KURUNEGALA DISTRICT RURAL DEVELOPMENT PROJECT :

AN ANALYSIS OF THE PRE-PROJECT SITUATION

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FOREWORD

It has now become the practice for almost all the International Funding Agencies to insist on having an explicit monitoring and evaluation component, as an integral part of the project itself on all Development Projects funded by them. In pursuance of this policy the World Bank in its Staff Appraisal Report (1977) of the Kurunegala Integrated Rural Development Project recommended that the monitoring and evaluation of the Project should be done by an independent agency like the ARTI. Consequently, the Ministry of Plan Implementation commissioned the ARTI to undertake this task but due to the limited resources available to it the ARTI agreed to undertake only the evaluation part.

Evaluation of the Kurunegala Project is the first of its kind undertaken by the ARTI. Therefore it had to seek assistance from the World Bank to prepare the evaluation programme and this was forthcoming from several World Bank Officials including Dr Prem Garg. The Evaluation Plan was made available to the World Bank the Project Management and the Heads of other agencies implementing the various components of the project.

The evaluation of the Kurunegala Project consists of a base-line survey and several other indepth and management oriented studies. This report deals with the results of the base-line survey. It is an attempt to analyse the pre-project situation of the district. The aim of this analysis is of two fold. Firstly it is to serve as a record of the socio-economic conditions of the people before the commencement of the project for the purpose of observing its effects as the project proceeds and comparing the pre-project situation with the post-project situation. Secondly, it is to provide some information and knowledge about the situation prior to the commencement of development activities to the project management and the implementing agencies so that they could formulate their programmes and measure progress more effectively.

In accordance with the evaluation plan the base-line study is to be followed by a number of indepth studies on selected project components and related policy issues. It is intended that these studies will assist the management in their effort for an efficient and effective implementation of the project. It is also hoped that these studies will help the project managers in other districts in organising their activities.

Evaluation of rural development projects is a relatively new concept and hardly any literature is available on experiences from other countries. Our ultimute aim therefore is to develop some methodology for the evaluation of rural development projects in a simpler and less expensive manner. I trust that this attempt will contribute towards this goal.

T B Subasinghe
DIRECTOR.

ACKNOWLEDGEMENTS

We wish to place on record our deep appreciation to all those who contributed in completing this assignment. Some of them, in particular, deserve special reference.

Messrs N J A L Jayasuriya, D G Karunaratne, G S I Ranatunga, N S B Epakanda, D T Dantanarayana, S E A Kurundukumbura and D de Rosairo, Statistical Investigators of this Institute along with Statistical Investigators of the Department of Census and Statistics in Kurunegala District assisted in the collection of field data. The ARTI investigators subsequently handled the data tabulation. The services of both teams of officers are deeply appreciated.

A number of officers from the Project office, the Kachchery including the statistical office and the AGA offices in Kurunegala District helped us in the organisation of field data collection. Mr S Kathirkamanathan, then Government Agent, Kurunegala, Mr Colman Ebert, then Project Director, Mr W A L Fernando and Mr B A R Dewapuraratne, then Statistical Officers, need special mention in this connection.

A part of this document is based on data collected in the National Agrarian Sample Survey, a national survey undertaken by the ARTI. In this connection we wish to acknowledge the assistance given by Miss T Sanmugam (Research & Training Officer) in making available the relevant information for the present purpose. Mr Ranjith Fernando (Statistical Assistant) assisted in this work.

Helpful comments given by Members of Visiting World Bank Teams, Staff of Regional Development Division of the Ministry of Plan Implementation, Project Staff and colleagues at the ARTI are also gratefully acknowledged. However, the authors themselves are responsible for any remaining errors.

All secretarial work in connection with this study were handled by Miss Punyakanthi Perera, Steno/Typist at the ARTI. She is responsible for the organisation of this report in its present form and for its typing.

AUTHORS.

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SUMMARY AND CONCLUSIONS

1. This analysis presents a bench mark assessment of the social, economic and farming conditions in the Kurunegala district prior to the implementation of the Kurunegala Rural Development Project. It is based on the National Agrarian Sample Survey and the supplementary baseline survey carried out for the purpose of pre-project assessment. The highlights of the study findings are presented below along with some issues from them.

2. GENERAL CHARACTERISTICS OF THE PROJECT BENEFICIARIES

2.1 Kurunegala, the third largest district by extent, with a predominantly Sinhala-rural population, has a population density of about 620 per sq. mile which varies considerably within the district - from less than 400 in the northern parts to over 1000 per sq. mile in the southeast. The population is characterised by the marked variation in the age composition of the household members among the three zones in the district. The dependency ratio of 50.4 for the wet zone is the lowest compared with 63.7 for the intermediate zone and 72.1 for the dry zone.

2.2 The literacy rate is high (89%) in the district with marginal inter-zonal variation. The age-specific school participation rates are also generally high with no significant difference between rates for males and females. Further, except for the age group 15-19 years, there is hardly any variation in the school participation rates between zones. School participation rates classified by household income indicate that, for the three age groups (5-9, 10-14 and 15-19 years), there is a tendency to associate higher participation rates with higher income levels. This seems to be true for all zones. On comparing the inter-zonal variations of the educational attainments of household members aged 15 years and over, it is observable that relatively larger proportions in the intermediate zone have attained higher educational levels.

2.3 Whilst inter-zonal differences exist the general lack of ready accessibility to some basic service institutions such as village fair (pola), government dispensary, in the three zones is evident.

2.4 The pattern of ownership of houses show that nearly 90% are owner-occupied houses and the zone-wise variation is marginal. The proportion of houses built on crown land increases as we move from the wet zone (2%) to dry zone (31%). The proportion of small houses (500 sq. ft. or less) in the dry zone is much higher (63%) than the wet zone (37%). Only about one-fourth of the houses in the district are with permanent structures, and not more than three-fourth of the houses have detached kitchen. In the basis of 'a minimum floor area per person', the proportion of overcrowded houses varies from 9% in the wet zone to 23% in the dry zone.

2.5 The sources of water supply used for both drinking and bathing are fairly satisfactory except in the dry zone. Sanitaty facilities in some parts of the district are poor and less satisfactory; the proportion of household without toilet facilities being 7%, 43% and 76% for wet, intermediate and dry zones respectively.

2.6 With regard to the source of medical treatment sought during common illness, allopathic treatment seems to be the most popular among majority of the households with 96% seeking it. The immunization practices in the wet zone are much better and higher than the other two zones.

2.7 Comparatively high Physical Quality of Life Index (PQLI) was observed for the district; the figures being 88.6 for males & 87.9 for females.

3. LABOUR FORCE EMPLOYMENT AND INCOME

3.1 The labour force, defined to include the persons in the age group 15-64, consists of 61 percent of the population in the sample households in the district. The proportion varies from

58 percent in the Dry Zone to 66 percent in the Wet Zone. There is no marked difference in the male-female composition of the labour force. The labour force is dominated by relatively young age groups. Two-fifth of the labour force comprises of persons aging 20-34 years. Formal educational achievements of the labour force are relatively high since about 48 percent has had education up to grade 6 and higher.

3.2 The level of employment observed in the district is lower than that is found generally in the rural sector of Sri Lanka. About 48 percent of the labour force in the district was employed at the time of the survey. This figure excludes housewives and includes other unpaid family helpers. However, the figure varies from a low 38 percent for the wet zone to a moderate 58 percent for the Dry Zone. The majority of employed belongs to the age group 35-54 years. About half of the employed has had secondary and higher education.

3.3 Agricultural activities predominate in the occupational structure. About two-thirds of employed are engaged mainly in self employment categorised as agriculture, industry, trade and medical professions while the rest is in paid/salaried employment. Government and bank service figure prominantly in the latter category, especially in the Intermediate zone. Agricultural and industrial labour are less important as main occupations in which only about 4 percent of the employed are engaged. Domestic and other unclassified labouring work provides employment to 13 percent of employed. This is of particular importance in the wet zone where the majority is in paid/salaried employment. Although the main occupation of the majority is farming, they engage in subsidiary activities such as labouring in both agriculture and non-agriculture, trading, brick making etc., to supplement their incomes. This feature is present more in the intermediate zone than in the other two zones. Some of the traders, transport workers and Govt. servants are also engaged in part-time farming.

3.4 In conformity with the situation generally found in the rural sector, about 15 percent of the labour force remains unemployed, in the Kurunegala district. The unemployment rate is lowest in the Dry Zone while it is highest in the Wet Zone. Unemployment is more among the young and those who have lower formal educational qualifications. About 55 percent of the unemployed belongs to the age group 20-34 and the majority has formal educational attainments below the G.C.E. (Ordinary Level). Added to the category of unemployed are the job-seeking housewives who have formal educational attainments even up to G.C.E. (Ordinary Level). About a forth of such housewives and a half of the presently unemployed were actually seeking jobs at the time of the survey.

3.5 Agriculture dominates the sources of income of the sample households. Self employment in agriculture clearly dominates over the supplying of hired labour. Among the self employment in agriculture, paddy and coconut provide an income to about two-thirds of the households in the district. However, the relative importance of paddy and coconut varies among the zones. For example, in the wet zone, coconut clearly predominates in the income structure while paddy and other subsidiary food crops are the most important sources of income of the dry zone households. In the intermediate zone, there is no marked difference between paddy and coconut. Supplying of hired labour in non-agricultural activities is the second most important income source in the wet zone households.

3.6 About a third of the household income[1] is derived from paddy cultivation while coconut and Govt. service each provide about a fifth of the household income, taken all zones together. In the dry zone, however, more than half of the household income is from paddy cultivation. Supply of hired labour in non-agriculture dominates the household income composition in the wet zone. Paddy, coconut and Government service together provides about three-forth of the household income in the intermediate zone.

1 Unless otherwise specified, "income" here refers to gross income.

3.7 The overall annual average income per household is Rs. 5654/- . This figure varies from Rs. 5813/- in the wet zone to Rs. 6508/- in the dry zone. Annual income per income receiver is Rs. 4233/- for all zones. This varies from Rs. 4032/- in the wet zone to Rs. 5380/- in the dry zone. The overall annual per capita income is Rs. 1075/- and varies from Rs. 1037/- in the intermediate zone to Rs. 2325/- in the dry zone.

3.8 Over 70 percent of the income receivers in the district get an annual income below Rs. 4000/- . About 75 percent of the population receives an annual income below the mean per capita income (Rs. 1075). About 51 percent of the households in the district receives an income below Rs. 4000/- per annum or Rs. 334/- per month.

3.9 The analysis suggests a relatively high concentration of income among upper income groups. The highest two income groups in the district comprise of only 2.4% of the households whereas they receives 14.6% of the total annual income. On the other-hand, the lowest 2 income groups comprise of 51.2% of the households whereas they receive only 1.9% of the income. Thus, the present income distribution is highly skewed ahd this is more uneven in the intermediate zone than in the other two zones.

4. LAND USE AND LAND TENURE

4.1 The land use pattern in the district is dominated by coconut and paddy. An important observation that can be made is the important position occupied by homegardems in the land use pattern. These lands consisting primarily of coconut interplanted with other crops, are substantial in extent, and therefore need special consideration in development. The investments under the project are directed towards the development of paddy and coconut land in the district, and it is necessary to watch carefully whether the coconut development programmes will have an impact on these home gardens. The questions that arise in the development of these lands are the small size of many of

these lands and the mixed garden type of culture, which makes it difficult for the growers to perceive the need for as well as to adopt development measures.

4.2 The average size of the land holding was largest in the dry and smallest in the wet zone.

	WET	INTERMEDIATE	DRY
Average size of total holding (Ac)	1.83	3.22	3.75
Average size of the paddy holdings (Ac)	0.69	1.56	2.29
Average size of the highland holding (Ac)	0.66	2.18	2.00

Unlike in the case of paddy holding which confirmed to this general pattern, the highland holding in the Intermediate zone was slightly larger compared with the dry zone.

4.3 In terms of the average size of holding although both the Intermediate and dry zones presents a satisfactory picture, uneveness in distribution is evident from the survey data. For example in the intermediate zone which occupies a very large part of the district, holding below 2½ acres although constituted 52% of the holdings, occupied only a marginal 16% of land. It must be added that the data refers to land operated by a sample of rural households, thus excluding the estates from the picture, which if included would have aggravated the land distribution picture further.

4.4 In an attempt to establish a relationship between land ownership or operation with employment, households were classified into the following three categories on the basis of land ownership and operation.

Category I - Landless households and households with home garden only*
Category II - Households with limited land.*
Category III - Households with adequate land*

* See text for definitions.

On the basis of this classification 13% of households fell into category I, 38% to category II and 48% to category III. Hence it could be assumed that about half the households have adequate resources to benefit from agricultural development activities.

4.5 Casual labour and regular labour are the main avenues of employment of category I. This group of people who are landless earn their living through sale of their labour are usually the poorest groups in the society. It can be assumed that around 8% of the households in the district belong to this category. They need special attention in development. Agricultural development activities anticipated in the project are unlikely to help them.

4.6 The irrigation conditions for paddy farming is dominated by lands under minor irrigation (mainly village tanks) and rainfed lands. The irrigated (major and minor) lands are mostly in the drier areas of the district and hence development of irrigation would benefit these areas most.

4.7 The ownership of paddy land in the three zones of the district is similar. The extent of paddy land singly owned and cultivated by owners themselves did not exceed 60% of total land, indicating that more than 40% of the extent is owned and/or cultivated under various other forms of tenancy which have a strong bearing on productivity of paddy land.

5. FARMING CHARACTERISTICS

5.1 Due to its location Kuruengala district shows certain distinct features of interest peculiar to it. The water supply position for paddy cultivation is generally poor and it gradually deteriorates as one moves from south to north, but probably improves somewhat again towards the northern end. This could be due to the greater influence of the north-east monsoon in this area.

5.2 The irrigation for paddy farming is largely through minor irrigation. Only limited improvements to these irrigation structures are possible and hence any improvements to irrigation should be accompanied by careful management of water and maximum use of rainfall, in the Maha season. This is well conceived under the project. However sowing should not be advanced too much. The message should be a broader one than mere early sowing; it should also involve timely harvesting which means the early establishment of the crop as well as the shortening of the field period. The merits of transplanting in this regard should be examined. It seems that technology of dry sowing should be improved further and a substantial extension input needed to popularise it.

5.3 The important characteristics of paddy farming in the district are as follows: (a) very high usage of new improved varieties, particularly the short aged varieties (b) relatively high usage of fertilizers; the rate of Nitrogen application even exceeded the recommended amounts in some instances (c) high rate of usage of pesticides for pest control (d) crop establishment largely through broadcast sowing with some dry sowing (e) less importance placed on transplanting and weed control when compared to other cultural practices (f) use of tractors for land preparation in the northern parts of the district while buffaloes are the main source of power in the south (g) the general tendency to prolong the cultivation (largely due to late establishment of the crop) and (h) the very high dependence on family labour for cultivation operations.

5.4 In the future development of farming much emphasis should be placed on labour intensive practices of transplanting and weed control. If the project is to help the landless in the district the simplest way of achieving this objective is through the creation of employment opportunities within the agricultural sector.

5.5 At the subsidised price fertilizer is a relatively cheap input to the farmer although the country has to incure a tremendous

cost to bear the subsidy bill. Hence it is of utmost importance that complementary practices (weed control in particular and transplanting if applicable) are encouraged to get the best out of fertilizer. At present about 30% of the cash farm expenses are spent on fertilizer and agrochemicals.

5.6 Cost of hiring tractors and buffaloes alone consisted of 40% of the cash costs and should go up further with time. This is one area which needs attention of the researchers both to reduce cost as well as to shorten the time taken for land preparation. Furthermore, as it is the northern parts of the district where tractors are mostly used for land preparation, the credit programmes under the project for farm machinery should attempt to serve the needs of these areas.

5.7 Although a two zone classification is attempted in the discussion for the convenience of presenting a picture of the heterogeneity of the district, it should be added that the conditions gradually charge as one moves from south to north.

5.8 Home gardens occupy an important position as coconut lands in the district. The productivity of coconut according to the NASS data for the period May 1978 - April 1979 was 1430 nuts/acre. This compares well with the figures presented in the 1977 survey. Fertilizer use was reported by 5% of the farmers and the extent of land involved was 4%. Coconut land development measures such as land rehabilitation and underplanting have been undertaken by a small proportion of coconut holders in the year corresponding to the survey period. The project targets in this regard too are modest except for fertilizer.

CHAPTER 1

I N T R O D U C T I O N

1.1 GENERAL

Kurunegala District Integrated Rural Development Project is the first of such projects launched in Sri Lanka. The project aims at achieving the inter-related objectives of raising agricultural productivity, employment, incomes and living standards of the rural population in the Kurunegala district. It also aims to evolve a replicable model of regional development for the country. The overall implementation was scheduled from 1979-83 with a total investment of Rs. 465 million, financed through a long-term credit from the International Development Association (IDA) covering about 70% of the total cost.

In view of the prototype nature of the project, high priority has been given by the IDA for evaluating the direct impact of the project as well as socio-economic characteristics of the project beneficiaries. On the advice of the IDA, the Ministry of Plan Implementation - the implementing agency - commissioned the Agrarian Research & Training Institute (ARTI) to undertake studies for the overall evaluation of the project. As outlined in ARTI (1980) "Evaluation Plan for the Kurunegala Rural Development Project", one of the objectives of evaluation of the project is "to establish a baseline of the social and economic conditions of the inhabitants of the district through studies undertaken prior to the commencement of development activities". This is the requirement which this document attempts to fulfil.

1.2 THE PROJECT AREA

The project covers the entire administrative district of Kurunegala; an area consisting of four historic kingdoms Paduwasnuwara, Dabadeniya, Yapahuwa and Kurunegala. The district, located in the western part of the country, has a land area of about 1850 sq. miles and an estimated population of 1.15 million (in 1979). The population density, average being about 620 per

sq. mile varies considerably within the district - from less than 400 in the northern part to over 1000 per sq. mile in the southeast.

The climate in the project area is tropical with only slight variations in temperatures but heavy, variable rainfall. The two monsoons are primarily responsible for the rainfall - the northeast monsoon brings rainfall to the whole district during October-December and the ~~and the~~ southwest monsoon brings rainfall mostly to the southern part during March-June. The agricultural activities in the district closely follow the rainfall pattern. On the basis of precipitation, the district can be divided into three distinct agro-climatic zones:

Agro-climatic zone	Mean Annual Rainfall (inches)	Coverage in the district
Dry	More than 60	20%
Intermediate (Semi-dry	60 - 75)	70%
(Semi-wet	75 - 90)	
Wet	Less than 90	10%

Out of the total land area of some 1.2 million acres in the district about half is under permanent cultivation. Coconut and paddy are the most important crops covering about 380,000 acres and 170,000 acres respectively. In addition, it is estimated that about 100,000 acres are cropped under chena farming each year. Coconut is the dominant crop in the southern part of the district and paddy land is distributed fairly evenly while chena cultivation is mostly practiced in the northern part of the district. A very large part of the paddy land is either rainfed or fed by small village tanks.

The social infrastructure in the Kurunegala district is generally quite satisfactory, although variations from high standards in town and urban centers to relatively low levels in some parts of the rural interior are also observable.

1.3 OBJECTIVES OF THE BASELINE STUDY

The objectives of the baseline study are,

(a) To document the pre-project situation in the Project area specially in reference to the socio-economic characteristics of the project beneficiaries, the social infrastructure of the area and the pre-developmental farming conditions.

(b) To construct a set of indicators that are sensitive for measurement of developmental changes at the post-project stage.

(c) To assist the Implementing Agencies and the Project Management by providing a better understanding of the Project area.

(d) To examine the major hypotheses underlying the project and the project design in relation to the pre-project situation of the Project area with a view of highlighting any deficiencies in the design and resource allocation under the project.

(e) To gain such experience that may require to formulate and conduct a comprehensive post-project study.

1.4 SOURCES OF AVAILABLE STATISTICAL INFORMATION/SURVEYS

At appraisal, it was anticipated that substantial statistical information that is required for the baseline study will be available from the following national sample surveys.[1]

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1 World Bank (1979); Sri Lanka staff appraisal report, Kurunegala Rural Development Project p. 45

	SURVEY	CONDUCTED BY
1.	National Agrarian Sample Survey	Agrarian Research & Training Institute
2.	Consumer Finance Survey	Central Bank of Ceylon

The National Agrarian Sample Survey (NASS) aims to "collect, periodically the agrarian and other socio-economic data relevant in the evaluation and planning of agricultural development programme". The NASS was conducted by the Agrarian Research & Training Institute with the assistance of the Department of Census and Statistics, the Department of Agriculture, the Central Bank of Ceylon. On the other hand, the Consumer Finance Survey (CFS), being the fourth in the series of the surveys on Consumer Finances in Sri Lanka, aims to "obtain direct estimates of income, consumption, and saving in the fullest possible detail". The important characteristics of these two surveys are given in columns 2 and 3 of Table 1.1 respectively.

From the foregoing it is clear that although the two surveys - NASS and CFS - do provide substantial statistical information, supplementary information with respect of certain sections of the population (specifically non-agricultural households) are needed for the fulfilment of the above listed objectives. In view of this an additional survey, termed Supplementary Base-line Survey (SBLS) was organised and conducted. The important characteristics of SBLS are also listed in Table 1.1 (see column 4) for easy comparison with the NASS and the CFS.

The sampling design adopted for the NASS and the SBLS was a stratified two stage random sample design with villages as primary sampling units (PSUU) and households as secondary sampling units (SSUU). 2% of PSUU from each stratum was selected which amounted to 71 villages (1 in WL, 58 in IL, 10 in DL and 2 in WM[1]).

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1 WL - Low country wet zone, IL - Low country Intermediate zone, DL - Low country Dry Zone and WM - Mid country wet zone.

TABLE 1.1

IMPORTANT CHARACTERISTICS OF NATIONAL AGRARIAN SAMPLE SURVEY (NASS), CONSUMER FINANCE SURVEY (CFS) AND SUPPLEMENTARY BASELINE SURVEY (SBLS)

CHARACTERISTICS	NASS	CFS	SBLS
1. Period of the Survey	June '78 - May '79	October '78 - September '79	May - June '79
2. Basic Unit of Survey	Agricultural Household	Household	Household
3. Sampling Frame of Basic Units	Village-wise list of agricultural operators used for Census of Agriculture (1973) modified by excluding those with home-garden of extent 1/8 acre or less.	List of households prepared for the Survey	Village-wise list of households maintained at Regional Asst. Government Agent Offices
4. Level of Stratification	Four agro-ecological zones; Low country - wet zone (WL), Low country intermediate zone (IL), Low country dry zone (DL) and Mid country wet zone (WM)	Three geographical sectors: Urban, Rural and Estate	Same as for NASS
5. Sampling Design	Stratified two-stage random design with villages as PSUU and households as SSUU.	Stratified three-state design where PSUU and TSUU selected under circular systematic sampling and SSUU randomly with villages/urban wards/ estates as PSUU, blocks of 40-60 households as SSUU and households as TSUU	Same as for NASS
6. Size of Sample	2% of PSUU from each stratum which amounts to 71 villages (1 in WL, 58 in IL, 10 in DL and 2 in WM) and 5 households from each totalling 355 households.	57 rural and 2 urban SSUU with 10 households from each totalling 590 households.	Same PSUU as for NASS (Pilot Study) now with 15 households from each totalling 1017 households.
7. Method of Data Collection	By multiple interviews using a structured questionnaire with 8 schedules	By multiple interviews using a structured questionnaire with 7 schedules	By single interview using a structured questionnaire.
8. Type of Data Collected	NASS 1 : General Household particulars NASS 2 : Land Use & Tenure NASS 3 : Production-Cultivation Practices, Resource Use, Cost & Output for field crops and vegetables NASS 4.1 : Crop Characteristics for perennial crops NASS 4.2 : Production - Details as in NASS 3 - for perennial crops NASS 5 : Disposal of Produce NASS 6 : Problems of Production and Marketing NASS 7 : Off farm employment, Credit and Income	Schedule I : General Household particulars ,, II : Employment & Unemployment ,, III : Health & Land Ownership ,, IV : Expenditure on Food ,, V : Expenditure on non food items ,, VI : Income ,, VII : Saving	General household Particulars Health & Sanitary Conditions Land Use and Tenure Income and it's Composition Idebtedness, Credit Utilization and Saving Livestock Farming Availability of Social Amenties

For the NASS 5 agricultural households[1] from each village were selected, totalling to 355 households while for the SBLS 15 households[2] from each village were selected, totalling to 1017 households. This method of selection does not provide a self-weighting sample. Hence the estimates of important characteristics were obtained using the formula given in the note appearing at the end of this chapter. In the construction of frequency distributions and two way tables however, it was found to be an impossible task to introduce correction factors into all such instances with a view of removing any data biases. It is, therefore, important to bear this fact in mind during the interpretation of data.

