	-	1	2	50.0
	Extent	100	-	-	-	1.00		
Devanagala	Operators	65	18	6	12	17	23	73.9
	Extent	60	13	22	6	28.51		
Medagoda	Operators	75	12	-	12	16	21	76.2
	Extent	84	5	-	12	28.09		
Alpitiya	Operators	70	10	-	20	10	14	71.4
	Extent	49	15	-	36	16.63		
Dahanakamulla	Operators	50	25	25	-	4	6	66.7
	Extent	58	30	11	-	13.25		
Harankahawa	Operators	62	12	-	25	8	16	50.0
	Extent	55	6	-	39	9.60		
Moligamuwa	Operators	29	14	-	57	7	11	63.3
	Extent	30	16	-	54	12.88		
Balathgamuwa	Operators	83	6	-	11	18	22	81.8
	Extent	95	1	-	4	91.75		
Hemmathagama	Operators	57	14	21	7	14	19	73.7
	Extent	67	20	9	4	41.86		
Palliporuwa	Operators	67	-	-	33	6	12	50.0
	Extent	58	-	-	42	8.37		
Overall	Operators	63	11	9	17	169	236	71.6
	Extent	63	6	21	10	533.09		

APPENDIX TABLE 4.1

Annual Highland Crop Production

(Value and Composition)

Village	Rubber		Coconut		Banana		Minor Export Crops		Total		Other Crops		Grand Total	
	Rupees	%	Rupees	%	Rupees	%	Rupees	%	Rupees	%	Rupees	%	Rupees	%
Makadawara	4,561	45	4,471	44	612	6	175	2	9,819	97	317	3	10,136	100
Mawela	700	10	3,315	46	2,000	28	229	3	6,244	88	888	12	7,132	100
Weliwathura	6,466	33	4,820	25	1,319	7	3,742	19	16,347	84	3,152	16	19,499	100
Muruthawela	4,365	21	11,111	53	4,368	21	326	2	20,170	96	896	4	21,066	100
Hingula	24,420	52	10,328	22	5,105	11	376	1	40,229	86	6,716	14	46,945	100
Mawana	-	-	3,638	61	1,880	32	214	4	5,732	96	228	4	5,960	100
Thalapitiya	-	-	35	7	450	93	-	-	485	100	-	-	485	100
Devanagala	825	12	3,180	48	936	14	635	9	5,576	83	1,117	17	6,693	100
Medagoda	1,627	31	2,734	53	440	8	373	7	5,174	99	27	1	5,201	100
Alpitiya	689	10	2,870	40	2,550	36	459	6	6,568	92	599	8	7,167	100
Dahanakamulla	2,445	76	645	20	12	-	56	2	3,158	98	55	2	3,213	100
Harankahawa	-	-	485	48	265	26	88	9	838	83	176	17	1,014	100
Moligamuwa	764	15	1,368	27	1,100	22	665	13	3,897	77	1,135	23	5,032	100
Balathgamuwa	2,380	10	3,044	13	3,945	17	11,516	49	20,885	90	2,447	10	23,332	100
Hemmathagama	14,128	53	7,725	29	2,020	8	683	3	24,556	100	27	-	24,583	100
Palliporuwa	320	15	953	45	349	16	170	8	1,792	84	335	16	2,127	100
Total	63,690	33	60,722	32	27,351	14	19,707	10	171,470	90	18,115	10	189,585	100

APPENDIX TABLE 4.2

Intensity of Fertilizer Use (Annual)

Village	Quantity of fertilizer cwt	Extent fertilized acres	Quantity per acre cwt
Makadawara	28.1	22.96	1.2
Mawela	31.1	29.56	1.1
Weliwathura	25.5	17.29	1.5
Muruthawela	37.9	21.40	1.8
Hingula	10.8	12.13	0.9
Mawana	4.4	7.37	0.6
Thalapitiya	0.4	1.13	0.4
Devanagala	39.2	26.23	1.5
Medagoda	70.4	32.76	2.1
Alpitiya	30.3	23.38	1.3
Dahanakamulla	12.7	8.01	1.6
Harankahawa	35.1	22.25	1.6
Moligamuwa	35.7	12.15	2.9
Balathgamuwa	88.9	37.46	2.4
Hemmathagama	80.8	41.44	1.9
Palliporuwa	33.5	14.87	2.3
Total	564.8	330.39	1.7

APPENDIX TABLE 5.1

Characteristics of the Labour Force

Village	Educational Status					Age						
	Illiterate	Up to 5th	6th to 9th	SSC or higher	Total	6-13	14-20	21-25	26-35	35-50	Above 50	Total
Makadawara	12	34	26	4	76	-	13	12	26	15	10	76
Mawela	38	52	43	9	142	-	38	21	36	30	17	142
Weliwathura	10	32	32	7	81	-	20	17	19	18	8	81
Muruthawela	15	35	48	5	103	-	23	19	18	34	9	103
Hingula	19	27	64	27	137	-	30	22	31	35	19	137
Mawana	17	30	38	1	86	-	20	12	20	26	8	86
Thalapitiya	22	31	13	2	68	1	17	15	19	15	1	68
Devanagala	4	30	26	17	77	-	9	15	18	26	9	77
Medagoda	17	37	31	6	91	-	25	15	23	18	10	91
Alpitiya	13	26	31	6	76	-	12	8	24	19	13	76
Dahanakamulla	1	15	15	2	33	-	5	9	8	6	5	33
Harankahawa	14	39	18	5	76	1	18	9	24	17	7	76
Moligamuwa	19	29	22	5	75	1	21	14	10	20	9	75
Balathgamuwa	14	41	26	6	87	-	19	13	22	20	13	87
Hemmathagama	8	14	37	22	81	-	12	16	18	18	17	81
Palliporuwa	9	30	33	9	81	-	11	14	18	26	12	81