The above outline makes it clear that each of the three sources of statistical information available to us contains data pertaining to different aspects of the 'economy' of the Kurunegala district. The mode of utilisation of these sources of information in each Chapter of this document is as follows:-

Chapter 2	-	General characteristics of the Project Beneficiaries - SBLS Data.
Chapter 3	-	Labour force, Employment and Income - SBLS data
Chapter 4	-	Land Use and Land Tenure - SBLS Data
Chapter 5	-	Farming conditions: Paddy Farming & Coconut Cultivation - NASS Data.
Chapter 6	-	Electorate-wise Analysis - SBLS Data.

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1 Agricultural household is defined as a household that consists of one or more operators of agricultural holdings. An agricultural holding consists of all the land and/or livestock used wholly or partly for agricultural production irrespective of title, size, legal form or location and is operated under one management and as a technical unit. However, agricultural holdings consisting of only livestock holdings and/or home gardens less than 1/8th of an acre in extent have been excluded for this survey.

2 Household is defined as a single person or group of persons who lived together and have common cooking arrangements.

A separate paper on consumption and Expenditure patterns based on CFS data will be prepared as an addendum to this document.

In an attempt to arrive at better compatibility, during the analysis of data it was felt necessary in the case of NASS and SBLS slightly to modify the levels of disaggregation indicated in Row (4) of Table 1.1. Thus, the level of disaggregation maintained in respect of each source of data within Chapters 2 - 6 are as follows:-

NASS Data*	SBLS Data*
Dry Zone (DL)**	Dry Zone (DL)**
Intermediate zone (IL)**	Intermediate zone (IL)**
	Wet Zone (WL+WM)**

* During the analysis of NASS data (see chapter 5) the Wet Zone was left out in view of the excessively small sample size.

** For details see appropriate cage in Row (4) of Table 1.1.

In addition, for the fulfilment of objective (c) in Sec. 1.3, steps have been taken to present an analysis based on electorates identified as separate entities for decision making at the Project management level (see Chapter 6).

1.4 SAMPLING AND NON-SAMPLING ERRORS

Since an account of sampling and non-sampling errors of the Consumer Finance Survey (CFS) and the National Agrarian Sample Survey (NASS) will appear in the respective publications, this discussion will limit to that of the Supplementary Baseline Survey (SBLS).

The sampling error - the error due to the use of a particular sampling design - is measured by the standard error of estimate. Using the formulas in the note appearing at the end of the chapter the standard errors of several estimates have been calculated as in Table 1.2. On judging by the co-efficient of variation, except in few cases, the standard errors are

Table 1.2 Estimates, Standard Errors and Coefficient of Variations for Selected Estimates - by zones

		WET			INTERMEDIATE			DRY			ALL ZONES		
		Estimates of			Estimates of			Estimates of			Estimates of		
		Estimate	Std. Error	C.V.(%)	Estimate	Std. Error	C.V.(%)	Estimate	Std. Error	C.V.(%)	Estimate	Std. Error	C.V (%)
1. Average size of Household		5.0034	0.0905	1.81	5.3214	0.0929	1.75	5.1733	0.3211	6.21	5.2871	0.1447	2.74
2. Literacy rate	Male	0.940	0.0556	5.91	0.937	0.0116	1.24	0.938	0.0151	1.61	0.9373	0.0153	1.63
	Female	0.773	0.0434	5.61	0.851	0.0153	1.80	0.801	0.0271	3.38	0.8407	0.0187	2.22
	Both Sex	0.867	0.0394	4.54	0.895	0.0117	1.31	0.872	0.0196	2.25	0.8906	0.0145	1.63
3. Average Floor Area of the house (sq.ft.)		626.74	68.27	10.89	619.85	29.08	4.69	508.01	35.81	7.05	607.74	29.35	4.83
4. Percentage of Households owning	Radios	46.50	15.22	32.73	55.82	2.27	4.07	50.38	5.38	10.68	54.84	2.47	4.50
	Bicycles	18.12	7.71	42.56	41.02	2.34	5.69	49.24	6.79	13.78	41.00	2.50	6.10
5. Average gross income (Rs.)		5561.06	552.51	9.94	5299.43	352.50	6.65	6939.10	1049.19	15.12	5491.22	375.49	6.84
6. Average size of operational holdings (acres)		1.816	0.7192	39.60	3.021	0.2077	6.88	3.777	0.4492	11.89	3.076	0.1868	6.07

generall small. Therefore, as far as the sampling design is concerned, this may be considered as an indication of the reliability of estimates and thus the representativeness of data.

The non-sampling error in SBLS may be mainly due to interviewer bias and response errors. The interviewer bias could have resulted due to several factors. The SBLS was conducted by employing 9 investigators of the ARTI - sent from Colombo, and 18 investigators of the Department of Census and Statistics stationed in Kurunegala district. Although both groups of investigators were trained, the benefit from training may have varied according to the educational background and the experience in this type of field work. Thus, despite continuous supervision, the variance between interviewers would have influenced the manner and mode of interviewing and collecting of data. The response error could have resulted due to the inability of some of the respondents to answer certain questions intelligently and due to wilfully biased answers, specially in the case of income figures. Although every attempt was made to explain the benefits arising from the IRD Project and the imporance of the survey like SBLS so as to secure cooperation of the respondent to obtain accurate answers, factors such as recall lapses may have affected the responses such as crop production.

NOTE

The formulae employed to obtain estimates of the important characteristics from the NASS and SBLS data are given below.

With reference to the sampling design utilized the either 'weighted' or 'unweighted' estimates could have been computed for common 'Statistics' such as means or proportions. On comparing the extent of unbiasedness and efficiency of the two types of estimates in the present context, it was decided to use the unweighted estimates. The corresponding formulae used are as follows:

In a given agro-ecological zone in the district, let,

N be the total number of villages

n be the number of sampled villages

M_i be the total number of households in the i^{th} village ($i = 1, \ldots\ldots\ldots\ldots, n$)

m_i be the number of households sampled from the i^{th} sampled village, ($i = 1, \ldots\ldots\ldots\ldots, n$)

y_{ij} be any observation made on the j^{th} household in the i^{th} village ($i = 1, \ldots\ldots\ldots, n$; $j=1, \ldots\ldots\ldots, m_i$)

and p_i be the proportion of households reporting a particular characteristics in the i^{th} village ($i=1, \ldots\ldots\ldots, n$).

Estimated Mean :

$$\bar{y} = \frac{1}{n} \sum_i \bar{y}_i$$

where $$\bar{y}_i = \frac{1}{m_i} \sum_j y_{ij}$$

Estimated Variance of $\bar{y}$:

$$s^2(\bar{y}) = \left[\frac{1}{n} - \frac{1}{N}\right] s_b^2 + \frac{1}{nN} \sum_i \left[\frac{1}{m_i} - \frac{1}{M_i}\right] s_i^2$$

where $s_b^2 = \frac{1}{n-1} \sum_i [\bar{y}_i - \bar{y}]^2$ and $s_i^2 = \frac{1}{m_i - 1} \sum_j [y_{ij} - \bar{y}_i]^2$

Estimated Proportion :

$$\bar{p} = \frac{1}{n} \sum_i p_i$$

Estimated Variance of $\bar{p}$:

$$s^2(\bar{p}) = \left[\frac{1}{n} - \frac{1}{N}\right] s_b^2 + \frac{1}{nN} \sum_i \left[\frac{1}{m_i} - \frac{1}{M_i}\right] \left[\frac{m_i}{m_i - 1}\right] p_i q_i$$

where $s_b^2 = \frac{1}{n-1} \sum_i (p_i - \bar{p})^2$ and $q_i = 1 - p_i$

CHAPTER 2

GENERAL CHARACTERISTICS OF THE PROJECT BENEFICIATIES

This chapter aims to present the general characteristics of the project beneficiaries. In particular, it covers the demographic characteristics, education status, housing, ownership of household items, availability of basic social amenities, health and sanitation. The analysis presented here is based on the SBLS data. The chapter concludes with an attempt made to construct the Physical Quality Life Index for the Kurunegala district.

2.1 DEMOGRAPHIC CHARACTERISTICS

Although Sri Lanka is a multi-racial, multi-religious and multi-linguitic country, different racial-religious groups are concentrated in specific parts of the country. This is more evident in the Kurunegala district where the sampled households reveal that more than 96% are Sinhala-Buddhists (Table A1).[1]

As stated in Section 1.4 the basic unit of investigation in this study was the "household". The average size of household for the district is 5.3. This is slightly smaller than the average size of household of 5.6 reported for Sri Lanka in 1973[2]. The variation of the mean as well as the median size of the household among the three zones is not appreciable (Table A 2).

It is generally observed that the masculinity ratio (that is, the number of males per 100 females) in Sri Lanka is greater than 100; in 1971, the ratio for the Kurunegala district was 105.3[3]. However, the survey data reveals a ratio of 99.0 for the district, whereas the corresponding figures for wet, intermediate and dry zones are 108.7, 98.3 and 101.1 respectively (Table A 3). The low figure of 98.3 for the intermediate

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1 For detailed Tables, see Annex 2.

2 Report of the Consumer Finance Survey - 1973. Central Bank of Ceylon

3 Census of Population 1971 - Sri Lanka; General Report (1978). D.C. & S Table 5.8 (p. 75).

zone cannot be explained in terms of emigration of males from the district. In contrary, the survey data indicates that during the last two years more females than males have emigrated from this zone; the composition of emigrants being 58% females and 42% males (Table 2.1).

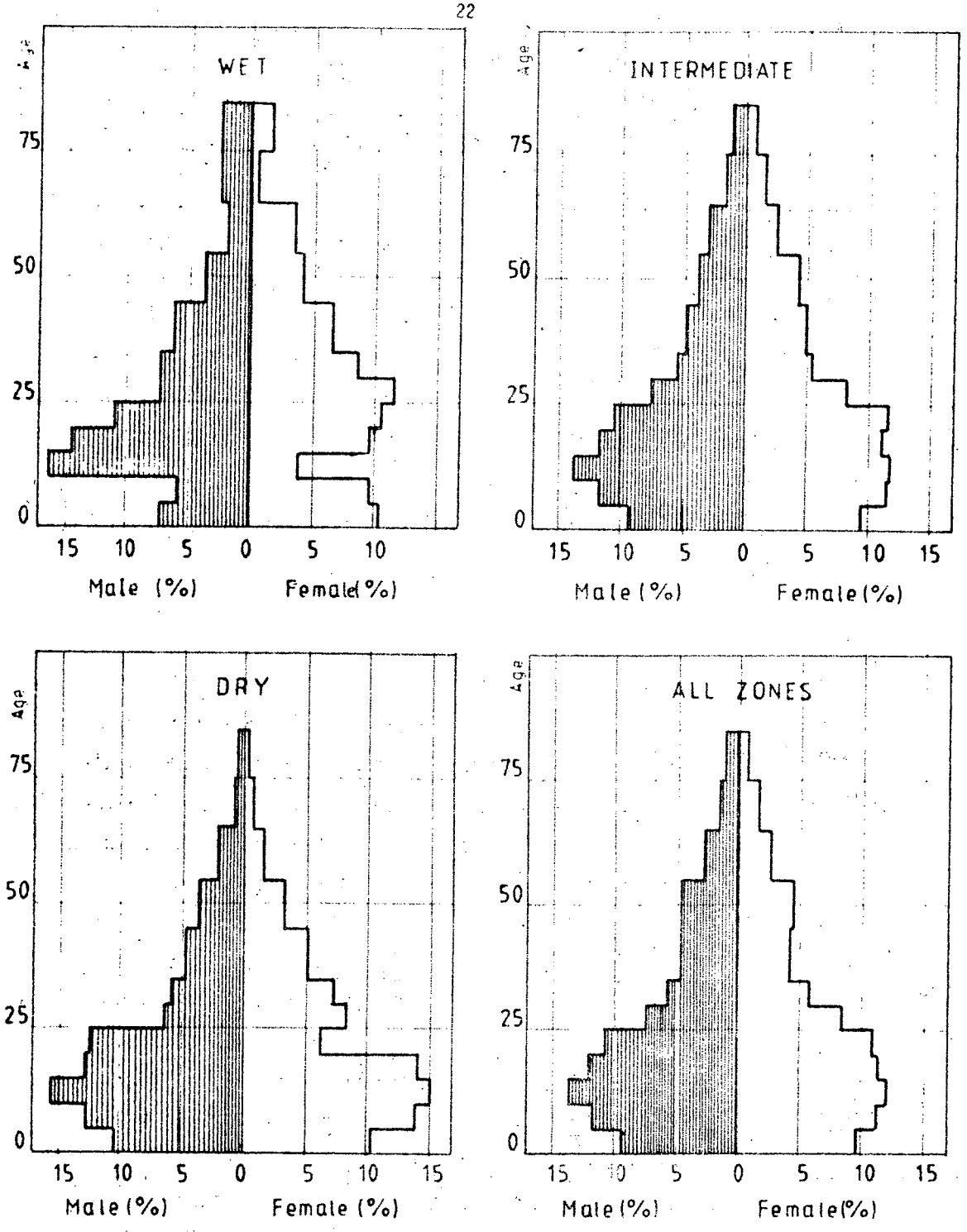
The information regarding the age structure is important in several respects. The populations pyramids which represents the age composition of the sample population in each zone and in the entire district are as in Figure 2.1. In a normal population, that is one not distributed by heavy migratory movements or violent changes in birth or death rates, the age distribution tends to be a smooth curve. Nevertheless, in Figure 2.1, we observe that in all zones of the district the proportion of the population in certain age groups is more than that in the preceeding age group. These changes may have resulted due to sudden changes in birth and death rates rather than emigration[1]. The age pyramids in Figure 2.1 also illustrated marked variation in the age composition of the household members among the three zones in the district. This is further evident from the data in Table 2.2 which also gives the zone-wise dependency ratios; the ratio of 50.4 for the wet zone is the lowest compared with 63.7 for the intermediate zone and 72.1 for the dry zone.

1 The distribution of emigrants from the sampled households during the two year period of the survey (i.e. during May '77 and April '79) by broad age groups, sex and zones are given in Table 2.1.

Table 2.1: Distribution of emigrants from the sampled households during May '77 and April '77 by age groups, sex and zones

AGE GROUP	WET		INTERMEDIATE		DRY		ALL ZONES	
	M	F	M	F	M	F	M	F
0 - 14	0	0	4	11	1	0	5	11
15 - 24	2	1	23	36	2	9	27	46
25 - 64	5	0	21	21	4	1	30	22
65 & over	0	0	2	2	0	0	2	2
TOTAL	7	1	50	70	7	10	64	81

When the above data are compared with the population in the surveyed households, the rate of emigration during the reference period seems to be marginal.



Age Structure of Members in the sample - by Zones

Source Table A3

Figure 2.1

Table 2.2: Percentage distribution of the household members by broad age groups and dependency ratio*

ZONE	AGE GROUPS 0 - 14	15 - 64	65 & over	All ages	Dependency ratio
Wet	26.5	66.5	7.0	100.0	50.4
Inter-mediate	33.6	61.1	5.3	100.0	63.7
Dry	39.2	58.1	2.7	100.0	72.1
ALL ZONES	34.1	60.9	5.0	100.0	64.2

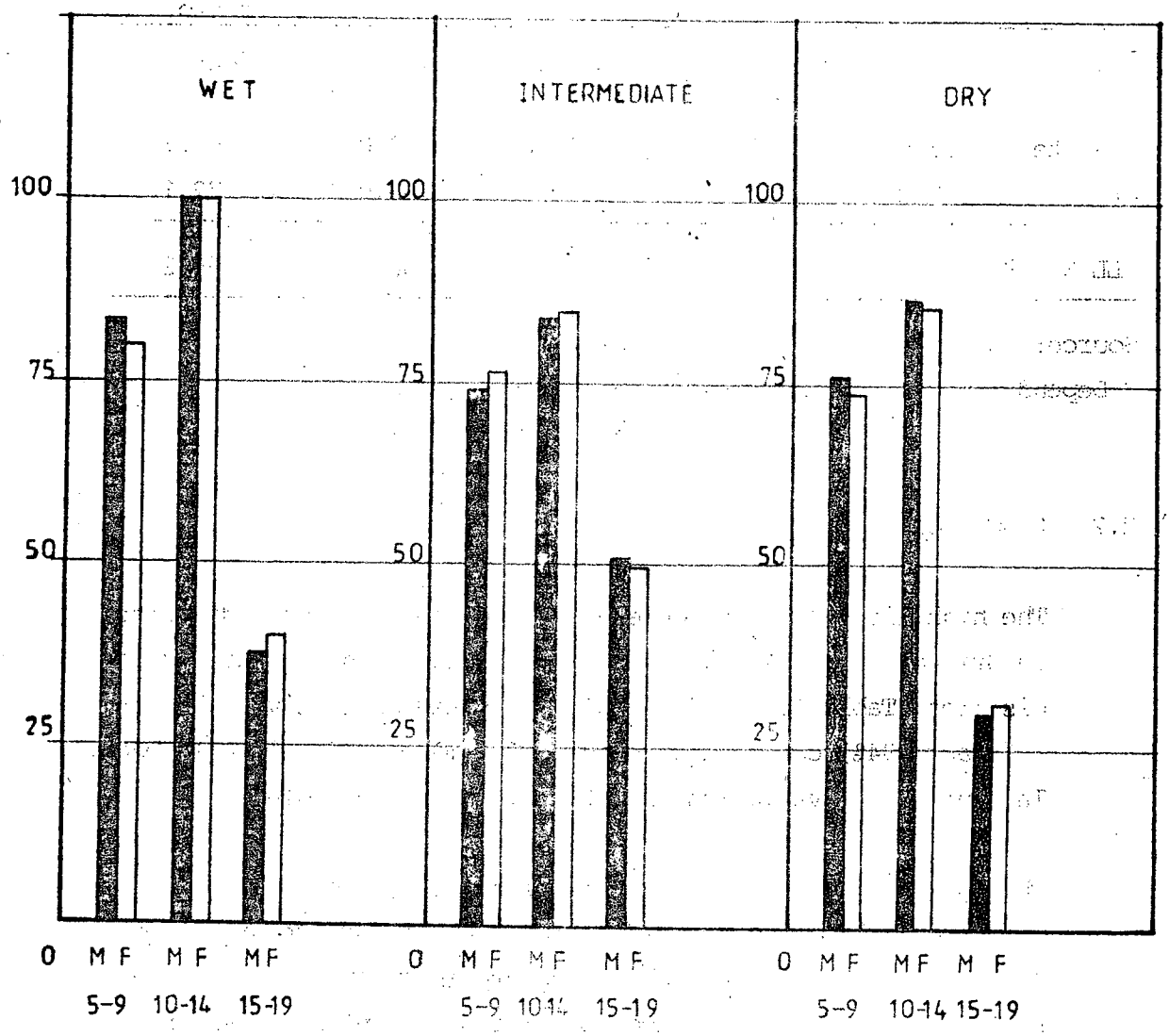
Source: Table A 3

* Dependency Ratio = $\frac{\text{Age group (0-14) + Age group (65 \& over)}}{\text{Age group (15-64)}}$

2.2 EDUCATIONAL STATUS

The high literacy rates generally observable in every district in Sri Lanka is also seen in different zones in the Kurunegala district (Table 1.2). As usually expected males have a higher literacy (94%) compared with that of females (84%) in all zones. The interzonal variation of literacy rates is marginal.

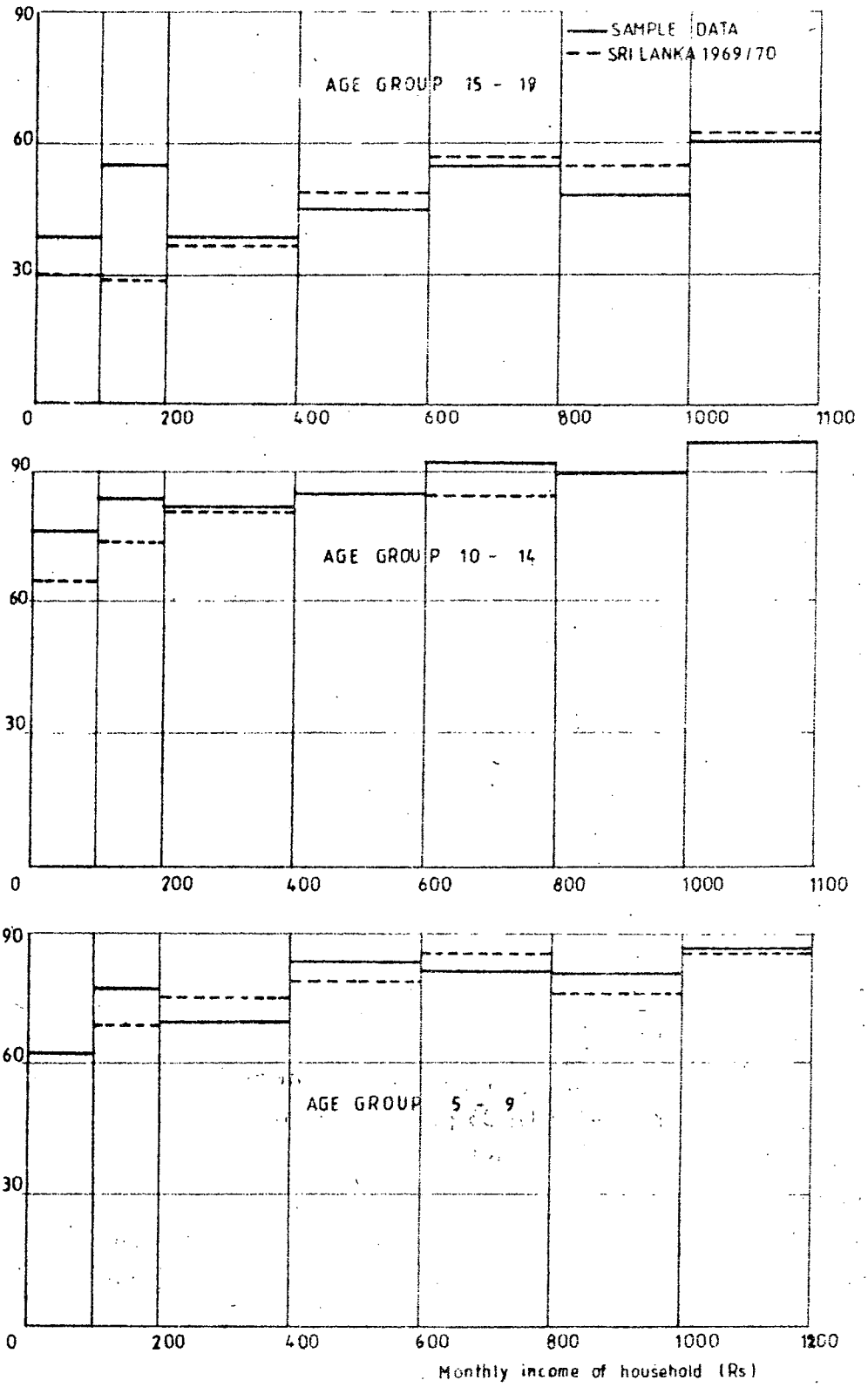
The age-specific school participation rates, that is, the number of school-going children in a particular age group per 100 of the total in that age group are in Table A 4. It presents the age specific school participation rates by sex and by the income of the household. For easy comparison these rates have been diagramatically presented in Figures 2.2, and 2.3. Care should be taken in interpreting certain of these values since the total number of children in the sample falling into some categories was extremely small. An important observation that can be made for these school participation rates is that in a given age group there is no significant difference between the participation rates for males and females. On taking into consideration the limitation imposed by available data, it is observable from Figure 2.2 that except for the age group



Age Specific School partipation rates by sex and by zones.

Source:— Table A4

Figure 2.2



Age Specfic School participation rates for Kurunegala district by monthly household income compared with the figures for Sri Lanka in 1969/70

Source:- Table A4 and Socio Economic Survey of Sri Lanka 1969

Figure 2-3

15-19 years, there is hardly any variation in the school participation rates between zones. Further, these rates are generally high. For the age group 15-19 years, it is observed that the dry zone has the lowest participation rate of 30% compared with 50% for the intermediate zone and 38% for the wet zone. This is generally anticipated because comparatively more farming activities are prevailing in the dry zone.

The school participation rates according to the income of the household (see, Lower part of Table A 4) indicate that for all the three age groups, there is a tendency to associate higher participation rates with higher levels of income. This seems to be true for all zones. Figure 2.4 attempts to compare the participation rates according to income of household for the district with the corresponding figures from the Socio-Economic Survey 1969/70, for Sri Lanka[1]. Although there are marginal differences between the survey data and the 1969/70 data, it revealed that the general pattern has been repeated.

The educational attainments of the household members is also important in characterizing a given community. Table A 5 shows the proportion of household members aged 15 years and over who has attained specific educational levels. It can be observed from the table that the younger age groups are in greater proportions attaining higher educational levels. For example, a comparison of the 25 - 29 age group with the 45 - 54 age group in the wet zone shows that only 5 percent of the former, had no schooling compared with 35 percent among the latter. On comparing the inter-zonal variations it can be seen that relatively larger proportions in the intermediate zone have attained higher educational levels.

2.3 ACCESSIBILITY TO SERVICE CENTRES

Accessibility of villages to basic service centres is also an important criterion requiring attention. Table A 6 presents

1 Dept. of Census and Statistics (1973), Socio-Economic Survey 1969-70 Colombo.

the percentage of villages within various selected distances from 18 service institutions or facilities, considered to be important. Based on this table, we have obtained Figure 2.4 which indicates the service institutions in each zone that are within a specified distance for the majority (i.e. more than 70%) of the villages. Apart from the zone-wise differences, the general lack of ready accessibility to service institutions in the three zones is also clearly evident from this Figure 2.4. Although primary and secondary schools are fairly accessible in all zones, schools providing science education are not available to the majority within 5 miles. The service institution such as cooperative, bazaar and village fair (pola) are important in purchasing of daily needs and marketing of produce. It can be seen that the accessibility to these institutions for a majority in the dry zone is poor. The health centre and the government dispensary are available within 5 miles for the majority in the intermediate and the dry zones. The majority of villages in the wet zone are fortunate being able to have banking facilities within 3 miles. However, in the intermediate and dry zones banking facilities are available to the majority only within 10 miles.

2.4 HOUSING

The average number of rooms[1] per house in the district is 3.03 with wet and dry zones averaging 2.72 and intermediate zone 3.01. About 72% of the houses are with one to three rooms (Table A 7). Further about half of the houses are with floor area of 500 sq. ft. or less (Table A 8). Floor area - wise there is a marked variation between zones; the proportion of houses with floor area of 500 sq. ft. or less in the wet, intermediate and dry zones are 37%, 47% and 63% respectively. This indicates the extent of higher proportion of small houses in the dry zone compared with the wet zone.

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1 In this study "rooms" include all types of rooms such as living rooms, sitting rooms, dining rooms, enclosed varendah, but exclude open verandah and kitchen.

Figure 2.4

Basic service institutions/facilities accessible to the majority (more than 70%) of villages according to distance and zone.

Accessible within	Wet Zone	Intermediate Zone	Dry Zone
2 miles	School - Primary School - Secondary Bazaar Co-operative Bus - route Temple	School - Primary School - Secondary Co - operative Bus - route Temple	School - Primary Co - operative Bus - route Temple
3 miles	Bank	Bazaar Post Office	School - Secondary
5 miles	Post Office	School - Science (O/L) Village fair (Pola) Health Centre Govt. dispensary	School - Science (O/L) Bazaar Village fair (Pola) Health Centre Govt. dispensary Post Office
10 miles	School - Science (O/L) School - Science (A/L) Village fair (Pola) Health Centre Govt. dispensary Hospital Police Station Ag. Service Centre A.G.A. Office	School - Science (A/L) Hospital Bank Police Station Ag. Service Centre A.G.A. Office Railway Station	School-Science (A/L) Hospital Bank Police Station Ag. Service Centre A.G.A. Office Railway Station

Source : Table A 5

Note : The distances have been marked according to scale: 2 cm = 1 mile.

About one-fourth of the houses are with permanent structures. Not more than three-fourth of houses in the district have a separate kitchen. Nevertheless, a much higher proportion has been observed in the wet zone (Table A 9).

Availability of electricity for residents in the district is very poor; only 5% of the households being fortunate of having electricity supply (Table A 9). Whether the houses are generally accessible by a vehicle is also worth considering. A majority of houses (81%) in the district are accessible by a vehicle (Table A 9).

The pattern of ownership of houses show that nearly 90% of the houses in the district are owner - occupied houses and the proportion varies only slightly between the zones. However, the pattern of ownership of the land on which houses have been built indicate that about three-fourth of the houses in the wet and intermediate zones, have been built on own land whereas the proportion for the dry zone is about 58%. The proportion of houses built on crown land increases as we move from the wet zone to the dry zone; nearly one-third of houses in the dry zone are on crown land (Table A 9).

In an attempt to observe the extent of overcrowding in houses, the percentage distribution of houses according to the number of occupants (assuming that all members of a household that have been reported are actually occupying the house) was studied (Table 2.3).

Table 2.3: Percentage distribution of houses according to the number of occupants

No.of occupants	Wet(%)	Intermediate(%)	Dry(%)	All zones(%)
1 - 3	23.3	23.4	27.5	24.0
4 - 6	53.5	47.7	44.4	47.5
7 & over	23.3	28.9	28.2	28.5

Source: Table A 2

It shows that more than one-fourth of the houses in the district are with 7 or more occupants. This may be compared with the figure of 36.4% reported for Sri Lanka according to Census of Housing, 1971[1]. A fair assessment of the degree of overcrowding in houses could be made on the basis of the number of housing units with more than 'a maximum number of persons to a room'. On adopting the standard rate used for Sri Lanka, that is' a maximum of three persons to a room', the proportions of overcrowded houses have been calculated for each zone. As seen from the first row of Table 2.4, on the basis of 'a maximum of three persons per room', about 15% of the houses in the district are overcrowded. As another measure of overcrowding, the proportion of overcrowded houses on the basis of 'a minimum floor area per person [2] was also calculated. As evident from the second row of Table 2.4, on the basis of 'a minimum floor area', about 20% of the houses in the district are overcrowded. This proportion is about 5 percentage points higher than the estimate based on 'maximum number of persons per room.'

Table 2.4: Two measures of overcrowding in houses

On the basis of	Wet	Intermediate	Dry	All zones
1) A maximum of 3 persons per room	18.6	14.8	17.0	15.3
2) A minimum floor area	9.3	20.7	22.7	20.6

Source : 1) Tables A 10, A 11, A 12 and A 13
2) Tables A 14, A 15, A 16 and A 17

1 ESCAP (1976) Population of Ceylon, P. 230

2 The following indicators are used to measure overcrowding:

Floor area (Sq. ft.)	If number of occupants exceed
<100	2
100 - 250	4
250 - 500	6
500 - 1000	8

Source : ESCAP (1976) Population of Ceylon, P. 295

On comparing the sizes of the above two measures with the information in the last row of Table 2.3, it can be concluded that the measure based on 'a minimum floor area' is more suitable in the present context than the measure based on 'a maximum of 3 persons per room'. This is substantiated by the fact that the measure based on 'a maximum of 3 persons per room' is more appropriate in situations where rooms are of relatively uniform size; and this is particularly absent in rural areas like Kurunegala district.

An attempt was also made to study the relationship that exists between the size of the household and the floor area of the house in statistical terms. It was observed that the following log-linear regression model reasonably fits the data for the district.

$$\text{Log}_{10}\, y = \alpha + \beta \log_{10} X + e$$

where X = size of the household

Y = average floor area of the houses with X members in the household.

It was necessary to limit the X - values from 1 to 12 since only very small number of houses have been in the sample with values of X higher than 12. The estimated regression equation is as follows:

$$\text{Log } Y = 2.646 + 0.227 \log x$$
$$(0.0372) \quad (0.0472) \qquad R^2 = 70.1\% \quad d.f = 10$$

The figures in parantheses give the standard errors of the estimates. Both estimates are significant at the 1% level of significance. The estimates regression coefficient, $\beta = 0.227$ conveys that one percent increase in the size of household is accompanied with only 0.227% increase of the average floor area of the house.

2.5 OWNERSHIP OF HOUSEHOLD ITEMS AND FARM EQUIPMENTS

The density of ownership of certain household items such as wall clocks, sewing machines, radios, etc., can also be considered as a reasonable indicator of the economic status of rural households. With that in mind, the percentage of households having selected household items and transport facilities were calculated (Table A 18). Out of the total of 13 household items studied, the highest proportion of households are observable for 4 items in wet, for 4 items in intermediate and for 5 items in dry zones. Although it gives a general picture, inter-zone disparities are not well identifiable on the basis of household items and transport facilities, possessed by households.

The density of ownership of farm equipment may also be considered here. It can be seen from data (Table A 19) that families possess only a very limited amount of farm equipment.

2.6 HEALTH AND SANITATION

In comparison to certain other areas in the country, in the Kurunegala district 46% of the households have safe water from own wells or pipes for drinking and domestic purposes. The source of water supply used for both drinking and bathing in the wet and intermediate zones are fairly satisfactory although not so in the dry zone (Table A 20).

According to recent estimates about 10% of the country's housing units depend on sources such as rivers, streams, tanks etc. for their water supply.[1] In the Kurunegala district, 12.7% of the households in the dry zone use water from such sources for drinking purposes while the figures for the wet and intermediate zones are 4.7% and 0.8% respectively.

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1 ESCAP (1976) Population of Ceylon p. 296

Sanitary facilities in the district are poor and less satisfactory since about 46% of the households are without toilet facilities. This is comparable with previous findings where the distribution of housing units by type of toilet facilities available show that for the entire country more than a third of all housing units do not have toilet facilities of any type, this proportion being still high in the rural sector.(1)

The inter-zonal variation of the proportion of households without toilet facilities is well marked; the figures being 7%, 43% and 76% for wet, intermediate and dry zones respectively. This apparent high percentage of households in the dry zone without toilet facilities may cause unhygienic, unsanitary environment which would lead to diarrhoreal disorders and infectious diseases and even sudden epidemics.

Of the households that possess toilet facilities, two thirds have a good source of water supply too, from their own well or pipe borne. (Table A 21). All households in the dry zone that have toilet facilities have a satisfactory source of drinking water while 5% in the wet zone and 3% in the intermediate zone that have toilet facilities depend on tank or river water for drinking.

With regard to the source of medical treatment sought during common illness, allopathic treatment seems to be the most popular among majority of the households with 96% seeking it. It is interesting to observe (from Figure 2.4 and Table A 22) that although majority of the households in the intermediate and dry zones have health centres and government dispensaries within 5 miles, only 78% in the former and 96% in the latter obtain treatment from these institutions.

2.7 IMMUNIZATION STATUS

In the SBLS sample a total of 633 children were below 5 years of age with 22 in the wet zone, 515 in the intermediate zone

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1 ESCAP (1976) Population of Ceylon p. 296

and 96 in the dry zone. Only 53% of this age group children has been exposed to some sort of immunization irrespective of whether it is a partial dose or a complete dose. According to the immunization schedule of the World Health Organization and of the Ministry of Health by the age of one year all children should have received the complete doses of immunization. In the wet zone nearly 3/4 of the population under five years has received B.C.G. immunization while in the intermediate and dry zone only about one half of this age group has received B.C.G. immunization.

All children born in matermity homes and hospitals are compulsorily given the B.C.G. immunization before the mother and child are released to go home. Even in rural areas the percentage of institutional deliveries are fairly high.

It is very distinctively seen that the immunization practices in the wet zone are much better and higher than the other two zones as the percent of children who have obtained the complete doses of polio, triple, B.C.G. and small-pox are very much higher than those of the intermediate and the dry zones. This high immunization status in the wet zone does not however relate to the nearness of the health facilities to a majority of households in this zone as already observed in a previous paragraph in this section.

2.8 THE PHYSICAL QUALITY OF LIFE INDEX (PQLI)

In this section attempts will be made to construct the "Physical Quality of Life Index" for the Kurunegala District. This index which records how widely certain basic characteristics are distributed within and among populations', is an alternative way of measuring development progress to the use of such measures as 'per capita income'. The computation adopted here follows that of M.D. Morris[1].

(1) Morris D. Morris (1979) "Measuring the Condition of the World's Poor: The Physical Quality of Life Index". Overseas Development Council, Washington D.C.

The index uses there indicators - life expectancy at age one, infant mortality, and literacy - with equal weights. On indexing each indicator to a scale of 0 to 100 - that is, by taking the range of the data for each indicator with the 'worst' country being defined as zero and the 'best' as 100 - PQLI is made to lie between 0 and 100.

The data collection and the computation of the PQLI for Kurunegala district are in Table 2.5. The data on some of the components of the index are either not available or cannot be even estimated for sub-regions of the district. It was possible, however, to compute the index for each sex. As seen from the Table 2.5, the PQLI for males and females in the Kurunegala district is 88.6 and 87.9 respectively. The figures are generally high; these may be compared with 43 for India and 94 for U.S.A. for early 1970s.(1) Further, it is observable that the PQLI for females is lower than that for males; the difference is, however, marginal indicating that females too have equal access to 'basic human needs'.

Table 2.5: Construction of the PQLI for Kurunegala District for Males and Females

	Male	Female
Life Expectations at Age One (years) - 1971(a)	71.4	74.3
Index number(1)	85.6	93.1
Infant Mortality Rate (per 1000 live-births)- 1977 (b)	37	
Index number(2)	86.5	
Literacy (per cent) 1979(c)	93.7	84.1
Index number(3)	93.7	84.1
PQLI(4)	88.6	87.9

Sources of Data: (a) Demographic Training & Research Unit, University of Colombo - Personal Communication.

(b) Registrar General's Department. Data not available for each sex separately.

(c) SBLS data (see Table 1.2).

Notes:

(1) Life expectation at age is converted to an index number using the formula:
(Life expectancy at age one - 38) ÷ 0.39.

(2) Infant mortality rate is converted to an index number using the formula:
(229 - infant mortality rate per 1000) ÷ 2.22

(3) Literacy index number corresponds to the actual data.

(4) Average of life expectation at age one, infant mortality, and literacy indexes (equally weighted).

CHAPTER 3

LABOUR FORCE, EMPLOYMENT & INCOME

The aims of this chapter is basically three-fold; firstly, to outline the characteristics of the labour force; secondly, to examine the pattern of employment and unemployment and thirdly, to analyse the composition, structure and distribution of income. As in the last chapter, the discussion is based on SBLS data.

3.1 CHARACTERISTICS OF THE LABOUR FORCE

In this study, the labour force is defined to include those in the age group 15-64 years. Although an upper limit of 55 years is used for the urban population, in a rural setting many who are beyond this age limit actively participate in productive work. The above definition, therefore, seems more valid in the present context. Thus, in turn, the people aged 65 years and above are regarded as too old to work and those below 15 years are considered as too young.[1]

Accordingly the proportion of persons in the labour force and the sex composition of the labour force by zones are in Table 3.1. It reveals that nearly 61% of the population in the district are in the labour force and as we move from wet zone to dry zone the proportion decreases from 66% to 58%. Further, it reveals that male-female composition of the labour force, zone-wise as well as overall, is almost equal.

Table 3.1: Labour force as a proportion of population and it's sex composition by zones

	Wet	Intermediate	Dry	All zones
Proportion in the labour force	66.5	61.0	58.1	60.9
Male	49.0	49.0	50.6	49.2
Female	51.0	51.0	49.4	50.8
TOTAL	100.0 (143)	100.0 (2020)	100.0 (425)	100.0 (3520)

Note: Figures in parantheses indicate the size of the labour force in the sample

1 This definition tends to underestimate the actual labour force because in rural areas some children below 15 years of age do engage in productive economic activity.

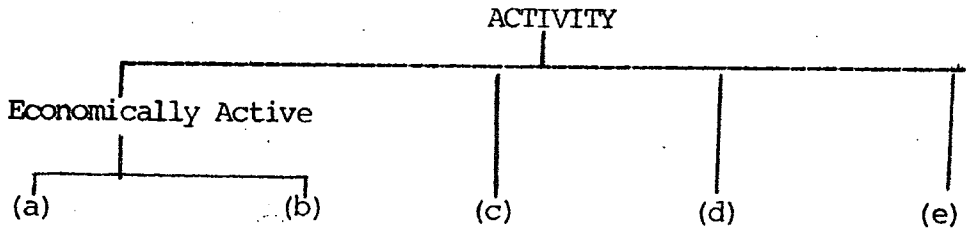
The majority of the labour force belongs to a relatively young age group. Within the labour force, the age group 20-34 dominates with 40%, the figure varying from 39% for males and 41% for females. The next dominating group is 35-54 with 31%. The age group 15-19 constitutes 19% while it is only 9% for the age group 55-64. This percentage distribution suggests that the members who are about to withdraw from the labour force constitute only a minor proportion.

It is also significant that the 0-14 age group comprised of 34% of the total population which suggests a considerable proportion of new and potential entrants to the labour force in the future.

Taking all zones together, only about 13% of the labour force had no formal education while about 39% have been educated in primary grades. 35% of the labour force has had education from grade 6 to 10, while about 11% had passed G.C.E. (O.L) examination. Only 2% had passed G.C.E. (A.L) and acquired higher qualifications. The picture varies only slightly between the three zones. The only considerable variation is that relatively more educated persons are present in the labour force in the intermediate zone. To sum up, it can be inferred from the above discussion that the labour force is represented fairly equally by both males and females, and dominated by relatively young age groups and persons having fairly high formal educational standards. The large proportions of persons having formal education suggests a high demand for salaried and white-collar type employment.

3.2 PATTERN OF EMPLOYMENT AND UNEMPLOYMENT

The key terms used in the discussion of this section are explained or defined below.



Employed (including unpaid family workers)

Unemployed (includes those without gainful employment in at least 15 days within 3 months prior to survey)

Housewives

Students

Others (includes those disabled, too young or too old to work)

$$\text{No. of dependents per employed person} = \frac{(b) + (c) + (d) + (e)}{\text{Total employed, i.e. (a)}}$$

$$\text{Crude Activity Rate} = \frac{(a) + (b)}{\text{Total in the sample}} \times 100$$

$$\text{Net Activity Rate} = \frac{(a) + (b)}{\text{15-64 years old in the sample}} \times 100$$

3.2.1 ACTIVITY STATUS

The composition of the sample in terms of activity is in Table 3.2. It also presents the number of dependents per employed person and crude and net activity rates in each zone.

Table 3.2: Composition of the sample by activity and connected measures

Activity	Wet	Intermediate	Dry	All zones
Employed (a)	54 (25.1)	1256 (28.5)	248 (33.9)	1558 (29.1)
Unemployed (b)	29 (13.5)	392 (8.9)	58 (7.9)	479 (8.9)
Housewives (c)	42 (19.6)	635 (14.4)	60 (8.2)	737 (13.8)
Students (d)	45 (20.9)	1174 (26.6)	210 (28.7)	1429 (26.7)
Others (e)	45 (20.9)	950 (21.6)	156 (21.3)	1151 (21.5)
TOTAL	215 (100.0)	4407 (100.0)	732 (100.0)	5354 (100.0)
Labour force	143 (66.5)	2690 (61.0)	425 (58.1)	3258 (60.9)
No. dependent per employed person	3.0	2.5	2.0	2.4
Crude activity rate				
Male	52.7	57.9	47.0	51.2
Female	23.3	23.2	31.9	24.3
Both sexes	38.6	37.4	39.5	37.7
Net activity rate				
Both sexes	58.0	61.3	72.0	62.5

When the zone-wise figures for the number of dependents per employed in Table 3.2 are compared with the dependency rates in Table 2.2 in Chapter 2, it can be observed that while the wet zone has a higher number of dependents per employed person than the dry zone, the dependency rates for the former is less than that for the latter. This goes to point out that there is more unemployment in the wet zone than in the dry zone. This is confirmed in sub-section 3.2.3.

The overall participation rate as indicated by the crude activity rate is about 38%, which is low. An appreciably low crude activity rate for females, which is 24% compared with 51% for males, is due to the exclusion of housewives from the economically active population. Further, the zone-wise variation of the crude activity rate is insignificant. However, notwithstanding the above facts, a moderate labour force participation rate is indicated by the net activity rate of 62%. The marked difference between rates for males and females are again repeated here.

3.2.2 EMPLOYMENT

An overall picture of the extent of employment is as seen from table 3.3.

Table 3.3: Extent of Employment

Description	Wet	Intermediate	Dry	All zones
Percentage employed in the sample	25.1	28.5	33.9	29.1
Percentage employed in the labour force	37.8	46.7	58.4	47.8
Percentage employed in the economically active sector	65.1	76.2	81.0	76.5

(a) Characteristics of Employed

About 73% of the employed are males. 42% of the total male population is so employed while only 16% of the total female population belongs to this category. In terms of the labour force, 71% of males and only 26% of females are employed. An examination of the age structure of the employed suggests that the majority belongs to 35-54 years of age (43% for all zones), whether male or female, with a minor difference in the case of dry zone (See Table B.1).

The age group 20-34 also constitutes about 40% of the gainfully employed.

As regards the educational level of the employed the majority has had secondary and higher education (about 50% for all zones). The illiterate persons represent only about 6% while about 44% has had eduation in primary grades. The unpaid family workers, agricultural labourers and domestic and other labourers are drawn mostly from those who are illiterate and having only primary education. However, the proportion of such persons is relatively small in the intermediate zone when compared with the other zones (Table B.2).

The presence of a predominantly educated employed category corresponds with the occupational pattern which is characterised by white collar jobs and own account (self) employment.

(b) Occupational pattern of Employed

The occupational distribution among the employed shows a marked dominance of agricultural activities. For all zones, about 58% of the employed are engaged in agriculture. About 54% of the employed persons are engaged in own account farming while the rest work as agricultural labourers (see Table 3.4).

About 63% depends on self employment categorised as agriculture, industry, trade and medical professions. This category includes unpaid family workers too. 37% depends mainly on salaried/paid work. However, trade and industry constitute only a marginal proportion of self employment.

Among the salaried/paid work, Government and bank service is the most important which provides employment for about a fifth of the employed people in all zones. Next most important is the domestic and other labouring work. The occupational pattern in different zones can be explained in the context of the economic structure of the zones. For example, agriculture being the main economic base of the dry zone, the proportion of self employed persons in agriculture is highest in the dry zone. In the case of the wet zone the reverse can be seen where there is a higher occurance of persons engaged in trade, transport work and government service signifying the service-type economy prevailing in that zone. Having the mixed characteristics of both dry and wet zones, the intermediate zone provides a moderate number of jobs in agriculture when compared with the other two zones. Thus, in the dry zone agricultural pursuits are the main occupation of the majority of employed while non-agricultural activities dominate the occupational pattern of the wet zone.

It needs to be emphasized that the above situation holds true for the main occupation. In the rural setting it is common for a person to have one or more subsidiary occupations in addition to the main occupation as seen from Table 3.5. Thus, farmers with comparatively small holdings engage in such activities as petty trade, supply of labour in agricultural activities etc., to supplement their income derived from the main occupation. Some of the government servants engage in part-time farming. Some agricultural labourers work as tenant farmers, toddy tappers and brick makers.

3.2.3 UNEMPLOYMENT

Of the labour force, 14.7% in all zones were unemployed during the time of survey. As a proportion of the economically active population, the unemployment amounts to 23.5%. Zone-wise variation of the unemployment figures is as follows:-

Zone	Unemployed as a proportion of labour force (%)	Unemployed as a proportion of economically active (%)
Wet Zone	20.3	34.9
Intermediate zone	14.6	23.8
Dry zone	13.6	18.9

Table 3.4: Percentage distribution of the employed according to main occupation

Occupation	Wet zone	Intermediate Zone	Dry Zone	All zones
A) Self Employed				
Farming	24.5	57.4	75.8	54.4
Industry	0.0	3.0	1.9	2.7
Trade	8.2	5.7	1.9	5.2
Medical profession	2.0	0.7	0.4	0.7
A) Sub TOTAL	34.7	60.8	80.0	63.0
B) Salaried/paid Workers				
Agricultural labour	0.0	3.8	3.0	3.6
Government & Bank Service	18.4	17.9	7.9	16.3
Transport work	6.1	1.9	0.8	1.9
Carpenters & Masons	0.0	1.6	1.5	1.6
Industrial workers	2.0	0.6	0.0	0.6
Domestic & other labourers	38.8	13.4	6.8	13.0
B) Sub TOTAL	65.3	39.2	20.0	37.0
(A) & (B) Total	100.0	100.0	100.0	100.0
Total No. of persons reporting main occupation	49	1400	264	1713

The low occurence of unemployment in the dry zone may signify the diverse job opportunities available, resulting from a wide range of agricultural and non-agricultural activities much of which may be attributable to double cropping of paddy. The unemployment problem seems to be most acute in the wet zone. This may be due to less job opportunities in agriculture, heavy reliance on the government sector for employment, high density of population on agricultural land etc. The occupational pattern also lends support to such a view.