APPENDIX TABLE 5.2

Composition of Agricultural Income

Village	Income per household reporting the source				No.of households	Agricultural income per household with agricultural workers				
	Paddy	Other crops	Livestock	Other		Paddy	Other crops	Livestock	Land rent	Wages of agricultural labour
Makadawara	968	595	243	1,168	20	678	357	45	-	665
Mawela	413	294	85	906	38	206	201	4	-	8
Weliwathura	896	1,001	147	628	22	530	728	20	93	363
Muruthawela	760	1,402	183	756	21	362	1,068	26	18	363
Hingula	1,510	2,150	218	2,251	16	472	1,882	27	1,244	304
Mawana	266	648	-	444	11	121	295	-	82	241
Thalapitiya	225	132	250	1,740	21	21	69	12	12	71
Devanagala	1,352	469	180	717	19	640	395	10	28	312
Dahanakamulla	333	396	-	2,036	9	185	220	-	-	1,131
Harankahawa	575	355	-	614	20	345	195	-	-	461
Moligamuwa	845	457	150	1,156	15	507	305	10	84	841
Balathgamuwa	1,285	1,068	183	654	22	1,052	971	33	66	112
Hemmathagama	1,412	786	-	943	20	1,342	629	-	215	209
Palliporuwa	816	149	62	316	29	281	82	4	-	-

APPENDIX TABLE 5.3

Percentage of Total Income Received by each income group

Village	Rupees Up to 1,200	1,201-2,400	2,401-4,800	4,801-7,200	Above 7,201
Makadawara	6.6	20.5	39.9	16.1	16.9
Mawela	5.9	15.9	28.0	4.3	45.9
Weliwathura	5.5	20.2	48.3	26.0	-
Muruthawela	8.5	21.5	23.4	26.0	20.7
Hingula	4.1	11.7	25.5	10.3	48.4
Mawana	12.3	36.1	42.1	9.4	-
Thalapitiya	2.6	33.8	43.8	19.8	-
Pavanagala	7.4	9.3	33.5	16.1	33.8
Medagoda	15.3	34.3	38.4	11.9	-
Alpitiya	12.1	31.8	38.8	-	17.3
Dahanakamulla	13.8	28.5	29.6	28.2	-
Harankahawa	23.6	17.0	27.6	31.8	-
Moligamuwa	21.4	28.9	30.8	-	18.7
Balathgamuwa	9.9	21.6	26.8	8.0	33.8
Hemmathagama	4.2	10.5	11.2	5.1	69.0
Palliporuwa	2.3	17.6	31.8	29.3	19.0

APPENDIX TABLE 6.1

Marketing of agricultural products during 1973/74
(percentage distribution of quantity and price of produce marketed through various channels)

Crop	Total prod.	% of Total prod. sold	Co-operative: % of Total sales	Co-operative: Price Range Rs	C.P.D. *: % of Total sales	C.P.D. *: Price Range Rs.	Agents: % of Total sales	Agents: Price Range Rs	Village Traders: % of Total sales	Village Traders: Price Range Rs.	Outside Traders: % of Total sales	Outside Traders: Price Range Rs	Latex collecting centres: % of Total sales	Latex collecting centres: Price Range Rs	Others[1]: % of Total Sales	Others[1]: Price Range Rs
Paddy	10,160 bushels	15.2	94.9	25.00-30.00	-	-	0.5	30.00	2.3	25.00-35.00	2.4	35.00-40.00	-	-	-	-
Plantains	5,905 bunches	84.2	-	-	-	-	1.3	2.00-3.00	79.4	3.60-8.00	19.2	4.00-8.50	-	-	0.1	3.00
Coconuts	177,722 nuts	44.5	-	-	-	-	0.8	0.30	69.6	0.23-0.42	16.1	0.25-0.38	-	-	13.5	0.30-0.35
Rubber[2]																
Latex	58,610 lbs	100.0	-	-	3.6	0.80-1.10	29.5	0.80-.85	14.6	0.90-1.00	9.8	1.00-1.40	54.00-	0.80-1.05	9.2	0.65-1.03
Sheet	24,422 lbs	100.0	-	-	14.1				4.4		42.1		8.6		1.2	
Tea	12,668 lbs	100.0	-	-	-	-	2.8	0.20-0.30	28.2	0.16-0.35	42.2	0.16-0.25	-	-	26.8	0.19-0.35
Pepper	1,188 lbs	72.2	-	-	-	-	-	-	32.2	2.00-6.50	76.8	2.50-5.00	-	-	-	-
Cloves	74.5 lbs	98.7	-	-	-	-	-	-	16.3	18.00-20.00	83.7	12.00-25.00	-	-	-	-
Eggs	5,045 Nos.	33.7	-	-	-	-	-	-	88.2	0.30-0.35	-	-	-	-	11.8	0.50
Milk	2,460 bottles	65.4	-	-	-	-	-	-	62.7	0.50	37.3	0.60	-	-	-	-

[1]Others' In case of coconut, neighbours; tea, outside collecting persons; and rubber, estate factory.

[2]The reported price relates to per lb of dry rubber content.

* C.P.D. = Commodity Purchase Department