Table 3.5: Subsidiary occupations of those who reported such occupations

Main Occupation		Subsidiary Occupation							
		Owner	Part-time Farmer	Ag. labourer	Non ag. labourer	Tenant	Trader	Transport worker	Mason, Carpenter, Brick Maker, Toddy tapping
Owner farmer	W	-	-	-	-	-	2	-	-
	I	-	-	26	40	-	13	3	11
	D	-	-	3	5	-	3	-	2
Family farm helper	I	-	-	9	7	-	-	-	-
Agricultural labourer	I	4	-	-	-	9	-	-	-
	D	1	-	-	-	1	-	-	3
Non.agric. labourer	I	8	-	-	-	7	-	-	-
	D	4	-	-	-	2	-	-	-
Tenant	W	-	-	-	4	-	-	-	-
	D	-	-	3	-	-	-	-	3
Trader	I	-	9	-	-	-	-	-	-
Transport worker	I	-	5	-	-	-	-	-	-
Govt. Servant	I	-	12	-	-	-	-	-	-
	D	-	6	-	-	-	-	-	-
TOTAL		17	32	41	56	19	18	3	19

W = Wet Zone, I = Intermediate Zone D = Dry Zone.

The majority of presently unemployed persons belongs to the age group 20-34. In all zones, 64.4% of unemployed males and 46.7% of such females fall into this category. Another important feature is that while about 25% of unemployed females are in the age group of 35-64, only about 4% of males are in that age group. This suggests that 20 years ago majority of females in the rural setting were not very particular about paid unemployment.[1] But now they are increasingly seeking paid employment to support the income of their families. It is also important to note that none (whether male or female) of the unemployed in the wet zone and dry zone fall to the age group 55-64 (see Table B.3).

An analysis of the educational levels of the unemployed show the predominance of those who had education in the primary grades (44.5% in all zones). However, the majority of the wet zone had education upto G.C.E. (ordinary level) (55%). About 14% of the unemployed had passed G.C.E. (ordinary level) and pursued higher education. Only about 7% falls into the illiterate category (Table B.4). Thus unemployment is associated more with relatively low levels of formal education. The survey however did not investigate the professional and technical skills possessed by the unemployed.

Although the survey also did not examine the job aspirations of the unemployed, figures are available in terms of job seekers among the unemployed. In all zones about 50% of the unemployed actually seek jobs. However, about 60% of the females among the unemployed do not seek jobs, while the corresponding figure for males is only about 20%. Another important finding of the survey is that some 27% of the housewives also seek jobs which can be treated as an addition to the job seeking unemployed category. About 60% of such job seeking housewives have had passed G.C.E. (O.L) and pursued higher education. The housewives who do not seek jobs have relatively less formal educational attainments.

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1 Note that about 49% of the housewives of all zones belong to the age group 35-54, who are not considered as "employed" or "unemployed".

3.3 INCOME[1]

Income data gathered during this survey are confined to the 12 months ending in May 1979. As far as agricultural income is concerned, this covers two cropping seasons, i.e. Maha 1978/79 and Yala 1979. However, data collected in the survey are subject to two kinds of limitations. Firstly, certain non-monetary income components, such as the value of subsidized food items, imputed value of rent free housing etc; have not been enumerated. Secondly, in general, they tend to be underestimates of actual income since the interviews were of "one shot" type. Subject to these limitations, the available data may be analysed under three headings namely, composition, levels, and distribution of income.

3.3.1 COMPOSITION OF INCOME

Income composition can be studied in two ways: (1) as a percentage of households earning from each source and (2) as a proportion of income derived from each activity. This analysis of the composition of income according to sources clearly suggests the dominance of agriculture (see Table 3.6). Agricultural income was first broken down as self employment and supply of hired labour and then the self employment under 4 sub groups, i.e. paddy, coconut, other crops and livestock. For all zones, income from paddy has been reported by about 64 percent of the sample households while income from coconut has been reported by about 62 percent of them. However, there is a marked variation among the different zones, in relation to the proportion of households deriving income from these sources. For example, whilst 75 percent of households reported an income from paddy in the dry zone, only 44 percent reported such an income in the wet zone.

In the case of coconut, this variation is even more marked. About 95 percent of the sample households in the wet zone reported an income from coconut whereas only about 8 percent in the dry zone reported an income from coconut.

1 Unless otherwise specified, income refers to gross income throughout this discussion.

Vegetables and other subsidiary crops have provided an income for about 55 percent of the households in the dry zone whereas the corresponding figures for wet and intermediate zones are only 5 and 10 percent respectively. Supply of labour in non-agricultural activities has been an important source of income in the wet zone where 49 percent of households reporting this as a source of income. The highest percentage of households reporting an income from livestock is in the intermediate zone (10%).

Table 3.6: Percentage of sample households reporting income from various sources and composition of household income

Source	wet zone		intermediate zone		dry zone		all zones	
	% of sample households reporting	Composition (%)	% of sample households reporting	Composition (%)	% of sample households reporting	Composition (%)	% of sample households reporting	Composition (%)
1 Self employment in agriculture:								
a) Paddy	44.2	13.6	62.8	28.4	<u>74.6</u>	<u>50.6</u>	<u>63.7</u>	<u>31.7</u>
b) Coconut	<u>95.2</u>	<u>28.5</u>	69.2	25.4	7.7	0.8	61.6	21.3
c) Other Crops	4.7	0.98	9.8	1.4	<u>54.9</u>	<u>16.2</u>	15.9	4.0
d) Livestock	2.3	0.02	<u>10.4</u>	<u>1.4</u>	7.7	1.4	9.7	1.3
2 Supply of hired labour in agriculture	0.0	0.0	7.7	2.6	<u>10.6</u>	<u>3.4</u>	7.8	2.7
3 Self employment in non-agriculture	2.3	1.3	<u>13.5</u>	<u>9.6</u>	12.0	6.5	12.8	8.8
4 Supply of hired labour in non-agriculture	<u>48.8</u>	<u>34.4</u>	19.6	9.7	13.4	6.3	19.9	10.0
5 Government service	11.6	21.2	<u>14.4</u>	<u>21.4</u>	13.4	14.8	14.1	20.2

Note : Underlined is the highest set of figures in each row.

Supply of labour in agriculture as a source of income is most significant in the dry zone compared with the other zones. Both self-employment in non-agriculture and government services are most important in the intermediate zone where 14 percent of households have reported an income from these two sources. Thus, the significance of each source of income in different zones is comparable with the economic structure and occupational pattern in each zone.

A breakdown of total household income according to sources again shows the dominance of agriculture. For all zones, agriculture provides 61 percent of household income, the figure varying from 43 percent for the wet zone to 72 percent for the dry zone. Of this, however, the bulk is from self employment in agriculture becauce the supply of hired labour in agriculture constitutes only about 3 percent of agricultural income. Interestingly, income from coconut exceeds the importance of that from paddy in the wet zone. In the intermediate zone, income from coconut and paddy constitutes almost equal proportions in total household income. In the dry zone, the greatest proportion of income is from paddy whereas coconut constitutes a negligible source. The next important source of household income is government services - which contribute to about 21 percent in wet and intermediate zones and about 15 percent in the dry zone. Supply of hired labour in non-agricultural activities constitutes a significance proportion of household income in the wet zone (34 percent). Self employment in non-agriculture brings about 10 percent of the total household income in the intermediate zone while in other zones this is relatively less important.

3.3.2 LEVELS OF INCOME

Income levels can be analysed under the following headings; (i) household income (ii) income per income receiver and (iii) per capita income.

The overall annual average household income, derived from all sources described in section 3.3.1, is Rs. 5.654/- . This varies from Rs. 5,813/- in the wet zone to Rs. 6,508/- in the dry zone. The zone-wise variation of the household income according to income groups is given in Table B.5. The ranges and means of household income for the zones are given below:

	Wet Zone	Intermediate Zone	Dry Zone	All zones
	Rs.	Rs.	Rs.	Rs.
Range	637 - 30244	463 - 57200	638 - 30780	487 - 57200
Mean	5813	5492	6508	5654

Annual income per income receiver is Rs. 4233/- for all zones and this varies from Rs. 4032/- in the wet zone to Rs. 5380/- in the dry zone. The variation of income per income receiver according to zones and household income groups is presented in Table B.6. The ranges of income per income receiver is given below:

	Wet Zone	Intermediate Zone	Dry Zone	All zones
	Rs.	Rs.	Rs.	Rs.
Range	478 - 15122	433 - 23553	678 - 20520	456 - 23553
Mean	4032	4067	5380	4233

In all zones, over 70 percent of the income receivers get an annual income which is less than Rs. 4000/-. The overall annual Per capita income is Rs. 1075/- and varies from Rs. 1037/- in the intermediate zone to Rs. 2325/- in the dry zone. A breakdown of annual per capita income according to household income groups and zones is shown in Table B.7. Ranges and mean values of per capita income for various zones are as follows:

	Wet Zone	Intermediate Zone	Dry Zone	All zones
	Rs.	Rs.	Rs.	Rs.
Range	159 - 7560	106 - 8898	138 - 6156	111 - 8898
Mean	2325	1037	1271	1015

It can be seen that these per capita income levels are far below the GNP per capita for 1979, which is estimated at Rs. 3378/- .[1] In all zones, 75 percent of the population receive a per capita income below the mean per capita income. This percentage varies from 65 percent in the dry zone to 91 percent in the wet zone.

3.3.3 DISTRIBUTION OF INCOME

Income is not the only significant indicator of wealth distribution and socio-economic status. But the concentration of other assets analysed elsewhere in this report (e.g. land and household items) lends support to a highly skewed and uneven pattern of wealth distribution in the Kurunegala District.

The majority of households in all zones (51%) receive an income below Rs. 4,000/- per annum or Rs. 334/- per month. This proportion however, varies from 34% in the dry zone to 55% in the intermediate Zone. Less than 1 percent of the households receive an annual income over Rs. 32,000/- and that too is only in the intermediate zone. The maximum household annual income in the other two zones is Rs. 32,000/- (See Table 3.7).

The analysis also suggests a high concentration of income in the upper income groups. For example, in all zones the highest two groups comprise of only 2.4% households but they receive 14.6% of annual income. The lowest two groups comprise of 51.2% of the households receiving only 19% of income. The concentration of income among top income groups is higher in the intermediate zone than in the other two zones.

Concentration of income thus results in a fairly highly skewed distribution of income as shown in figure 3.1. The distribution is highly uneven in the intermediate zone which is roughly comparable with the situation in all zones, when compared with the wet zone and the dry zone.

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1 Central Bank of Ceylon (1979) Annual Report.

Figure:- 3 - 1

DISRIBUTION OF ANNUAL HOUSEHOLD INCOME

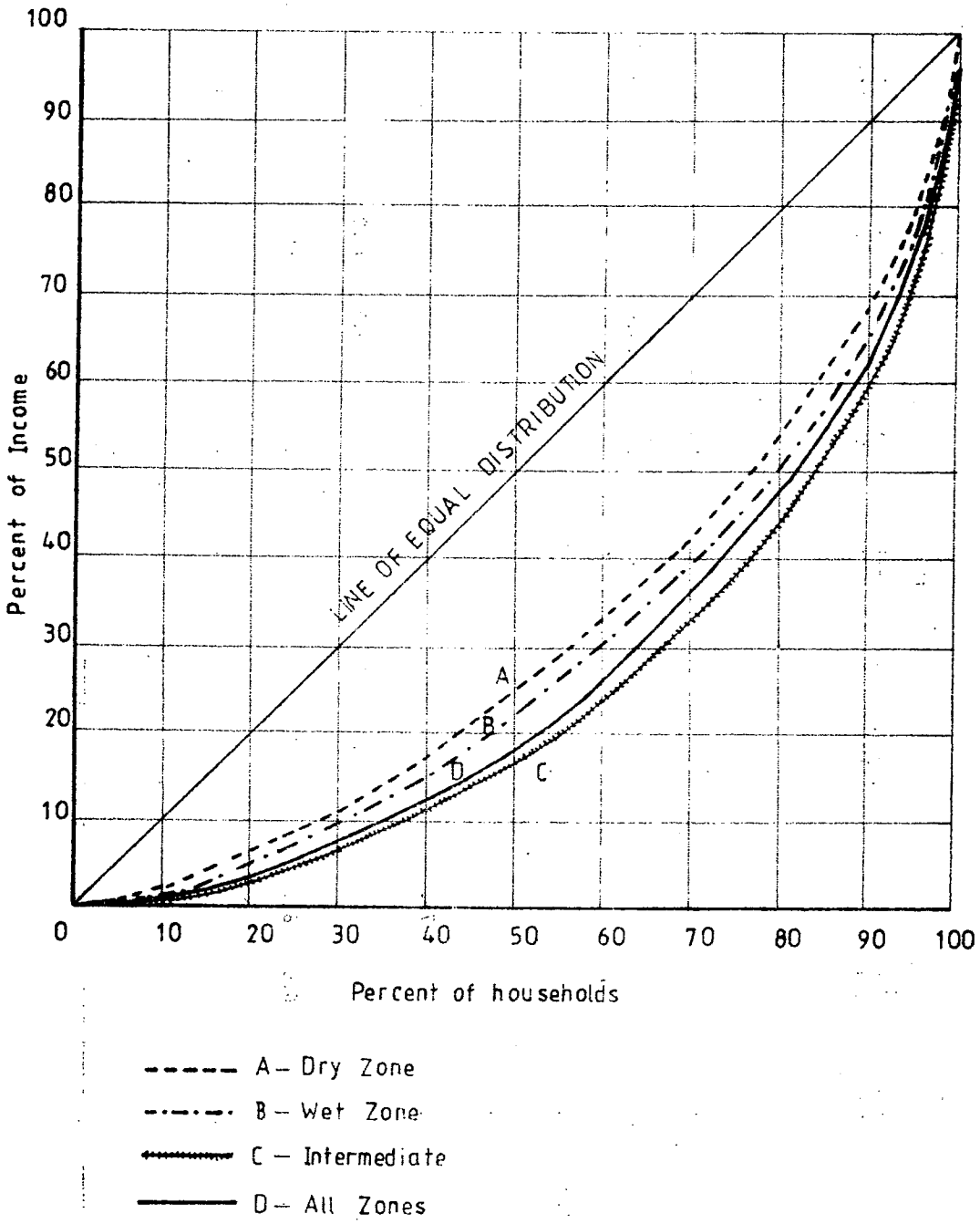

Table 3.7: Percentage distribution of households and annual income they receive, according to income groups.

Household income group (Rs.)	WET ZONE				INTERMEDIATE ZONE				DRY ZONE				ALL ZONES			
	House holds	Cumula-tive	Annual income	Cumula-tive	House holds	Cumula-tive	Annual income	Cumula-tive	House holds	Cumula-tive	Annual income	Cumula-tive	House holds	Cumula-tive	Annual income	Cumula-tive
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
0 - 1000	7.0	7.0	0.8	0.8	12.2	12.2	1.0	1.0	9.2	9.2	0.9	0.9	11.5	11.5	1.0	1.0
1001 - 4000	32.6	39.6	14.5	15.3	42.8	55.0	19.7	20.7	24.6	33.8	10.7	11.6	39.7	51.2	18.0	19.0
4001 - 7000	34.9	74.5	29.2	44.5	23.6	78.6	22.6	43.3	32.4	66.2	27.4	39.0	25.2	76.4	23.7	42.7
7001 - 10000	16.3	90.8	21.8	66.3	8.8	87.4	13.6	56.9	19.0	85.2	23.7	62.7	10.6	87.0	15.6	58.3
10001 - 14000	2.3	93.1	5.0	71.3	5.4	92.8	11.7	68.6	6.3	91.5	11.1	73.8	5.4	92.4	11.3	69.6
14001 - 18000	-	-	-	-	3.5	96.3	10.0	78.6	3.5	95.0	8.4	82.2	3.4	95.8	9.3	78.9
18001 - 24000	4.6	97.7	16.6	87.9	1.3	97.6	5.0	83.6	4.2	99.2	11.2	93.4	1.8	97.6	6.5	85.4
24001 - 32000	2.3	100.0	12.1	100.0	1.6	99.2	7.6	91.2	0.8	100.0	6.6	100.0	1.7	99.3	7.6	93.0
32001 +	-	-	-	-	0.8	100.0	8.8	100.0	-	-	-	-	0.7	100.0	7.0	100.0

CHAPTER 4

LAND USE AND LAND TENURE

4.1 LAND USE PATTERN IN THE DISTRICT

The land use pattern in the district is dominated by coconut and paddy. The information from the census of agriculture 1973 on land utilization presents the following picture.

Table 4.1: Land utilization pattern in the district

	Small holdings		Estates		Total for District	
	Extent (Acres)	%	Extent (Acres)	%	Extent (Acres)	%
Asweddumised paddy land	155,517	28	2607	04	158,124	25
Major Plantation Crops	353,922	63	62,183	90	416,105	66
Other Agricultural Land	48,180	09	4,615	07	55,095	09
TOTAL	557,619	100	69,405	100	629,324	100

The SBLS data endorses this picture and adds certain additional features of interest. An important observation that can be made is the important position occupied by homegardens[1] in the land use pattern. These lands - consisting primarily of coconut interplanted with other crops - occupy nearly 1/3rd of agricultural land[2]. The investments under the project are directed towards the development of paddy and coconut in the district, and it is necessary to watch carefully whether the coconut development programmes will have an impact on these homegardens.

1 The definition of homegarden adopted was based on (a) location of homestead and (b) land use pattern and not on size. A land or a part of a land where homestead is located and cultivated as a mixed garden was classified as a homegarden irrespective of its size.

2 One must be cautious in interpreting these results since the sample of households studied consisted of households from a sample of selected villages. Hence lands owned by the state, public companies, and those owned by individuals living in urban areas of the district or outside the district would not have been included.

The question that arise in the development of these land are (a) the small size of many of these lands (b) the mixed garden type of culture, which makes it difficult for growers to conceive need as well as to adopt development measures. It may be necessary to adopt a modest low technology approach for the development of these lands.

Table 4.2: Land utilization in the three agro-climatic zones of the district.

	Wet Zone		Intermediate Zone		Dry Zone		District based on 3 zones	
	Extent (Acres)	%	Extent (Acres)	%	Extent (Acres)	%	Extent (Acres)	%
Asweddumised paddy land	24.5	28	893.7	34	256.5	49	1174.7	36
Highland-Coconut	32.5	37	815.8	31	3.5	01	851.8	26
Highland-homegarden	29.3	33	771.7	29	97.8	19	898.7	27
Highland other crops	2.5	03	112.1	04	82.5	16	197.1	06
Chena	-	-	65.6	02	87.8	17	153.2	05
TOTAL	88.8	100	2658.9	100	528.1	100	3275.5	100

The extent of chena land is small and is concentrated towards the northern part of the district. The importance of coconut on the otherhand diminishes as one moves from south to north.

4.2 FARM SIZE AND DISTRIBUTION

According to the 1973 agricultural census there were about 172,000 operational holdings[1] in Kurunegala constituting a total area of nearly 600,000 acres. In addition the estates[2] occupied another 76,343 acres.

1 An agricultural holding consists of all the land and/or livestock used wholly or partly for agricultural production irrespective of title, size, legal form or location and is operated under one management and as a technical unit.

2 An agricultural holding 20 acres or more in extent with 10 or more resident employees was considered an estate.

According to these statistics the average size of a holding in Kurunegala district works out to 3.46 acres compared to the national average of 2.36 according to the same survey. However, of the 172,000 holdings, 25% were below one acre. According to SBLS data the average size of holding for the three zones varied considerably. The average size of holding for the wet zone was small being only 1.83 acres and was larger for the other two zones; 3.22 acres for the intermediate and 3.75 for the dry[1].

In terms of the average size of holdings although both the intermediate and the dry zone present a satisfactory picture, the uneven distribution of land in most parts of the district is evident from the data of this survey (See Table 4.3). For example in the Intermediate zone which occupies a very large part of the district, the table indicates that 52% of the holdings are below 2½ acres and occupy only a marginal 16% of land. Thus although the average size of holding is large, a considerable proportion of holdings are small, and the distribution pattern is uneven. It must be added that the data refers to land operated by a sample of rural households, thus excluding the estates from the picture, which if included would have aggravated the land distribution picture further.

Table 4.3: Percentage distribution of households and extents according to size class of operated land - by zones.

	Wet Zone		Intermediate Zone		Dry Zone		District based on 3 zones	
	House holds %	Extent %	House holds %	Extent %	House holds %	Extent %	House Holds %	Extent %
Operating No. Land	None	-	3	-	3	-	3	-
< 1 Acre	56	14	22	3	3	1	23	3
1 - < 2½	26	17	30	13	11	1	27	11
2½ - < 10	14	25	41	61	74	77	45	62
≥ 10	05	44	03	22	06	18	04	22
TOTAL	43 hd	78.5 Ac	832 hd	2596.3 Ac	142 hd	518 Ac	1017 hd	31 Ac

1 In using the formula given in chapter 1 the average size of holding work out to 1.816 for the wet 3.021 for the Intermediate, 3.777 for the dry and 3.076 for the district.

About one third of the households[2] in the district do not operate paddy land. The incidence of 'non-paddy' households is highest in the wet zone, and smallest in the dry zone. The average size of paddy holding in the three zones were 0.69 for the wet zone, 1.56 for the intermediate zone and 2.29 for the dry zone. Thus the size of paddy holding in the northern drier areas of the district is considerably large compared to the southern wet. Number of parcels of paddy per holding was 1 for the wet zone, 1.5 for the intermediate zone and 1.6 for the dry zone, thus suggesting absence of extensive sub-division.

Table 4.4: Percentage distribution of households and extents according to size classes of operated paddy land - by zones.

	Wet Zone		Intermediate Zone		Dry Zone		District based on 3 zones	
	House holds %	Extent %	House holds %	Extent %	House holds %	Extent %	House holds %	Extent %
Operating no paddy land	49	-	35	-	24	-	33	-
< 1 Acre	40	49	25	11	10	3	23	10
1 - >2½ Ac.	12	51	25	29	23	17	24	26
2½ - >10 Ac.	-	-	15	51	42	76	18	56
≥ 10	-	-	01	08	01	05	1	8
TOTAL	43 hd	13.75 Ac	832 hd	847.8 Ac	142 hd	247 Ac	1017 hd	1168.6 Ac

The average size of highland holding was 0.66 Acres for wet, 2.18 for the intermediate and 2.00 for the dry zone. Thus unlike the paddy holding, the highland in the dry zone was smaller compared to the intermediate zone.

The distribution of both highland and lowland showed a similar pattern with small holdings constituting a major share. Unlike in the case of paddy land there was no marked variations among the dry and the intermediate zones in the distribution pattern of highland. The wet zone however showed a greater prevelence of smaller sized holdings. These features are brought out in the Lorensz curves. (See Figures, 4.1, 4.1A & 4.1B).

1 The population consisted of rural households only.

COMPARISONS OF LORENSZ CURVES FOR DIFFERENT ZONES

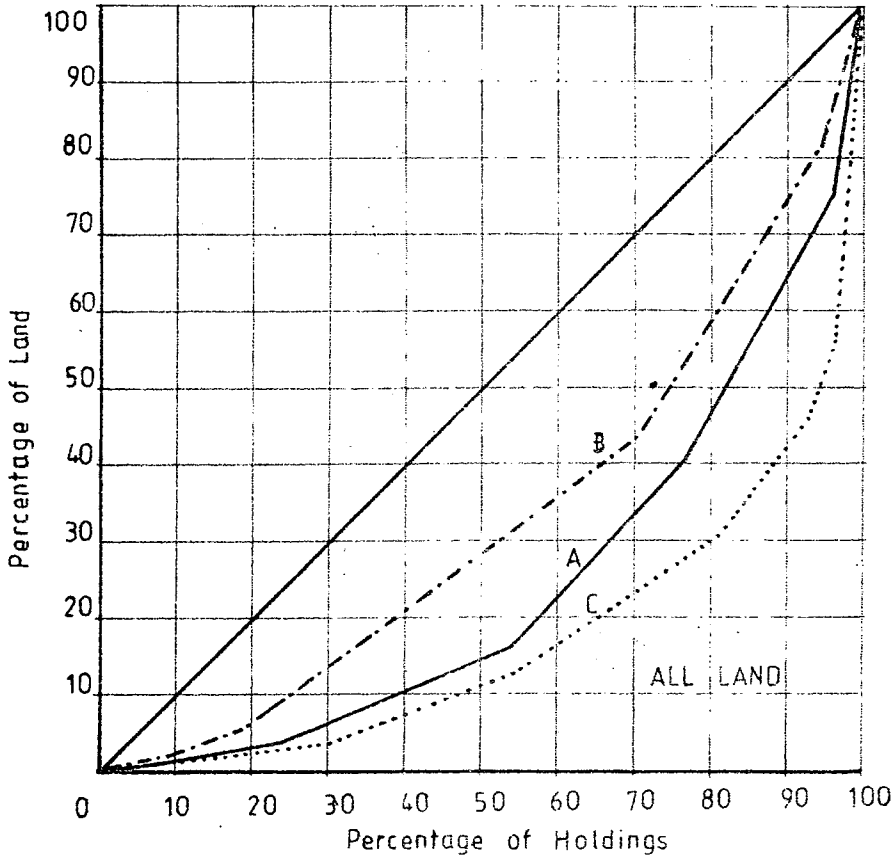

Figure 4.1

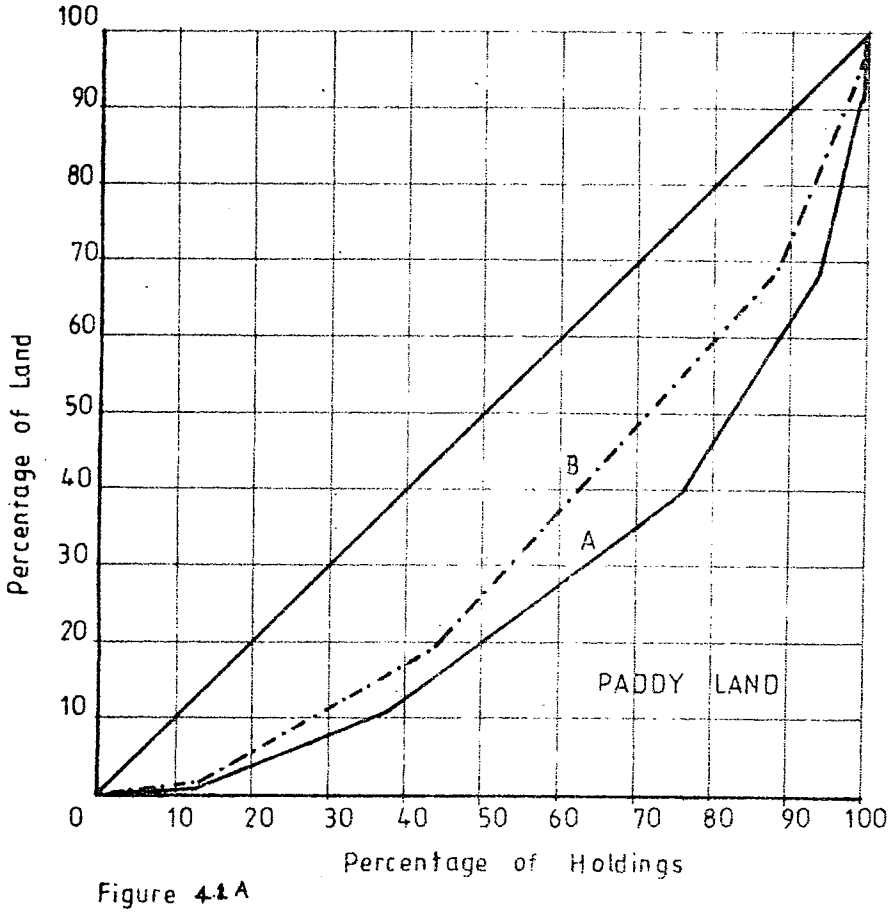

Figure 4.1A

A - Intermediate Zone

B - Dry Zone

C - Wet Zone

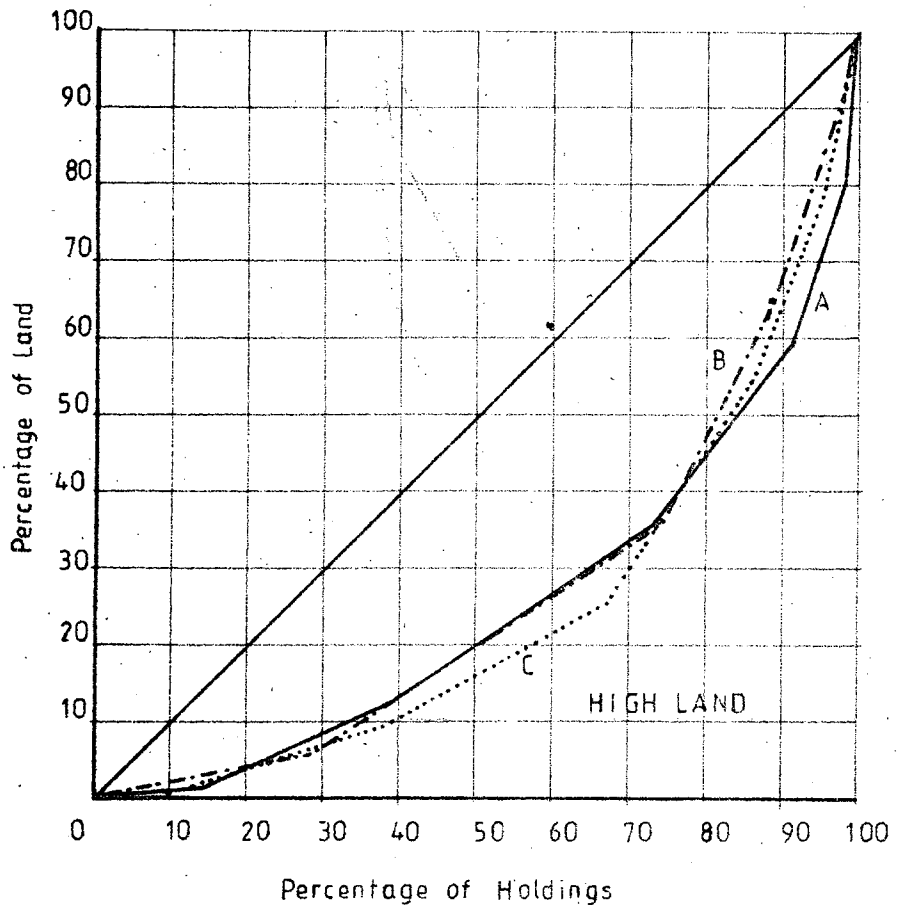

Figure: 4.1 B

A - Intermediate Zone

B - Dry Zone

C - Wet Zone

4.3 LAND OPERATION/OWNERSHIP IN RELATION TO EMPLOYMENT

In order to add further refinement to the analysis an attempt was made to examine the relationship of land ownership and land operation in relation to employment. In trying to establish the relationship the households were classified into the following three categories on the basis of land ownership and operation.

	Category	Criterion of classification
I	Landless households and households with homegarden only	Landless or with highland* ¼ acre or less.
II	Households with limited land	Lowland* 1 acre or less or total holding 2 acres or less but above ¼ acre.
III	Households with adequate land	Lowland* above 1 acre or total holding* above 2 acres.

On the basis of this classification 134 (13%) households fell into category I, 389 (38%) to category II and 489 (48%) to category III. According to this classification about half the households have adequate resources to benefit from the agricultural development activities while another 40% could benefit marginally. The number of households with at least one member whose primary occupation is farming and (therefore could be called a farm household) was however small (55% of total). Considering both classifications it could be estimated that the direct beneficiaries of the agricultural development activities will constitute about half the population of the district.

The employment pattern of members of the three categories of households is as in Table 4.5.

Table 4.5: Employment pattern of households with and without land.

Primary Occupation of household member	Category I landless households & households with home garden only		Category II households with limited land resources		Category III households with adequate land	
	No.	%	No.	%	No.	%
Farming	10	6	201	35	388	43
Unpaid Farm Assistants	07	4	56	10	246	27
Casual labour (Agric. & non Agric.)	73	42	141	25	78	9
Regular labour	31	18	27	5	42	5
Blue collar	20	12	72	13	50	6
White collar	16	9	35	6	71	8
Trade	16	9	39	7	30	3
Total employed	173	100	571	100	905	100
No. of households	134 (13%)		389 (38%)		489 (48%)	
No. of employed persons per household	1.29		1.46		1.85	
No. reporting secondary employment as a % of total employed	6%		18%		20%	

It is evident from the table that in category I, casual labour and regular labour are the main avenues of employment. This group of people who earn their living through sale of their labour are usually the poorest groups in the society. This table therefore clearly establishes the relationship between land ownership (or operation) and poverty, as existing in the district.

Other observations that can be made to support the case of 'landless' households are the smaller figure for the number of employed members per household and the fewer number reporting secondary employment. The higher figure for the number of employed persons/household in the group with land is however due to the inclusion of unpaid farm assistants in the employed category. If not for the unpaid farm assistants, the number of employed persons per household is the same for all categories. Thus it is evident that availability of land tends to ease the employment problem through absorbing additional available labour in the household, who would otherwise be unemployed.

Another observation that can be made is the relatively marginal involvement of unpaid farm assistants in the category II compared to category III. On the otherhand the proportion of farmers in the two categories is not significantly different. This observation indicates that where land is limited not more than one member of a household can find employment in it under the present intensity of land use. The possibility of underemployment in category II cannot be ruled out.

The above analysis suggests that the two main objectives of the project that of increasing productivity in the agricultural sector, and raising employment, income and living standards of the economically disadvantaged groups are conflicting to a certain extent under the prevailing conditions of land distribution. However from a National point of view both objectives are equally important, and therefore the project should attempt to achieve both these objectives. A number of options are available if adopted either singly or together could lead to a satisfactory realisation of both these objectives. It is not intended to discuss the benefits and the consequences of these approaches, but to identify them.

1) Achieving a more equitable land distribution through land reform.

2) Creation of employment opportunities outside the agricultural sector.

3) Creation of employment opportunities within the agricultural sector through new crops and cropping systems, animal husbandary and agro-based industries.

4) Identification and Implementation of projects that will benefit the landless and very small holders - e.g. group farming projects, small scale animal husbandary projects

Since the project activities are largely directed towards agricultural development and towards the provision of basic social infrastructure in poorly served areas, it is important to pay attention to these alternatives even outside the purview of the project in order to help the economically disadvantaged groups. Particularly the alternative 2 and 4 should Integrate closely with the Project activities. Industrial development particularly coconut based industries should receive priority outside the project. With reference to creation of employment opportunities within the agricultural sector (option 3), project activities alone are unlikely to have a strong impact unless accompanied by new cropping systems adopting intensive land use methods[1], animal husbandary activities and agro-based industries. Animal husbandary development under the project concentrates on the provision of services to the poorly served north, although more potential for development exists in the southern coconut areas. There is no investment for development agro-based industries under the project.

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1 The development of Paddy and Coconut sectors alone is unlikely to create a strong direct demand for labour, particularly due to the seasonality of activities. Even intercropping with minor export crops will not result in a heavy intake of labour due again to seasonality of farming activities and low requirement of labour.

4.4 IRRIGATION CONDITIONS PREVAILING IN THE DISTRICT

Table 4.6: Classification of paddy land according to irrigation conditions.

	WET ZONE		INTERMEDIATE		DRY ZONE		DISTRICT BASED ON THREE ZONES	
	Extent	%	Extent	%	Extent	%	Extent	%
Major irrigation	-		92.9	11	105	36	197.9	17
Minor irrigation	0.5	3	288.78	34	176	61	465.3	41
Rainfed	14.0	97	458.52	55	9.5	3	482.0	42
TOTAL	14.5	100	840.2	100	290.5	100	1145.2	100

Water for paddy farming is mainly obtaind from minor irrigation (mainly village tanks) and from rainfall. Of the total of 168,105 acres of asweddumised paddy land in the district 44% is rainfed and another 43% is fed by minor schemes, leaving a marginal 13% under major schemes. According to SBLS data (see table 4.5) respective figures are 42% rainfed, 41% under minor irrigation and 17% under major irrigation. The irrigated lands are largely in the drier areas of the district and hence developments to irrigation would benefit these areas most.

4.5 TENANCY CONDITIONS PREVAILING IN THE DISTRICT

The ownership pattern of paddy land in the three different zones of the district closely resembles each other. The extent of land singly owned and cultivated by owners themselves did not exceed 60% of the total land, indicating that more than 40% is owned and/or cultivated under various other forms of tenancy which could have a strong bearing on productivity of paddy land. Both tenancy and joint ownership were common. Encroachments were solely on crown land and there were no incidence of encroachments of private land.

The extent of land rented or leased in by the respondent households were nearly four times that rented or leased out by them. This indicates a possibility of some paddy land being owned by non residents of villages (lands owned by estates, landlords resident in urban areas of the district or outside the district)but rented or leasedout by villagers for cultivation. These categories are not represented in the sample.

Table 4.7: Extents of paddy land under different tenancy conditions (Acres)

	WET ZONE		INTERMEDIATE ZONE		DRY ZONE		DISTRICT BASED ON THREE ZONES	
	Extent (Acres)	%	Extent (Acres)	%	Extent (Acres)	%	Extent (Acres)	%
Singly owned	7.0	50	508.8	58	144.0	54	659.8	57
Jointly owned	-		97.7	11	46.8	18	144.5	12
LDO settle-ments	-		27.8	3	6.5	2	34.3	3
Encroa-chments	-		23.3	3	9.8	4	33.0	3
Rented/ leased in	4.3	30	169.3	19	42.5	16	216.1	19
Rented out	2.5	18	46.4	5	10.0	4	58.8	5
Others	0.3	2	9.0	1	4.5	2	13.8	1
TOTAL	14.1	100	882.3	100	264.1	100	1160.3	100

CHAPTER 5

FARMING CHARACTERISTICS

PART I - PADDY FARMING

The objective of the analysis on paddy farming is primarily to present a picture of the state of paddy farming in the district prior to the project. The analysis is based on NASS data which refers to the seasons Yala 78 and Maha 78/79. The basic unit of the survey was the agricultural household (see section 1.4).

A. FARM PRACTICES, CROPPING PATTERNS & YIELDS

5.1 CROPPING INTENSITY[1]

The quality of irrigation facilities is reflected in the cropping intensities achieved (see table 5.1). As was mentioned earlier Kurunegala district is characterised by poor irrigation facilities which result in low cropping intensities in the Yala season. The higher cropping intensity in Yala in rainfed lands is due to their location being largely in the wetter parts of the district. Cropping intensities achieved under conditions of major irrigation are not very different from that under minor irrigation indicating water scarcities even under major irrigation.

Table 5.1: Cropping Intensities under different irrigation conditions. (based on Census Department data).

	Major irrigation	Minor Irrigation	Rainfed	All lands
Yala 78	62	43	79	61
Maha 78/79	95	98	97	98
Crop Year (Yala 78 & Maha 78/79)	157	141	176	159

1 Cropping Intensity = $\frac{\text{Extent sown in a cropping year/season}}{\text{Extent Asweddumised}}$

According to NASS data cropping intensities varied considerably for the two zones for the Yala season (Table 5.2). This is due to the deterioration of water supply conditions from the wetter south to the drier north.

Table 5.2: Cropping Intensities[1] for the two zones (based on NASS data).

	Intermediate zone	Dry zone	District based on two zones
Yala 78	77	23	69
Maha 78/79	86	86	86
Crop Year	163	109	155

The project's estimates are based on the district averages for the period 1960-77. Accordingly it estimates a change in cropping intensities from 152 to 170 in major, 127 to 145 in minor and 140 to 151 for the district as a whole during the project period of 1979-1983[2]. No change in the cropping intensities is anticipated in the rainfed areas. The higher level of achievement in 1978/79 (Tables 5.1 and 5.2) should be attributable to the relatively favourable weather conditions particularly in the southern part of district.

5.2 THE TIME OF COMMENCEMENT OF CULTIVATION OPERATIONS

The timely commencement of cultivation operations in any season is an important factor that leads to the success of the crop. Usually Kurunegala district (more specifically the dry and the intermediate zones) experience heavy rains in the months of October and November due largely to the north-east monsoon. Tanks usually begin to fill around the 2nd week of October with the heavy rains. The months of December

1 Following definitions has been used here
Cropping Intensity : $\frac{\text{Average size of lowland operated by households in that season}}{\text{Average size of lowland normally operated by households.}}$

2 Staff Appraisal Report.

is also usually wet but the months January, February are usually dry. The success of the Maha crop usually depends on the early establishments of the crop so that harvesting can be done early. If harvesting is delayed the crop is likely to be damaged by water shortage. The month of October for a 4 month variety or early November for a 3½ month variety would be the 'latest but safe time for establishment under conditions of minor irrigation. Under completely rainfed conditions even early establishment and use of short-term varieties (3-3½ month) may be required.

The table 5.3 illustrates the time of commencement of land preparation oprations by the sample farmers. According to the data presented a large proportion of farmers have commenced their land preparation operations either in October or after. According to the traditional system of land preparation for mud sowing which takes around 4 weeks to complete, many of these farmers would have sown their crops in November or after. As shown in the figure 5.1 nearly 50% of the farmers would have completed planting operations by November 1st and another 25% by November 15th. With a 4 month variety even a crop sown in early November is liable to be affected by drought at the end of the season unless supplementary irrigation is available.

Table 5.3: Time of commencement of land preparation operations by farmers in the dry and intermediate zones (Maha season)

Month	June		July		August		September		October		November		Dec.	
Fortnight	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Number of farmers commencing land preparation activities	2	1	-		11	17	21	19	51	40	22	4	5	-
Monthly rainfall for 1978 (inches)	3.56		-		1.68		5.58		21.53		19.26		1.80	

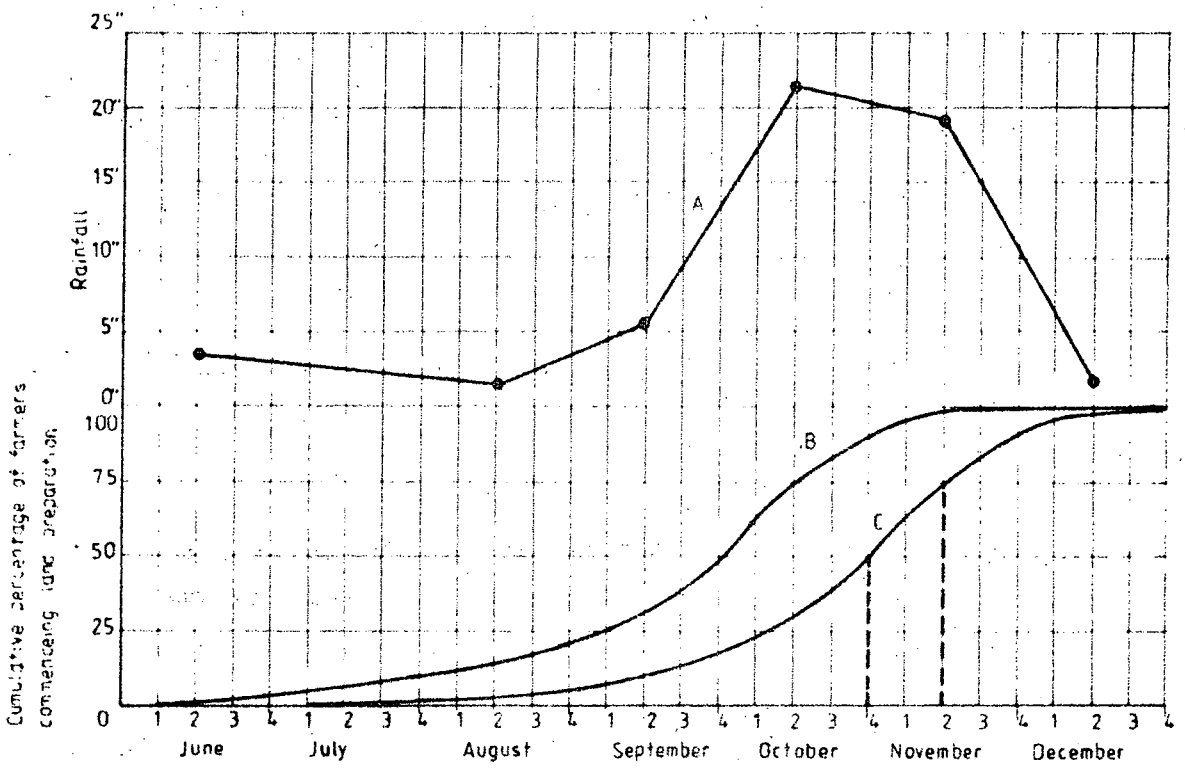

Figure 5.1

A — Monthly rainfall for 1978

B — Cumulative percentage of farmers commenceing land preparation

C — Line showing the date of planting assuming a requirement of 4 weeks for land preparation

The question that arises is the possibility of establishing the crop in October or before. A closer examination of rainfall data (Table 5.4) indicates that it would have been rather difficult to do a proper job of land preparation for mud sowing before the end of October in that year, particularly in the northern areas of the district.

Table 5.4: Rainfall data for three locations from the Dry & Intermediate zones (1978). (Weekly rainfall in Millimeters).

	SEPTEMBER				OCTOBER					NOVEMBER				DECEMBER			
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mediyawa	0	0	0	24.1	0	0	152.3	116.5	238.2	9.4	19.5	252.2	0	28.5	29.9	0	81.8
Mahauswewa [1]	8.9	0	0	1.8	0	2.02	8.7	80.8	222.5	8.3	0	245.0	0	36.0	15.2	66.1	40.8
Wariyapola	1.6	6.5	4.7	63.1	0	3.3	121.5	177.9	182.8	18.4	23.9	250.8	3.9	13.9	34.3	0	48.4

Dry sowing of paddy in September is the practice that is intended to be popularised under the Kurunegala project. According to the rainfall data presented above, there are dangers in trying to establish the crop too early. For instance in that particular year a dry sown crop in September could germinate with the late September rains and could be adversely affected by drought spell of two weeks in early October. Thus it is advisable to postpone dry sowing till early October.

The possible remedies therefore are (a) the dry sowing of the crop in early October (b) commencing land preparation operations in late September or early October and reducing the time lag for land preparation (if traditional system of mud sowing is to be practiced) by sacrificing the quality

1 Mahauswewa is located in Puttalam District, close to the boundary of Kurunegala Puttalam districts.

of land preparation to timeliness or (c) By transplanting the crop in or before the first half of November, by raising the crop in nurseries sown in October (d) Intensifying the use of 3 and 3½ month varieties in all instances.

Land preparation for Yala had been mostly carried out in the months March and April. Here again its during the months of March and April that the district experience some rainfall. The early establishment of the crop will protect it from undesirable effects at the end of the season. The cropping intensities for the Yala season for the dry zone was 23% which indicates that Yala cultivation is usually undertaken in the wetter areas of the district. In the intermediate zone Yala cultivation is undertaken in a limited extent in the southern wet area[1] which also possesses same capacity for storage.

Table 5.5: Time of commencement of cultivation operations by farmers in the Dry and Intermediate zones (Yala season).

Month	February		March		April		May		June	
Fortnight	1	2	1	2	1	2	1	2	1	2
Number of farmers commencing land preparation activities	1	2	31	28	31	9	5	3	9	-
Monthly rainfall for 1978 (inches)	2.82		8.80		8.98		17.11		3.56	

1 Intermediate zone can be further subdivided into semi-wet and semi-dry zones.

5.3 USE OF POWER

In terms of the use of power for land preparation the two zones, the dry and the intermediate showed a distinct difference. The buffalo was the principal source of farm power in the intermediate zone while the 4 wheel tractor dominated in the dry zone[1]. The preference for tractors in the dry zone could be attributed to a number of reasons which favour its use. The rainfall pattern in the dry zone is such that speediness in land preparation is important. The dry zone soils tend to be hard and dry at the commencement of a season which makes it difficult to work with animal power. The milder climate, and the availability of grazing land (such as coconut land) in the intermediate zone (particularly in the southern semi-wet zone) favour rearing of the buffalo. The average size of paddy holding in the dry zone is larger when compared to that of the intermediate zone. (See Section 4.2). All these reasons tend to favour the use of the tractor in the northern dry areas of the district while favouring the use of buffalo in the south. The credit programmes under the project for farm machinery should be designed in such a way to meet the power needs of the dry areas.

Table 5.6: Type of farm power used for land preparation and threshing - Maha 78/79 season. (Percentage of farmers reporting use.

	For land preparation		For threshing	
	Dry zone %	Intermediate zone %	Dry zone %	Intermediate zone %
Buffalo	30	83	14	57
4 wheel tractor	49	10	78	41
2 wheel tractor	8	3	8	1
Combinations	8	3	-	1

1 Tractors are used more in the northern half of the intermediate zone (semi-dry zone) when compared to the southern semi-wet zone.

The dependence on animal power was more for land preparation when compared to threshing. Since threshing is less costly and consumes less time, while the farmer is also keen to complete the operation soon for various reasons, favours the use of the tractor. Furthermore the strain on the tractor is not as heavy as for land preparation and hence there is no reluctance from the part of the tractor owners. Since threshing takes less time compared to land preparation (on a per acre basis), the demand for tractors is not as heavy as during the time of land preparation. Due to the use of different varieties of paddy, harvesting is usually staggered unlike land preparation which is dependent heavily on weather. This ease off the pressure on drought power for threshing.

The average hire charges for 4 wheel tractors and for buffalo for land preparation (usually for two ploughings) were Rs. 165/- and Rs. 106/- for the Maha 78/79 season and Rs. 156/- and Rs. 91/- for the Yala 78 season in the intermediate zone. The hire rates are about Rs. 50/- more in the dry zone.

It is seen therefore that a farmer from the intermediate zone could save around Rs. 50/- per acre by the use of the buffalo if animals are available for hire. For threshing the hire charges in the intermediate zone for both tractor and buffalo were around Rs. 50-60 per acre, in the Maha season. This similarity in cost is another reason why the tractor is preferred for threshing.

5.4 VARIETAL USE

As elsewhere in the country, new high yielding varieties are popular in the district. The most popular varieties were BG 34-8, BG 90-2, BG 11-11 and H_4. There was little difference in the distribution pattern of the varieties in the two seasons as well in the two zones. In all instances BG 34-8 was the variety that was cultivated by most farmers. This indicated a displacement of 4 month varieties traditionally cultivated in Maha by the short aged varieties.

Table 5.7: Adoption of rice varieties-percentage of farmers reporting - Yala 78 and Maha 78/79 seasons.

	YALA 78		MAHA 78/79	
	Intermediate zone	Dry zone	Intermediate zone	Dry zone
New high yielding varieties	79	81	72	78
Old High yielding varieties	11	6	15	16
Traditional varieties	8	-	13	-

5.5 METHOD OF PLANTING

Broadcast sowing under wet conditions is the most common method of planting. Around 90% of the farmers from both zones had broadcast sown their crops in the two seasons under study.

Table 5.8: Method of planting adopted. Percentage of farmers reporting

	YALA SEASON		MAHA SEASON	
	Dry zone	Intermediate zone	Dry zone	Intermediate zone
Transplanting	-	5	11	7
Broadcast sowing (wet)	63	70	79	51
Row sowing (wet)	-	1	-	-
Dry sowing	19	15	6	26
Combinations	9	9	4	15

Dry sowing is not commonly practiced at present even though the project places heavy emphasis on this practice in the future. The advantages of dry sowing are the low water requirement, the possibility of early sowing and presumably a low power requirement. Its major drawbacks are the difficult aftercare, particularly weed control, and low yields associated with it. Further, as was pointed out earlier dry sowing too early in the season makes the crop vulnerable to bad weather. It seems that the technology of dry sowing should be improved further and a substantial extension input needed to popularise it. It is rather infortunate that the labour intensive practice of transplanting is not popular and not much emphasis is placed on it in extension programmes. In addition to its beneficial effects on weed control, it is possible through transplanting to achieve early field establishment of the crop by early sowing of nurseries.

5.6 FERTILIZER USE

Nearly 90% of farmers in the sample had used fertilizer in the two seasons under study. Information regarding fertilizer application is given in Table 5.9.

Table 5.9: Level of application of fertilizer for lowland.

Season & zone	Farmers applying fertilizer (% of total)	Extent fertilized as a % of total cul.	Quantities applied per acre cultivated (cwt)			
(Yala 78)			V_1/V_2	Urea	TDM	TOTAL
Intermediate zone	87	86	0.29	0.67	0.87	1.84
Dry zone	50	75		-		
District based on zones	85	85				
Maha 78/79						
Intermediate zone	80	82	0.22	0.42	0.42	1.06
Dry zone	93	97	0.21	0.64	0.38	1.24
District based on zones	82	84				

When the actual use is compared with the amount recommended[1] it appears that the Nitrogen requirements are largely met while the P and K requirements (supplied mainly by basal fertilizer) are not adequately provided. As in many major paddy growing areas in the country the situation in Kurunegala seems to be not a situation of non-usage of fertilizer but an imbalance in the use of different fertilizer types. The extension messages should be carefully coined to achieve the desired objectives. A quantitative upgrading of fertilizer use should be accompanied by a qualitative upgrading as well.

According to the progress reports of the annual implementation programme the fertilizer consumption in the district averaged to 0.97 and 1.00 cwt per acre of paddy sown in the Yala 78 and Maha 78/79 seasons.

5.7 WEED CONTROL

Only one third of the farmers reported undertaking some form of weed control. The relevant figures are; 31% and 33% for the intermediate zone for Maha and Yala seasons respectively and 33% for the Dry zone for the Maha season. Almost all the farmers reported handweeding[2]. The conditions prevailing in the Kurunegala district and the type of technology adopted encourages the growth of weeks while discouraging the undertaking of control measures. For instance the poor water supply conditions and the pressure for conserving water makes it difficult to use water to submerge weeds while the same conditions encourage the weed growth. The need for early planting leads to poor quality land preparation which has its effects on weed growth. Broadcast sowing (specially dry

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1 The fertilizer recommendations for the intermediate and dry zones for improved 4-4½ month varieties in the yield range 40-60 Bu. per acre are as follows: (unit cwt).

	Intermediate zone	Dry zone
Basal mixture (v_1)	1.00 - 1.50	1.00 - 1.50
Urea	1.25	0.25
TDM	-	1.00
TOTAL	2.25 - 2.75	2.25 - 2.75

2 3% of the farmers from the intermediate zone reported chemical weeding in the Maha season.

sowing) again encourages weed growth and discourages hand weeding. The use of improved varieties with relatively high doses of nitrogen should also be mentioned in this connection. Furthermore, the high risk situation resulting mainly from insecure water conditions discourages the use of hired labour for weed control.

Weed control appears to be a practice which needs to be emphasised in extension work. In a way it is difficult to understand why farmers do not place much importance in it (particularly when family labour is available and weeding can be carriedout in the 'not so busy' periods). It is possible that weeds posed less problems with the long statured varieties which were cultivated in the past, and hence weed control would not have been important as it is now. Weed control should receive an important place as an extension message particularly as improved varieties have spread so much and fertilizer use is likely to improve in the future if the present subsidy rates remain.

5.8 PEST AND DISEASE CONTROL

Insecticides have been used rather widely for control of pests. The way paddy cultivation is practiced-new varieties with relatively high doses of nitrogen fertilizer and with poor management (broadcast sown crops with little or no weed control) - from ideal conditions for pest incidences. This could be cited as the reason for the relatively high incidences of pests. The extents treated with insecticides did not very much between seasons or zones suggesting the lack of a relationship with weather conditions.

Table 5.10 : Extent of use of Agro-Chemicals

Season & Zone	Percentage of farmers reporting use	Percentage Extent treated
Yala 78 - Intermediate zone	75	75
Dry zone	67	63
District based on zones	75	75
Maha 78/79 - Intermediate zone	68	66
Dry zone	75	76
District based on zones	69	68

5.9 YIELDS

The yield per acre estimates according to NASS data were 38.6 bu. for Yala 78 season and 37.6 bu. for the Maha 78/79 season. The figure released by the Department of Census and Statistics was 38.7 and 50.6 for the Yala and Maha seasons respectively. The difference observed in the Maha seasons yields is largely due to low yields reported by the intermediate zone farmers, a figure which is exceptionally low for a Maha season. The dry zone recorded a yield of 18 and 27 per acre over the intermediate zone in Yala and Maha seasons respectively.

Table 5.11 : Yield per acre estimates.

	YIELD PER ACRE		
	Intermediate zone	Dry zone	District based on Dry and Intermediate zones
Yala 78	36.51	54.42	38.58
Maha 78/79	33.23	60.08	37.64

B. Cost and Returns and Labour Utilisation.

5.10 PRODUCTION COSTS

Production costs presented here include both expenses incurred for purchase of inputs as well as the imputed values of farmers'

own resources used in the production activities in the two seasons under study.

The gross production costs per farm incurred in paddy cultivation averaged to Rs. 1760 and 1571 for the Yala 1978 and Maha 1978/79 seasons respectively. Cash expenses constituted 57% of the total cost of production of the farm in both seasons. Cash expenses constituted a larger share of the total cost of production in the dry zone compared with the intermediate zone. This is largely due to the additional costs incurred for tractor ploughing.

Table 5.12 : Average production costs per farm,[1] classified by cash & non cash costs - Yala 78 and Maha 78/79 seasons.

	Cash costs Rs.	Non cash costs Rs.	Total (Rs.)	Cash cost as a % of total cost	Farm size (Extent cultivated in Acres)
Yala 78 -					
Intermediate zone	1022	768	1790	57	1.73
Dry zone	921	423	1344	68	1.82
District based on zones	1015	745	1760	58	1.73
Maha 78/79					
Intermediate zone	809	663	1472	55	1.61
Dry zone	1621	730	2351	69	2.51
District based on zones	900	671	1571	57	1.76

As evident from the table the higher cost of production value for the Maha season for the dry zone is due to its large farm size. The cost per bushel value (given later) illustrates that the cost of producing a bushel of paddy in the dry zone is nearly half that for the intermediate zone. This is primarily due to high yields achieved in the dry zone.

1 Farm = Total operated paddy holding.

Table 5.13 : Average production costs per acre and per bushel of Paddy Produced.

	Total Production costs per acre (Rs.)	Cash costs per acre (Rs.)	Production costs per bushel (Rs.)
Yala 78 - Intermediate zone	1036	592	29.23
Dry zone	738	505	14.41
District based on zones	1021	589	27.77
Maha 78/79 - Intermediate zone	883	485	28.20
Dry zone	937	646	15.61
District based on zones	892	646	28.84

The principal components of production expenses are presented in Table 5.14 for the intermediate zone in respect of the Maha season. It is seen that 40% of the cash expenses are spent on draught power while another 30% is spent on purchased inputs namely fertilizers and agro-chemicals. The expenditure on hired labour is relatively small. The low usage of hired labour (see section 5.12) explains the low cost incurred in this item. As was seen earlier in the chapter on labour intensive practices, such as transplanting and weeding are not commonly adopted and hence most farmers are in a position to complete their cultivation operations with family labour (including some attam labour) without heavily depending on hired labour.

Table 5.14 : Distribution of production costs and cash costs per acre classified by inputs. Intermediate zone, Maha 78/79 season.

	Total Production Costs/Acre		Cash costs/Acre	
	Rs.	Percentage	Rs.	Percentage
Hired labour	80	9	80	16
Family labour	400	45	-	-
Tractor hire charges	96	11	96	20
Buffalo hire charges	104	12	99	20
Fertilizer & Agro-chemicals	142	16	142	29
Others	61	7	68	14
Total	883	100	485	100

5.11 RETURNS

The net returns[1] from paddy cultivation in the dry zone were considerably higher than the intermediate zone. This is due to the high yields achieved as well as due to relatively large size of the paddy holding in the dry zone.

Table 5.15 : Net returns per farm from paddy cultivation.

Zone & Season	Net returns excluding imputed cost of family labour (Rs/Acre)	Net returns including imputed cost of family labour (Rs/Acre)
Yala 78 Intermediate zone	1404	636
Dry zone	2790	2387
District based on two zones	1497	753
Maha 78/79 Intermediate zone	1310	664
Dry zone	4404	3674
District based on two zones	1656	1000

5.12 PATTERN OF LABOUR USE FOR PADDY FARMING

The total number of labour days applied per acre averaged to 55 and 47 for the Yala and Maha seasons. These figures compares well with the average requirement of 50-60 labour days per acre associated with rainfed paddy cultivation.

In both seasons, on a per acre basis the intermediate zone had used more labour when compared to the dry zone. This could be due to the more 'intensive' nature of paddy cultivation practiced in the southern parts of the intermediate zone. This pattern changes as one moves from the south to north where paddy farming tends to be more 'extensive' in nature. To a large part, this pattern of land use is dependent on the water supply position and the size of the operational holding. Tradition too may be a contributory factor (Eg. Transplanting in the Kegalle boundary)

1 Net returns represents the difference between the gross income and the total production costs.

More labour had been used in the intermediate zone in the Yala season when compaerd with Maha while it was the reverse in the dry zone. To a part of the intermediate zone Yala is the more important farming season and consequently more labour could have been used in the Yala season in these areas.

Table 5.16 : Composition of labour application for paddy. Mandays per farm.

Season & Zone	Amount of labour applied per farm: Family	Hired	Total
Yala 78			
Intermediate zone	77	22	99
Dry zone	43	14	57
District based on two zones	74	21	95
Maha 78/79			
Intermediate zone	68	11	79
Dry zone	77	24	101
District based on two zones	69	13	82

The labour utilisation data indicate a very high dependence on family labour for cultivation operations. Since labour intensive practices such as transplanting and weeding are not commonly adopted it should be possible for the farmers to carry out farming activities without depending heavily on hired labour. Taking into consideration the nature of labour requirements of a paddy crop it is likely that the maximum contribution of family labour should remain around 75 mandays per season per farm. Hence any additional demand for labour created as a result of intensification of farming should lead to an absorption of hired labour for paddy cultivation.

Wages for hired labour ranged around Rs. 9-10 for men, 6-8 for women and 4-6 for children in the seasons under study. This does not take into consideration the value of food which in most instances is provided. The average wages paid for hired labour for activities connected with land preparation in the two seasons under study are given in Table 5.17.

Table 5.17 : Average wages paid for land preparation activities (Excluding cost of food)

	Men	Women	Children
Yala 78	9.35	7.01	4.68
Maha 78/79	9.97	8.00	4.99

On the average wages have risen by about 60 cts. to 1 rupee between the two seasons.

It is however questionable as to what extent the innovations introduced under the project will lead to additional demands for labour. Practices such as dry sowing could even lead to a displacement of labour unless it is associated with a labour intensive practice like handweeding. The project also places much importance in fertilizer use which again would not lead to an increase in labour use. It would be worthwhile to examine how transplanting (which again is a labour intensive practice) could be adopted as a means of conserving water. If the project is to have some impact on the landless, the easiest and simplest way it could achieve this objective (at least partly) is through the creation of additional demand for labour in the agricultural sector.

PART II COCONUT CULTIVATION

According to the census of agriculture 1973, of a total of 624.024 acres of agricultural land in the Kurunegala district, 416105 acres (66%) were under plantation crops, which comprise largely of coconut.

According to the data of the National Agrarian Sample Survey (Yala season interviews) 77% and 28% of the households interviewed from the intermediate and dry zones respectively reported having coconut. The figure for the district based on the two zones was 72%. Accordingly coconut as a crop is as important (if not more) as paddy for the district in general and for the intermediate zone in particular. The number who reported receiving an income of over Rs. 200/- or an income

equivalent to or more than 10% of farm income (for the period corresponding to be Yala season ie. May to October) was again high, (63% for the district). This further indicates the important position of the crop in the district.

As other plantation crops, coconut estates[1] in the Kurunegala district are largely owned and managed by state agencies. Since the households studied consisted of a sample of agricultural households residing in a selected sample of villages, the estates, and the lands owned by residents outside the villages (residents of urban areas of the district, residents outside the district) have not been taken into consideration. The picture that the survey presents is therefore limited to coconut lands owned and managed by the villagers of the Kurunegala district who are the beneficiaries of the project.

Coconut lands belonging to villagers are usually of two types. They are, (a) The home gardens which are very often maintained as mixed gardens and (b) Coconut small holdings which to a large extent are monocultures of coconut. Even in the category (b) it is not rare to find some other crops interplanted. The extent of home gardens was considerable the ratio of home garden to other highland was 1:2 (Table 5.18)[2]. As was mentioned earlier the developmental needs of homegardens may be different from the developmental needs of other agricultural land.

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1 Estate is defined as an agricultural holding of over 50 acres with 10 or more resident employees.

2 According to the data from the SBLS the ratio of homegarden to other highland was 1:1. The difference could be due to the type of samples used and the definitions adopted. The unit of study of NASS was a agricultural household while in SBLS it was any household (Agricultural & non agricultural). Furthermore in the NASS 'agricultural' households operating less than 1/8 acre were excluded from the sample. Both surveys indicate the important position of home gardens.

Table 5.18 : Acreage of coconut owned by the sample households

Period & Zone	No. of farmers reporting	Home Garden (Ac.)	Other high-land (Ac.)	Total (Ac.)	Average size of coconut holding
Yala survey (May-Oct 1978)					
Intermediate zone	168	172	350	522	3.1
Dry zone	16	18	10	28	1.8
Maha Survey (Nov 1978 - April 1979)					
Intermediate zone	187	186	392	578	3.1
Dry zone	4	1	6	7	1.8

According to the 1977 survey of coconut holders[1] in Kurunegala district the yield averaged to about 1250 nuts per acre, varying from about 900 nuts per acre in holdings below 3 acres to over 1300 for holdings above 75 acres. According to the data from the NASS the per acre yield of coconut for the period May 1978 to April 1979 (a period of one year) was 1430 nuts per acre for the district. In general coconut production in the country recovered somewhat in 1978 and 1979 after dropping to its lowest levels in 1977 following the unprecedented droughts during the previous years (country's production increased by 21% in 1978 and by a further 8% in 1979)[2].

Table 5.19 : Productivity of coconut land

Period	Productivity (Nuts per acre)
May - Oct 1978	679
Nov 1978 - April 1979	751
Total (for the year)	1430

1 Hussain S.M., Perera U.V.H. and Karunasena K (1978); Preliminary report of the survey of coconut lands in Kurunegala district.

2 Central Bank of Ceylon (1978); Review of the economy.

The project's thrust in the area of coconut development is largely directed at the popularisation of the subsidy programme meant for land rehabilitation, underplanting or replanting and intercropping, and in encouraging fertilizer use. Table 5.20 presents the extent of adoption of these practices by the sample farmers during the study period. These figures compare well with the findings of the survey of coconut lands carried-out in 1977. According to 1977 survey systematic under-cropped was taken by 6.9% of the holders, fertilizer was used by 4.9% of the holders, and in the case of contour drains inadequacy was as high as 97%. However according to this survey a large number of small holders practiced weed control of some type. (This may be due to the difference in the samples studied in the two surveys. In the NASS survey, as the primary sampling unit is the village and the secondary sampling unit is the household it is biased towards the smallholders. This is evident in the average holding size of the two surveys 3.1 acres and 10.25 acres respectively).

Table 5.20 : Adoption of cultivation practices in coconut land.

Practice — Percentage of coconut cultivators adopting the cultivation practices during the survey period and the proportion of land involved - May 1978 - April 1979.

	Percentage of farmers	Percentage of land
Weeding	11	13
Soil conservation practices	4	4
Fertilisation	5	4
Underplanting or replanting	3	1.5
Harvesting	94	75

The targets of the project for coconut development are modest except for fertilizer. It is expected to increase fertilizer use three fold from 10,000 tons per annum to 30,000 tons per annum and as a result 40% of the total coconut acreage (380,000 acres) would be adequately manured. Although it looks as if

the target is a ten-fold increase from the survey figure given above, it is not actually so, as the project's target has also taken into account the consumption by estates and the large holdings which were not represented in the survey. But when the 1977 survey figure is considered (which included the large holdings) the jump appears to be somewhat high, particularly if fertilizer prices go up, and/or the government subsidy pruned. The project target of 25000 acres for replanting/underplanting is about 6.5% of the total acreage, while the land rehabilitation target is 5.2% of the acreage. The extent earmarked for systematic intercropping with minor export crops is about 2.5% of the total acreage, from virtually no intercropping (with MEC) at present, particularly by the saml1 holders[1].

1 The survey sample did not report any instance of undertaking intercropping with minor export crops during the period of study.

CHAPTER 6

ELECTORATE-WISE ANALYSIS

In the decision making process of the Project Management the electorates in the district are identified as separate entities. It seems, therefore, useful to the Project Management to have an analysis based on electorates. This chapter is an attempt in that direction.

A word of caution is necessary here since the present analysis is mostly based on data from SBLS in which villages - the primary sampling units - have been selected on the basis of the four agro-climatic zones and not on the basis of electorates. In view of this, certain biases may arise when percentages are calculated on the electorate basis and an attempt is made to intepret them accordingly. It is, thus, important to bear this in mind throughout this chapter.

Altogether, there are 14 electorates in the Kurunegala district. Due to the fact that Dodangaslanda was not represented in the sample of 71 villages selected for the SBLS, this electorate does not appear in the analysis that follows.

6.1 LEVELS OF LIVING

The following indicators were considered to visualize the electorate-wise variation of levels of living in the district: the percentages of houses (i) with floor area greater than 500 sq. ft. (ii) with permanent roof (iii) with brick walls, the percentages of households (iv) with bicycles and (v) radios.

The distribution of electorates according to each of these indicators are as in Table 6.1. On realizing that higher values of each indicator represents higher levels of living are vice-versa, the following observations can be made:

(1) Generally there is a well marked pattern in the distribution of electorates.

(2) The electorates such as Galgamuwa, Yapahuwa and Nikaweratiya in the drier part of the district falls into the lower end of the scale indicating lower levels of living.

Table 6.1

Electorates according to Levels of living Indicators.

Percent	Houses with floor area greater than 500 sq.ft. I	Houses with Permanent Roofs II	Houses with Brick walls III	House holds Bicycles IV	House holds with Radios V
5 - 10%		Nikaweratiya Panduwasnuwara			
10 - 15%		Yapahuwa	Nikaweratiya Yapahuwa		
15 - 20%		Hiriyala Kuliyapitiya	Panduwasnuwara	Yapahuwa	
20 - 30%		Bingiriya Katugampola Kurunegala	Galgamuwa Hiriyala, Bingiriya, Kuliyapitiya Polgahawela Kurunegala	Dambadeniya	
30 - 40%	Galgamuwa Yapahuwa	Galgamuwa Wariyapola		Nikaweratiya	Yapahuwa
40 - 50%	Bingiriya Hiriyala Dambadeniya Kurunegala	Dambadeniya	Wariyapola Katugampola Mawathagama	Galgamuwa Hiriyala Panduwasnuwara Wariyapola Polgahawela Kurunegala Mawathagama	Nikaweratiya Mawathagama
50 - 60%	Panduwasnuwara Polgahawela Katugampola Kuliyapitiya	Polgahawela Mawathagama	Dambadeniya	Kuliyapitiya	Galgamuwa Hiriyala Panduwasnuwara Kuliyapitiya Dambadeniya Kurunegala Polgahawela
60 - 70%	Nikaweratiya Mawathagama			Katugampola	Bingiriya Wariyapola
70 - 80%	Wariyapola			Bingiriya	Katugampola

Table 6.2

Electorates according to Infrastructure Indicators

Per cent	Households with Electricity	Villages within 3 miles from Government dispensary	Villages within 5 miles from schools with GCE(O/L) Science education	Villages within 1 mile from bazaar
	I	II	III	IV
0 - 5%	Nikaweratiya, Yapahuwa, Hiriyala, Bingiriya, Panduwasnu-wara, Wariyapola, Kuliyapitiya, Katugampola	Nikaweratiya		Nikaweratiya
5 - 10%	Galgamuwa, Polgahawela, Kurunegala			
10 - 15%	Mawathagama			Yapahuwa, Wariyapola
15 - 20%	Dambadeniya			
20 - 30%				Panduwasnuwara
30 - 40%			Galgamuwa	
40 - 50%			Wariyapola	Hiriyala, Bingiriya
50 - 60%		Galgamuwa, Panduwas-nuwara	Yapahuwa, Nikawera-tiya, Hiriyala	Galgamuwa, Kurunegala
60 - 70%		Polgahawela, Wariyapola, Mawathagama	Bingiriya, Polgahawela	Katugampola, Kuliyapitiya, Mawathagama
70 - 80%		Hiriyala, Dambadeniya	Kurunegala	
80 - 90%		Kurunegala	Panduwas-nuwara	Polgahawela
90 - 100%		Yapahuwa, Kuliyapitiya, Katugampola	Kuliyapitiya, Katugampola, Dambadeniya, Mawathagama	Dambadeniya

(3) The electorates such as Katugampola, Dambadeniya, Polgahawela and Mawathagama in the wetter part of the district falls into the upper end of the scale indicating higher levels of living.

(4) The rest of the electorates occupy intermediate position indicating average conditions relative to the electorates mentioned above.

6.2 INFRASTRUCTURE

The indicators considered to represent the electorate-wise variation of the infrastructure are (i) percentage of households with electricity (ii) percentage of villages within 3 miles from government dispensary (iii) percentage of villages within 1 mile from bazaar and (iv) percentage of villages within 5 miles from schools with G.C.E. (A/L) science education.

The distribution of electorates according to each of these indicators are as in Table 6.2. An overall observation that can be made is that the general pattern in the distribution of electorates observed under the levels of living is also visible here.

6.3 EMPLOYMENT AND UNEMPLOYMENT

The distribution of electorates according to employment (see Table 6.3) presents a picture explainable on the basis of the geographic position of individual electorates. The general pattern relating to employment is as follows:[1]

1. Employment was highest in the paddy dominant, dry/semi dry zone electorates of Galgamuwa, Yapahuwa and Nikaweratiya.

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1 Employed includes unpaid family labour as well.

2. Employment was next highest in the electorates representing the best coconut areas of the district namely Katugampola and Dambadeniya.

3. Employment was generally lower in the drier coconut areas of the district. The electorates belonging to this category are Wariyapola, Hiriyala, Bingiriya, Panduwasnuwara, Kuliyapitiya and Kurunegala. Kuliyapitiya was an exception in this group as is evident from the Table 6.3.

4. The electorates representing the Mid-country or the Kegalle type of conditions, namely Polgahawela and Mawathagama had the lowest percentage employed among all electorates, except for Kuliyapitiya.

As was highlighted in Chapter 3, the percentage of employed was smallest in the wet zone and highest in the dry with the intermediate zone inbetween. The electorate-wise analysis adds some refinement to this observation.

The levels of unemployment in the different electorates generally confirmed to this pattern. However there were certain exceptions such as Yapahuwa which showed a relatively high percentage unemployed, contrary to the expectations.

Table 6.3 : Electorate-wise employment and unemployment rates.

Electorates arranged according to geographic position (North to South)	Percentage of employed in the labour force	Percentage of unemployed in the labour force	Rank ordering according to percentage of employed (Descending order)	Rank Ordering according to percentage of unemployed (Ascending order)
Galgamuwa	61	10	2	4
Yapahuwa	52	21	3	11
Nikaweratiya	63	1	1	1
Wariyapola	45	18	8	2
Hiriyala	43	13	9	6
Bingiriya	46	10	6	3
Panduwasnuwara	45	18	7	10
Kuliyapitiya	35	21	13	12
Kurunegala	42	15	10	8
Polgahawela	42	25	11	13
Katugampola	48	10	5	5
Dambadeniya	50	13	4	7
Mawathagama	40	15	12	9

6.4 INCOME

The average household incomes of the different electorates showed a somewhat of a different pattern, (see Table 6.4) compared with the employment/unemployment pattern. Two of the northern most electorates Yapahuwa and Nikaweratiya had the lowest household income of all electorates in the district. In these two electorates both employment income (income from paid employment) and agricultural income (income from self employment in agriculture) were low. Galgamuwa was however an exception in this group of electorates. The very high household incomes in Galgamuwa were primarily due to high agricultural incomes and secondarily due to employment income. It is possible that farming conditions, particularly the rainfall and irrigation conditions and size of paddy holding are more favourable in Galgamuwa when compared to the rest of the dry and semi-dry zone in the district and hence the higher household incomes. The better rainfall and irrigation conditions could be due to the influence of the north-east monsoon and better water storage conditions in this area.

Although the electorates of Polgahawela and Mawathagama had a small proportion employed and a relatively large proportion unemployed the household incomes in these electorates were relatively high. In Mawathagama it was the income from paid employment that was largely responsible for the high household incomes while Polgahawela in addition had high agricultural incomes as well.

In general income from paid employment in the southern electorates namely Polgahawela, Katugampola, Dambadeniya and Mawathagama was higher compared to the rest. This could be due to higher occurence of persons engaged in trade, transport work and government service signifying the service type of economy prevailing in the areas as was pointed out in Chapter 3. These activities are generally associated with higher incomes.

There was no marked distinction in income, between the dry and the wet coconut areas of the district. The household incomes in the wet (and the more productive) coconut areas such as

Dambadeniya and Katugampola was generally higher, so were the household incomes in Wariyapola and Bingiriya. However, in general the household incomes in all coconut-dominated electorates were not very different from each other.

Table 6.4 : Household incomes and composition of household income in different electorates.

Electorates arranged according to geographic position (North to South)	Income from paid employment	Income from self employment in non agricultural activities	Income from self employment in agriculture	Income from animal husbandry	Other incomes	Aggregate Income	Rank Ordering according to aggregate income
Galgamuwa	1941	533	4723	90	154	7441	2
Yapahuwa	1284	379	1579	58	69	3303	13
Nikaweratiya	848	-	2859	38	6	3751	12
Wariyapola	1993	889	3405	39	29	6355	5
Hiriyala	2034	247	2156	52	68	4557	9
Bingiriya	2772	330	3924	133	66	7224	4
Panduwas-nuwara	1569	271	2559	88	8	4496	10
Kuliyapitiya	1174	459	3588	132	278	5353	8
Kurunegala	2033	425	1872	14	2	4345	11
Polgahawela	2901	619	4755	12	121	8408	1
Katugampola	3354	176	2061	179	136	5912	6
Dambadeniya	3253	1033	3735	11	370	7402	3
Mawathagama	3563	272	1928	9	84	5855	7

ANNEXES

ANNEX 1

SELECTED DEVELOPMENT INDICATORS - Baseline Position

OVERALL INDICATORS

Objective	Indicator	Measurement Description/ Unit		STATISTIC WZ	IZ	DZ	District	Remarks	Source
Educational Attainment	Percentage distribution of household members age 15 years and over by level of education	No Schooling	(%)	15.8	11.8	14.2			SBLS
		Primary Grades	(%)	39.2	35.2	41.3			
		Grade VI-IX	(%)	35.4	36.2	33.0			
		Passed GCE (O.L)	(%)	9.5	14.2	10.3			
		Passed GCE (A.L)	(%)	0.1	2.6	1.1			
School Participation	Age specific school participation rate	5-9 Years	(%)	81.2	75.2	75.5	75.4		SBLS
		10-14 yrs	(%)	100.0	84.0	85.8	84.8		
		15-19 yrs	(%)	38.5	50.2	30.2	46.6		
Housing	Percentage distribution of houses according to Floor Area	<500	(%)	37.2	46.9	63.1	48.8		SBLS
		500-1000	(%)	53.5	37.9	30.5	37.5		
		⩾ 1000	(%)	9.3	15.2	6.4	13.7		
	Average Floor Area	Sq. ft.		626.74	619.85	508.01	607.74*		SBLS
	Proportion of Houses with permanent structures	Brick Walls	(%)	34.70	26.0	18.0	26.09*		SBLS
		Permanent roof	(%)	46.84	22.92	22.0	23.79*		SBLS
		Cement Floor	(%)	46.84	44.30	24.0	42.15*		
	Measurement of over crowding	Proportion of overcrowded houses on the basis of a minimum floor area per person	(%)	9.3	20.7	22.7	20.6		SBLS
Household Amenities & Equipment	Proportion of houses having own source of drinking water & electricity	Own source of drinking water	(%)	45.81	48.30	28.0	45.95*		SBLS
			(%)	8.89	3.92	8.76	4.66*		

* Computed using formula

SELECTED DEVELOPMENT INDICATORS - Baseline Position

OVERALL INDICATORS

Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
	Proportion of households having selected household items	Radios (%)	49.90	55.82	58.38	54.84*		SBLS
		Bicycles (%)	18.12	41.02	49.24	41.00*		
Household amenities & Equipment (contd)	Number of different types of equipment owned per hundred households	Mammoty	121	147	227	157		
		Sprayer/Duster	0	3	6	3		
		Tractor 2 W.	2	**	3	**	**Negligible	SBLS
		Tractor 4 W	0	**	1	**		
Social Infrastructure	Closeness of villages to basic service Institutions	Percentage of villages within 2 miles Sch. - Primary	100	90	90	-		
		,, - Secondary	100	77	50	-		
		,, - Sc. (O.L)	67	49	30	-		
		,, - Sc. (A.L)	33	25	10	-		
		Bazaar	100	58	50	-		
		Cooperative	100	74	70	-		
		Village fair (Pola)	33	47	30			
		Bus Route	100	86	70	-		
		Railway Station	0	8	10	-		
		Health Centre	33	33	20	-		
		Govt. Dispensary	0	34	20	-		
		Bank	67	18	20	-		
		Agrarian Service Centre	33	10	10	-		
Employment & Unemployed	Percentage of employed in the labour force	%	37.8 (43.6)	46.7 (49.3)	58.4 * (58.6)	47.8	Including unpaid family helpers	SBLS
	Percentage of unemployed in the labour force	%	20.3	14.6	13.6	16.7	Excluding housewives seeking employment	SBLS

* Computed using formula

SELECTED DEVELOPMENT INDICATORS - Baseline Position

OVERALL INDICATORS

Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
	Dependency Ratio	No. of persons per employed person	3.0	2.5	2.0	2.4		SBLS
	Occupational structure	Percentage of employed in Agriculture (%)	24.5	61.2	78.8	58.0		SBLS
		Percentage of the employed in Government & Bank Service	18.4	17.9	7.9	16.3		SBLS
Income	Percentage of Income derived from self employment in Agriculture	%	43.1	56.6	69.0	58.3		SBLS
	Percentage of income derived from hired labour	%	34.4	12.3	9.7	12.7		SBLS
	Percentage of income derived from Govt. Service	%	21.2	21.4	14.8	20.2		SBLS
	Level of household income	Average annual household income (Rs.)	5813 (5561)	5492 (5299)	6508 (6939)	5654 (5491)*		SBLS
	Distribution of households according to income groups	Percentage of households receiving income below Rs. 4000 per annum (%)	39.6	55.0	33.8	51.7		SBLS
	Distribution of income among household income groups	Percentage of income received by the households with an annual income below Rs.4000 (%)	15.3	20.7	11.6	19.0		SBLS
	Per Capita Income	Rs.	2325 (1111)	1037 (997)	1271 (1335)*	1075		SBLS
	Income per Income Receiver	Rs.	4032 (3986)	4067 (3589)	5380 (4221)*	4233		SBLS

* Computed using formula

SELECTED DEVELOPMENT INDICATORS - Baseline Position

OVERALL INDICATORS

Objective	Indicator	Measurement Description	STATISTICS WZ	IZ	DZ	District	Remarks	Source
Immunization Status	Percent of children under 5 yrs. with complete immunization	Polio	59.1	36.5	40.6	37.9		
		Triple	50.0	36.5	41.7	37.8		
		B.C.G.	72.7	53.6	49.0	53.6		
		Smallpox	45.5	33.0	37.5	34.1		
Quality of life	Physical Quality of Life	Male				88.6		ARTI
		Female				87.9		
Agricultural Production/ Productivity (Paddy)	Area sown	1978 Yala season (Ac.)						
		Major Irrigation				13811		DC & S
		Minor Irrigation				31313		
		Rainfed				58468		
		Total				103592		
		1978/79 Maha Season (Ac.)						
		Major Irrigation				21282		
		Minor Irrigation				72092		
		Rainfed				72425		
		Total				165799		
	Production	1978 Yala season (BU)				3546855		DC & S
		1978/79 Maha season (BU)				8113000		DC & S
	Productivity	1978 Yala season (B/Ac)						
		Major Irrigation				48.22		DC & S
		Minor Irrigation				34.66		
		Rainfed				38.26		
		Overall				38.70		
			36.51	54.42		38.58*		NASS
		1978/79 Maha Season (B/Ac)						
		Major Irrigation				70.92		DC & S
		Minor Irrigation				49.49		
		Rainfed				45.50		
		Overall				50.63		
			33.23	60.08		37.64*		NASS

* Computed using formula

SELECTED DEVELOPMENT INDICATORS - Baseline Position

OVERALL INDICATORS

Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
Agricultural production/ productivity (Paddy)	Adoption of Improved farming practices	Extent under NHyv (%)						
		Yala 78		76.25	26.16	75.78*		NASS
		Maha 78/79		70.00	68.78	69.64*		
		Extent Transplanted (%)						
		Yala		10.00	Nil	9.94*		NASS
		Maha 78/79		11.88	13.92	12.50*		
		Extent Fertilized (%)						
		Yala 78		85.63	75.00	84.47*		NASS
		Maha 78/79		81.88	96.62	83.93*		
		Proportion of farmers adopting weed control (%)						
		Yala 78		33.3	33.3	33.3		NASS
		Maha 78/79		31.7				
		Quantity of fertilizer applied per acre (cwt)		1.84	-			NASS
				1.06	1.24			
Agricultural Production/Productivity (coconut)	Production							
	Productivity	Nuts per acre				1250	1977	1977 Survey
						1430	May-April 1980	NASS
Land Ownership/Distribution	Average Size of Agricultural holding	All Land (Acre)	1.816	3.021	3.777	3.076*		SBLS
		Paddy land (Ac)	0.69	1.56	2.29			
	Distribution of size of holding	Percentage of households operating <1 Acre (%)	55.8	25.6	9.8	24.6		SBLS
	Tenural Pattern of agricultural holdings	Proportion of land rented or leased in by sample households (%)	30.1	19.1	16.0	18.62		SBLS
	Landlessness	Percentage of households operating no land (%)	None	3.1	2.8	2.9		SBLS
		Percentage of households operating no paddy land (%)	48.8	34.6	23.9	33.6		SBLS

SELECTED DEVELOPMENT INDICATORS

COMPONENT SPECIFIC INDICATORS

Component & Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
Irrigation & Water Management Component	Paddy Acreage under major and minor irrigation schemes							
Extent Irrigated	(a) Aswedduminised acreage	Major				25,000	Acres	
		Minor				70,000		
		Rainfed				75,000		
		Total				170,000		
	(b) Extent sown	Major				13,811	Yala 78	
		Minor				31,313	Acres	
		Rainfed				58,468		
		Total				103,592		
		Major				21,282	Maha 78/79	
		Minor				72,092	Acres	
		Rainfed				72,425		
		Total				165,799		
Extent Irrigated	Proportion of Aswedduminised Paddy land under major and minor irrigation Schemes	Major %				13		DC & S
		Minor %				43		
		Rainfed %				44		
		Major %	-	11	36	17		SBLS
		Minor %	3	34	61	41		
		Rainfed %	97	55	3	42		
Quality of Irrigation	Cropping Intensity	Major				157	Crop year (Yala 78 & Maha 78/79)	DC & S
		Minor				141		
		Rainfed				176		
		Overall				159		
				163	109	155		NASS
	Productivity under different Irrigation Conditions	Yala 78 (Bu/Ac)						
		Major				48.22		DC & S
		Minor				34.66		
		Rainfed				38.26		
		Overall				38.70		
			38.51	54.42	38.58*			SBLS
		Maha 78/79 (Bu/Ac)						
		Major				70.92		DC & S
		Minor				49.49		
		Rainfed				45.50		
		Overall				50.63		
			33.23	60.08	37.64*			SBLS

* Computed using formula.

SELECTED COMPONENT SPECIFIC INDICATORS

Component & Objective	Indicator	Measurement Description & Unit	WZ	IZ	DZ	District	Remarks	Source
Agricultural Credit								
Disbursement and Recovery of paddy loans	Amounts disbursed as paddy loans and recoveries made	Peoples Bank 01-01-79 to 31-10-80						Respective Banks
		Amount disbursed (Rs)				2,612,671		
		Amount Recovered (Rs)				1,623,638		
		Recovery Rate (%)				62%		
		Bank of Ceylon						
		Maha 78/79 and Yala 79						
		Amount disbursed (Rs)				3,397,830		
		Amount Recovered (Rs)				2,534,445		
		Recovery Rate (%)				75%		
		Maha 79/80 and Yala 80						
		Amount disbursed (Rs)				2,159,398		
		Amount Recovered (Rs)				1,701,984		
		Recovery Rate (%)				79%		
Rural Electrification								
Use of facilities provided	Number of users attached to new lines						To be assessed at the post project stage.	
Drinking water								
Use of facilities provided	Number of families using the constructed well						To be assessed at mid & post Project stages.	
Education	Pupil Teacher Ratio					19.88	1979 position	
	No. of AL Science schools					15		
	No. of science graduate teachers per 100 A/L students					2.8		
	Proportion of all science teachers out of a total no.of teachers (%)					12.29		

SELECTED DEVELOPMENT INDICATORS 8

COMPONENT SPECIFIC INDICATORS

Component & Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
Coconut Development Component								
Acceptance of subsidy programmes	Extent of land developed under the subsidy	Subsidy for, Pasture			1978 9211		1979 2214	CCB
		Underplanting/ Newplanting			406		1887	
		Land Rehabilitation			NA		7776	
		Newplanting			NA		487	
		Pepper			6		109	
		Coffee			27		320	
		Cocoa			Nil		50	
Level of Management	Percentage of coconut holders adopting selected Farming Practices	Systematic Underplanting (%)			6.9			
		Systematic Intercropping			5.7			1977 Survey.
		Fertilization			4.9			
		Improved Pasture			1.7			
		Livestock			69.6			
	Percentage extent of land under improved management	Percentage extent under; systematic underplanting			2.4			
		Systematic intercropping			1.3			
		Improved Pasture			2.4			1977 Survey
		Livestock (Cattle head/Acre)			0.40			
Productivity	Yield	Nuts per acre			1250			1977 Survey.
					1430			NASS Survey.
Agricultural Extension Component								
Extension Effectiveness	Extension contact and awareness of extension system	% of contact farmers reporting regular visits of KVSS	61.5	73.9	83.7	72.8		Indepth study on operational aspects of T&V system of extension

SELECTED DEVELOPMENT INDICATORS

COMPONENT SPECIFIC INDICATORS (CONTD.,)

Component & Objective	Indicator	Measurement Description & Unit	STATISTICS WZ	IZ	DZ	District	Remarks	Source
		% of contact farmers reporting consultation by follower farmers						
		Category I By many follower farmers	20.0	34.2	57.3	34.8		
		Category II By few follower farmers	52.5	38.0	27.5	38.8		
		% of follower farmers reporting awareness of the T & V system	35.0	53.0	65.0	50.8		

ANNEX II - TABLES

Table A1

Ethnic Religious Composition of sampled Households

Race	Number	Percentage	Religion	Number	Percentage
Sinhalese	1003	98.6	Buddhist	978	96.1
Tamil	9	0.9	Hindus	6	0.6
Moors	5	0.5	Muslims	5	0.5
			Christians	28	2.8
TOTAL	1017	100.0	TOTAL	1017	100.0

Table A2

Distribution of households according to size

Zone	SIZE OF HOUSEHOLD 1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	Mean	Median
Wet	3	0	7	7	9	7	4	6	-	-	-	-	-	-	43	5.00	4.50
Intermediate	43	51	101	124	139	134	94	71	41	16	10	6	1	1	832	5.30	4.70
Dry	10	9	20	25	17	21	19	8	7	3	0	1	1	1	142	5.13	4.41
All zones	56	60	128	156	165	162	117	85	48	19	10	7	2	2	1017	5.26	4.66

Table A3

Distribution of members of the households by age, sex and zones

Age group	WET						INTERMEDIATE						DRY						ALL ZONES					
	M	%	F	%	Total	%	M	%	F	%	Total	%	M	%	F	%	Total	%	M	%	F	%	Total	%
0 - 4	8	7.1	11	10.8	19	8.8	201	9.2	210	9.4	411	9.3	38	10.3	38	10.4	76	10.4	247	9.3	259	9.6	506	9.5
5 - 9	6	5.4	10	9.7	16	7.4	260	11.9	260	11.7	520	11.8	47	12.8	51	14.0	98	13.4	313	11.7	321	11.9	634	11.8
10 - 14	18	16.1	4	3.9	22	10.2	286	14.0	265	11.9	551	12.5	57	15.5	56	15.4	113	15.4	361	13.6	325	12.1	686	12.8
15 - 19	16	14.3	10	9.7	26	12.1	257	11.8	247	11.1	504	11.4	47	12.8	52	14.3	99	13.5	320	12.0	309	11.5	629	11.7
20 - 24	12	10.7	11	10.7	23	10.7	228	10.4	258	11.6	486	11.0	46	12.5	24	6.6	70	9.6	286	10.7	293	10.9	579	10.8
25 - 29	8	7.1	12	11.7	20	9.3	163	7.4	185	8.3	348	7.9	23	6.3	31	8.5	54	7.4	194	7.3	228	8.5	422	7.9
30 - 34	8	7.1	9	8.7	17	7.9	122	5.6	123	5.5	245	5.6	22	6.0	27	7.4	49	6.7	152	5.7	159	5.9	311	5.8
35 - 44	14	12.5	14	13.6	28	13.0	199	9.1	230	10.3	429	9.7	36	9.8	38	10.4	74	10.1	249	9.3	282	10.5	531	9.9
45 - 54	8	7.1	9	8.7	17	7.9	214	9.8	205	9.2	419	9.5	26	7.1	25	6.9	51	6.7	248	9.3	239	8.9	437	9.0
55 - 64	4	3.6	8	7.8	12	5.6	135	6.2	124	5.6	259	5.9	15	4.1	13	3.6	28	3.8	154	5.8	145	5.4	299	5.8
65 - 74	5	4.5	1	1.0	6	2.8	69	3.2	81	3.6	150	3.4	7	1.9	6	1.6	13	1.8	81	3.0	88	3.3	169	3.2
75 & over	5	4.5	4	3.9	9	4.2	50	2.3	35	1.6	85	1.9	4	1.1	3	0.8	7	1.0	59	2.2	42	1.6	101	1.9
Total	112	100	103	100	215	100	2184	100	2223	100	4407	100	368	100	364	100	732	100	2664	100	2690	100	5354	100
Masculinity ratio	108.7						98.3						101.1						99.0					

Table A4

Age specific school participation rates by sex and income of household

(Figures in parentheses indicate the total number of children in the sample falling into the respective category)

Sex or Monthly Income (Rs.)	Wet			Intermediate			Dry			All zones		
	5-9	10-14	15-19	5-9	10-14	15-19	5-9	10-14	15-19	5-9	10-14	15-19
Male	83.3 (6)	100.0 (18)	37.5 (16)	74.2 (260)	83.6 (281)	50.6 (257)	76.6 (47)	86.0 (57)	29.8 (47)	74.7 (313)	84.8 (356)	46.9 (320)
Female	80.0 (10)	100.0 (4)	40.0 (10)	76.2 (260)	84.5 (264)	49.8 (247)	74.5 (51)	85.7 (56)	30.8 (52)	76.1 (321)	84.9 (324)	46.3 (369)
Both sexes	81.2 (16)	100.0 (22)	38.5 (26)	75.2 (520)	84.0 (545)	50.2 (504)	75.5 (98)	85.8 (113)	30.3 (99)	75.4 (634)	84.8 (630)	46.6 (629)
≤ 100	100.0 (1)	100.0 (1)	-	62.0 (50)	75.5 (53)	39.5 (38)	60.0 (10)	75.0 (8)	25.0 (4)	62.30 (61)	75.8 (62)	38.1 (42)
100 - 199	-	100.0 (1)	-	75.0 (92)	83.7 (86)	58.1 (74)	100.0 (5)	75.0 (4)	25.0 (4)	76.3 (97)	83.52 (91)	54.3 (81)
200 - 399	88.9 (9)	100.0 (10)	32.5 (8)	68.9 (193)	82.0 (217)	42.8 (166)	76.2 (21)	73.7 (19)	-	70.4 (223)	82.11 (246)	38.7 (191)
400 - 599	100.0 (1)	100.0 (3)	25.0 (4)	83.1 (83)	86.5 (96)	49.4 (87)	83.9 (31)	82.4 (34)	29.6 (27)	83.5 (115)	85.71 (133)	44.1 (118)
600 - 799	0.00 (2)	-	42.9 (7)	89.3 (28)	86.1 (36)	53.6 (28)	78.6 (14)	100.0 (23)	58.8 (17)	81.8 (44)	91.5 (59)	54.9 (51)
800 - 999	-	-	-	76.9 (13)	90.0 (20)	54.2 (24)	100.0 (13)	87.5 (8)	33.3 (9)	81.3 (16)	89.3 (28)	48.5 (33)
1000+	100.0 (1)	100.0 (4)	50.0 (2)	89.6 (48)	97.1 (35)	69.6 (69)	75.0 (12)	93.3 (15)	31.6 (19)	86.9 (61)	96.1 (55)	81.11 (90)

Table A5

Percentage Distribution of Household members aged 15 years and over by level of Education and Age

Level of Education	Zone	15-19	20-24	25-29	30-34	35-44	45-54	55-64	65-74	75 & over	Total
	Wet	0	4.4	5.0	5.9	10.7	35.3	41.7	50.0	55.6	15.8
No Schooling	Int.	2.4	3.1	2.9	5.3	12.6	17.0	26.6	42.7	42.4	11.8
	Dry	8.1	1.4	9.3	4.1	13.5	21.6	46.4	61.5	71.4	14.2
	W	34.6	21.7	20.0	41.2	64.3	47.1	33.3	50.0	41.4	39.2
Primary Grades	I	27.4	25.7	23.6	29.4	38.9	49.4	51.7	44.0	45.9	35.2
	D	40.4	32.9	35.2	53.1	46.0	56.9	39.3	-	28.6	41.3
	W	57.7	65.2	50.0	29.4	17.9	17.7	25.0	-	-	35.4
Grade VI - IX	I	51.8	43.8	42.0	43.3	35.0	24.1	20.9	12.7	11.8	36.2
	D	42.4	45.7	37.0	22.4	33.8	15.7	14.3	38.5	-	33.0
	W	7.7	4.4	25.0	25.5	7.1	-	-	-	-	9.5
G.C.E.(O/L) Pass	I	17.7	23.3	24.7	15.5	11.2	9.3	0.8	0.7	-	14.2
	D	8.1	20.0	16.7	14.3	6.8	5.9	-	-	-	10.3
G.C.E.(A/L) Pass	W	-	4.4	-	-	-	-	-	-	-	0.1
or	I	0.8	4.1	6.9	6.5	2.3	-	-	-	-	2.6
Higher Qualifications	D	1.0	-	1.9	6.1	-	-	-	-	-	1.1

Table A6

Closeness of village to various basic service Institutions/Facilities

Service Institution/ facility	Zone	Percentage of villages within 1 mile	2 miles	3 miles	5 miles	10 miles	Service Institution/ facility	Zone	Percentage of villages within 1 mile	2 miles	3 miles	5 miles	10 miles
School Primary	Wet	0	100	–	–	–	Railway Station	Wet	0	0	33	33	67
	Int	57	90	97	100	–		Int	04	08	14	28	100
	Dry	60	90	100	–	–		Dry	10	10	20	50	100
School secondary	W	0	100	–	–	–	Health centre	W	0	33	67	67	100
	I	35	77	94	96	100		I	21	33	48	71	100
	D	30	50	80	100	–		D	20	20	30	80	100
School science (O/L)	W	0	67	67	67	100	Govt. dispensary	W	0	0	67	67	100
	I	20	49	84	77	100		I	17	34	57	88	100
	D	10	30	60	70	100		D	20	20	30	80	100
School Science (A/L)	W	33	33	67	67	100	Hospital	W	0	0	67	67	100
	I	10	25	37	58	100		I	07	14	18	43	100
	D	0	10	20	40	100		D	10	10	20	60	100
Bazaar	W	67	100	–	–	–	Post office	W	33	33	67	100	–
	I	34	58	77	86	100		I	16	44	70	92	100
	D	50	50	50	80	100		D	20	30	60	80	100
Co-operative	W	67	100	–	–	–	Police station	W	0	0	67	67	100
	I	41	74	96	98	100		I	03	12	19	43	100
	D	70	70	80	90	100		D	10	10	20	50	100
Village fair	W	33	33	67	67	100	Bank	W	0	67	100	–	–
	I	14	47	66	87	100		I	09	18	32	60	100
	D	30	30	50	70	100		D	20	20	30	50	100
Bus route	W	67	100	–	–	–	Agrarian Service Centre	W	0	33	67	67	100
	I	61	86	91	96	100		I	07	10	26	60	100
	D	70	70	80	90	100		D	10	10	30	50	100
A.G.A. Office	W	0	33	07	67	100	Temple	W	67	100	–	–	–
	I	03	05	08	18	100		I	71	88	100	–	–
	D	10	10	10	40	100		D	50	80	80	100	–

Table A7

Distribution of Houses according to the number of Rooms

Zone	No. of Rooms 1	2	3	4	5	6	7	8	9	10	14	Not specified	Total	Av.no of rooms
Wet	6	15	11	7	4	-	-	-	-	-	-	-	43	2.72
Intermediate	89	242	254	117	65	33	17	6	5	2	1	1	832	3.10
Dry	19	51	44	16	6	2	1	0	1	1	-	1	142	2.72
All zones	114	308	309	140	75	35	18	6	6	3	1	2	1017	3.03

Table A8

Numerical, Percentage and Cumulative Distribution of Houses by Floor Area

Floor area (sq.ft)	Wet No	%	Cum %	Intermediate No	%	Cum %	Dry No	%	Cum %	All zones No	%	Cum %
250	5	11.6	11.6	120	14.7	14.7	28	19.9	19.9	153	15.3	15.3
250-500	11	25.6	37.2	262	32.2	46.9	61	43.2	63.1	334	33.5	48.8
500-1000	23	53.5	90.7	309	37.9	84.8	43	30.5	93.6	375	37.5	86.3
1000-2000	4	9.3	100.0	107	13.1	97.9	9	6.4	100.0	120	12.0	98.3
2000	-	-	-	17	2.1	100.0	-	-	-	17	1.7	100.0
Unspecified	-	-	-	17	-	-	1	-	-	18	-	-
TOTAL	43	100.0	-	832	100.0	-	142	100.0	-	1017	100.0	-

Table A9

Distribution of houses according to various characteristics
(Figures in parenthesis indicate percentages within broad categories)

		Wet	Intermediate	Dry	All zones
Ownership of House	Owner-occupied	36 (83.7)	745 (89.5)	126 (88.7)	907 (89.2)
	Rented/leased	4 (9.3)	20 (2.4)	-	24 (2.4)
	Without rent/ others	3 (7.0)	67 (8.1)	16 (11.3)	86 (8.4)
Ownership of Land	Own	32 (74.4)	657 (79.0)	82 (57.7)	771 (75.8)
	Crown	1 (2.3)	73 (8.7)	44 (31.0)	118 (11.6)
	Private	1 (2.3)	58 (7.0)	2 (1.4)	61 (6.0)
	Other	9 (21.0)	44 (5.3)	14 (9.9)	67 (6.6)
Type of floor	Cement	20 (46.5)	363 (43.6)	38 (26.8)	421 (41.4)
	Mud	23 (53.5)	469 (56.4)	104 (73.2)	596 (58.6)
Type of Walls	Brick	15 (34.9)	224 (26.9)	27 (19.0)	266 (26.2)
	Clay/Others	28 (65.1)	608 (73.1)	115 (81.0)	751 (73.8)
Type of roof	Tiles/Asbestos/ Metal sheets	20 (46.5)	210 (25.2)	35 (24.6)	265 (26.1)
	Cadjan/others	23 (53.5)	622 (74.8)	107 (75.4)	752 (73.9)
Type of kitchen	Detatched	39 (90.7)	601 (72.2)	116 (81.7)	756 (74.3)
	Undetatched	4 (9.3)	231 (27.8)	26 (18.3)	261 (25.7)
Availability of electri-city	Yes	4 (9.3)	36 (4.3)	12 (8.5)	52 (5.1)
	No	39 (90.7)	796 (95.7)	130 (91.5)	965 (94.9)
Accessibility by vehicles	Yes	31 (72.1)	671 (80.6)	119 (83.8)	821 (80.7)
	No	12 (27.9)	161 (19.4)	23 (16.2)	196 (19.3)
TOTAL		43 (100)	832 (100)	142 (100)	1017 (100)

Table A10

Distribution of Houses by size of household and number of rooms - Wet Zone

No. of rooms	Size of household 1	2	3	4	5	6	7	8	Total
1	1	-	-	1	1	1	1	1	6
2	1	-	3	2	4	2	1	2	15
3	1	-	3	3	3	1	-	-	11
4	-	-	-	1	1	2	2	1	7
5	-	-	1	-	-	1	-	2	4
TOTAL	3	-	7	7	9	7	4	6	43

Table A11

Distribution of Houses by size of household and number of rooms - Intermediate zone

No. of rooms	Size of household 1	2	3	4	5	6	7	8	9	10	11	12	13	14	NR	Total
1	9	14	12	12	11	17	6	5	3							89
2	20	22	37	43	30	32	19	17	10	6	4	2			1	243
3	9	7	30	36	49	39	41	20	12	5	4	1	1			254
4	4	2	9	13	25	23	17	13	6	2	2	1				117
5	-	3	9	11	13	9	6	6	6	1	-	1				65
6	1	2	2	4	5	10	4	3	2		-					33
7	-	-	-	4	3	1	1	5	1	1	-	1				17
8	-	-	1	1	2	1	-	-	-	1	-					6
9	-	-	-	-	1	-	-	2	1	-	-	-	-	1		5
10	-	-	-	-	-	2										2
14		1														1
TOTAL	43	51	100	124	139	134	94	71	41	16	10	6	1	1	1	832

Table A12

Distribution of houses by size of household and number of rooms - dry zone

No.of rooms	Size of Households														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
1	5	2	2	4	1	4	1	-	-	-	-	-	-	-	19
2	3	4	9	12	5	7	5	1	2	1	-	-	1	1	51
3	2	1	6	6	7	4	9	3	3	2	-	1	-	-	44
4	-	-	1	-	3	4	3	3	2	-	-	-	-	-	16
5	-	-	1	2	1	1	1	-	-	-	-	-	-	-	6
6	-	-	-	1	-	1	-	-	-	-	-	-	-	-	2
7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
9	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
10	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
NR	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL	10	9	20	25	17	21	19	8	7	3	-	1	1	1	142

Table A13

Distribution of houses by size of household and number of rooms - all zones

No.of rooms	Size of Households															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	NR	Total
1	15	16	14	17	13	22	8	6	3	-	-	-	-	-	-	114
2	24	26	49	57	39	41	25	20	12	7	4	2	1	1	1	309
3	12	8	39	45	59	44	50	23	15	7	4	2	1	-	-	309
4	4	2	10	14	29	29	22	17	8	2	2	1	-	-	-	140
5	-	3	11	13	14	11	7	8	6	1	-	1	-	-	-	75
6	1	2	2	5	5	11	4	3	2	-	-	-	-	-	-	35
7	-	1	-	4	3	1	1	5	1	1	-	1	-	-	-	18
8	-	-	1	1	2	1	-	-	-	1	-	-	-	-	-	6
9	-	-	-	-	1	-	-	3	1	-	-	-	-	1	-	6
10	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	3
14	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
NR	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL	56	60	127	156	165	162	117	85	48	19	10	7	2	2	1	1017

Table A14

Distribution of Houses by floor area and size of household - Wet zone

Floor area sq. ft.	Size of Household 1	2	3	4	5	6	7	8	Total
100	1				1				2
100 - 250				1	1	1			3
250 - 500	1		4	1	2	2	1		11
500 - 750	1			4	3		2	3	13
750 - 1000			2	1	1	2	1	3	10
1000 - 1250						1			1
1250 - 1500					1	1			2
1500 - 1750			1						1
TOTAL	3	0	7	7	9	7	4	6	43

Table A15

Distribution of houses by floor area and size of household - Intermediate zone

Floor area sq.ft.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	NR	Total
100	2	2	1	2												7
100- 249	12	8	18	17	15	21	11	7	4							113
250- 499	18	18	38	35	40	40	30	24	12	4	1	2				262
500- 749	5	8	18	30	38	32	19	12	13	4	3	1				183
750- 999	4	3	10	19	20	21	23	12	8	3	2	1				126
1000- 1249	1	5	8	9	8	5	4	6	1	2	1	1				51
1250- 1499		2	2	4	5	7	2	5	2	1						30
1500- 1749	1		1	2	4	3	2	1	1							15
1750- 1999			2	2	4					1		1		1		11
2000- 2249					1	2	1				1		1			6
2250- 2499		1	1		1	1		2								6
2500- 2749				1												1
2750- 2999								1								1
3000- 3249						1		1								2
3250- 3499																0
3500- 3749																1
N.R.															17	17
TOTAL	43	48	99	121	136	133	92	71	41	15	8	6	1	1	17	832

Table A16

Distribution of houses by floor area and size of household - dry zone

Floor Area sq.ft.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	NR	Total
Less 100																
100- 299	5	4	6	3	2	4	1	-	1	1	-	1	-	-		28
250- 499	5	-	7	13	8	9	8	5	4	1	-	-	1	-		61
500- 749	-	2	4	5	2	5	7	-	2	1	-	-	-	-		28
750- 999	-	2	2	1	4	1	2	2	-	-	-	-	-	1		15
1000-1249	-	-	-	1	1	-	1	-	-	-	-	-	-	-		3
1250-1499	-	-	-	1	-	2	-	-	-	-	-	-	-	-		3
1500-1749	-	-	1	-	-	-	-	-	-	-	-	-	-	-		1
1750-1999	-	1	-	-	-	-	-	1	-	-	-	-	-	-		2
N.R.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
TOTAL	10	9	20	24	17	21	19	8	7	3	-	1	1	1	1	142

Table A17

Distribution of houses by floor area and size of household - All zones

Floor area sq.ft.	Size of Household 1	2	3	4	5	6	7	8	9	10	11	12	13	14	N.R.	Total
Less 100	3	2	1	2	1											9
100 - 250	17	12	24	21	18	26	12	7	5	1		1				144
250 - 500	24	18	49	49	50	51	39	29	16	5	1	2	1			334
500 - 750	6	10	22	39	43	37	28	15	15	5	3	1				224
750 - 1000	4	5	14	21	25	24	26	17	8	3	2	1				151
1000 - 1250	1	5	8	10	9	6	5	6	1	2	1	1				55
1250 - 1500		2	2	5	6	10	2	5	2	1						35
1500 - 1750	1		3	2	4	3	2	1	1							17
1750 - 2000		1	2	2	4			1		1		1		1		13
2000 - 2250					1	2	1				1		1			6
2250 - 2500		1	1		1	1		2								6
2500 - 2750				1												1
2750 - 3000								1								1
3000 - 3250						1		1								2
3250 - 3500																
3500 - 3750		1														1
N.R.		1													18	18
TOTAL	56	58	126	152	162	161	115	85	48	18	8	7	2	2	18	1017
Av. floor area	395.09	628.51	566.47	609.54	664.04	639.29	615	755.59	598.96	738.89	906.25	775.0	125.0	1375	-	-

Table A18

Number and percentage of households having selected household items/transport facilities
(Figures in paranthesis indicate percentage)

Item/transport facility	Wet	Intermediate	Dry	All zone
01. Wall clock	13(30.2)	169 (20.3)	24(16.9)	206 (20.3)
02. Sewing machine	14(32.6)	217 (26.1)	28(19.7)	259 (25.5)
03. Wardrobe	19(44.2)	297 (35.7)	31(21.8)	347 (34.1)
04. Drawing room set (atleast 3 pieces)	5(11.6)	170 (20.4)	41(28.9)	216 (31.2)
05. Petromax Lamp	9(20.9)	274(32.9)	43(30.3)	326(32.1)
06. Kerosene cooker	0(0.0)	36(4.3)	2(1.4)	38(3.7)
07. Radio	20(46.5)	467(56.1)	70(49.3)	557(54.8)
08. Cassette Recorder	1(2.3)	12(1.4)	2(1.4)	15(1.5)
09. Carts	2(.4.7)	117(14.1)	12(8.5)	131(12.9)
10. Bicycle	9(20.9)	344(41.3)	67(47.2)	420(41.3)
11. Motor cycle	0(0.0)	4(0.5)	1(0.7)	15(0.5)
12. Car	0(0.0)	12(1.4)	3(2.1)	15(1.5)
13 Lorry	0(0.0)	3(0.4)	2(1.4)	5(0.5)

Table A19

Number of different types of farm equipment owned by all households and per 100 households

Farm Equipment	No. owned by all households				No. owned per 100 households			
	Wet	Intermediate	Dry	All zones	Wet	Intermediate	Dry	All zones
Mammoty	52	1222	322	1596	121	147	227	157
Plough	22	537	79	638	51	65	56	63
Sprayer/Duster	0	22	8	30	0	3	6	3
Water pump	0	24	0	24	0	3	0	2
Tractor - 2 wheel	1	1	4	6	2	*	3	*
Tractor - 4 wheel	0	3	1	4	0	*	1	*
Trailor - 2 wheel	1	2	1	4	2	*	1	*
Trailor - 4 wheel	0	3	0	3	0	*	0	*

* negligible

Table A20

Distribution of households according to the sources of water supply available for drinking and bathing, and availability of toilets and sources of water supply.

			Wet	Intermediate	Dry	All zones
Source of Water	Own well or Pipe borne	Drinking	20(46.5)	408 (49.0)	42(29.6)	470(46.2)
		Bathing	15(34.9)	361 (43.4)	11(7.7)	387(38.1)
	Nearby well	Drinking	21(48.8)	401 (48.2)	82(57.7)	504(49.6)
		Bathing	22(51.2)	289 (34.7)	-	311(30.9)
	Tank or River	Drinking	2(4.7)	7 (0.8)	18(12.7)	27(2.7)
		Bathing	6(13.9)	160 (19.2)	130(91.5)	296(29.1)
	Not reported	Drinking	-	16 (1.9)	-	16(1.6)
		Bathing	-	22 (2.6)	1(0.7)	23(2.3)
Availability of Toilet	Yes		49(93.0)	471 (56.6)	34(23.9)	545(53.1)
	No		3(7.0)	356 (42.8)	108(76.1)	467(45.9)
	Not reported		-	5 (0.6)	-	5(0.5)
	TOTAL		43(100)	832(100)	142(100)	1017(100)

Table A21

Distribution of households having toilet facilities according to the source of water supply

	Wet	Intermediate	Dry	All zones
Own well/Pipe borne	20(50)	29 A (61.8)	20(58.8)	334(60.7)
Nearby well	18(45)	167 (35.1)	14(41.2)	199(36.2)
Tank/River	2(5)	13 (2.7)	-	15(2.7)
Not reported	-	2 (0.4)	-	2(0.4)
TOTAL	40(100)	476 (100)	34(100)	550(100)

Table A22

Distribution of households according to the sources of medical treatment sought during illness and type of institution visited for treatment

		Wet	Intermediate	Dry	All zones
Source of medical treatment sought	Allopathic	43(100)	797(95.8)	141(59.3)	891(96.5)
	Ayurvedic	0	23(2.8)	1(0.7)	24(2.4)
	Not recorded	-	12(1.4)	-	12(1.2)
Type of institution visited for treatment	Government institution	43(100)	648(77.9)	137(96.5)	828(81.4)
	Private	0	172(20.7)	5(3.5)	177(17.4)
	Not recorded	-	12(1.4)	-	12(1.2)
TOTAL		43(100)	832(100)	142(100)	

Table A23

Percentage of Children under 5 years of age with complete immunization

Type of immunization	Wet	Intermediate	Dry	All zones
Polio	13(59.1)	188(36.5)	39(40.6)	240(37.9)
Triple	11(50.0)	188(36.5)	40(41.7)	239(37.8)
B.C.G.	16(72.7)	276(53.6)	47(49.0)	399(53.6)
Small Pox	10(45.5)	170(33.0)	36(37.5)	216(34.1)
Total number under 5 yrs.	22	515	96	633

Table B.1: Age-sex structure of employed (Including unpaid family workers)

Age Group	Wet Zone				Intermediate Zone				Dry Zone				All Zones			
	Male		Female		Male		Female		Male		Female		Male		Female	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
15 - 19	2	4.7	0	0.0	58	6.3	31	9.4	19	11.6	10	11.9	79	7.0	41	9.6
20 - 34	16	37.2	4	36.4	353	38.2	127	38.4	75	45.7	39	46.4	444	39.2	170	40.0
35 - 54	21	48.8	7	63.6	399	43.1	150	45.3	61	37.2	30	35.7	481	42.5	187	43.9
55 - 64	4	9.3	0	0.0	115	12.4	23	6.9	9	5.5	5	6.0	128	11.3	28	6.5
TOTAL	43	100.0	11	100.0	925	100.0	331	100.0	164	100.0	84	100.0	1132	100.0	426	100.0

Table B.2: Educational Status of employed (including unpaid family Workers)

Educational status	Wet Zone No.	%	Intermediate No.	%	Dry Zone No.	%	All zones No.	%
Illiterate	6	11.1	69	5.5	20	8.1	95	6.1
Primary grades	29	53.7	536	42.7	124	50.0	689	44.2
6th Grade to G.C.E. (O.L)	12	22.2	459	36.5	78	31.5	549	35.2
Passed G.C.E. (O.L)	7	13.0	161	12.8	23	9.3	191	12.3
Passed G.C.E. (A.L) and Higher	0	0.0	31	2.5	3	1.1	34	2.2
TOTAL	54	100.0	1256	100.0	248	100.0	1558	100.0

Table B.3: Age-Sex composition of unemployed

	Wet zone				Intermediate zone				Dry zone				Total			
	Male		Female		Male		Female		Male		Female		Male		Female	
Age	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
15 - 19	6	37.5	3	23.1	60	28.8	50	27.3	13	50.0	13	40.6	79	31.6	66	28.8
20 - 34	9	56.3	7	53.8	139	66.8	87	47.3	13	50.0	13	40.6	161	64.4	107	46.7
35 - 54	1	6.2	3	23.1	7	2.9	39	21.2	0	0.0	6	18.8	8	3.2	48	20.9
55 - 64	0	0.0	0	0.0	2	1.5	8	4.3	0	0.0	0	0.0	2	0.8	8	3.6
TOTAL	16	100.0	13	100.0	208	100.0	184	100.0	26	100.0	32	100.0	250	100.0	229	100.0

Table B.4: Educational status of unemployed

Education Status	Wet Zone No.	Wet Zone %	Intermediate Zone No.	Intermediate Zone %	Dry Zone No.	Dry Zone %	All Zones No.	All Zones %
Illiterate	1	3.4	18	4.6	15	25.9	34	7.1
Primary Grades	7	24.1	186	47.4	20	34.5	213	44.5
6th Grade to G.C.E. (O.L)	16	55.3	131	33.4	19	32.8	166	34.7
Passed G.C.E. (O.L)	4	13.8	43	11.0	4	6.8	51	10.6
Passed G.C.E. (A.L.) & Higher	1	3.4	14	3.6	0	0.0	15	3.1
TOTAL	29	100.0	392	100.0	58	100.0	479	100.0

Table B.5 : Annual income per Household according to Zones and Household income groups

Household income groups (Rs.)	Wet Zone		Intermediate Zone+		Dry Zone		All Zones	
	No.of house holds	Annual average income*	No.of house holds	Annual average income*	No.of house holds	Annual average income*	No.of house holds	Annual average income*
0 - 1000	3	637	101	463	13	638	117	487
1001 - 4000	14	2587	354	2528	35	2833	403	2557
4001 - 7000	15	4870	195	5280	46	5543	156	5304
7001 - 10000	7	7801	73	8452	27	8186	107	8342
10001 - 14000	1	12480	45	11895	9	11502	55	11812
14001 - 18000	0	-	29	15614	5	15658	34	15621
18001 - 24000	2	20720	11	20571	5	20777	18	20645
24001 - 32000	1	30244	13	26562	2	30780	16	27319
32001 +	0	-	7	57200	0	-	7	57200
All groups	43	5813	828	5492	142	6508	1013	5654

\+ Income data for 4 households are not available

* Rounded-off to the nearest rupee.

Table B.6: Annual income per income receiver according to Zones and Household income groups

Household income group (Rs.)	Wet Zone				Intermediate Zone +				Dry Zone				All Zones			
	No.of house holds	Total no.of income receivers	%	Annual* income per income receiver Rs.	No.of house holds	Total no.of income receivers	%	Annual* income per income receiver Rs.	No.of house holds	Total no.of income receivers	%	Annual* income per income receiver Rs.	No.of house holds	Total no.of income receivers	%	Annual* income per income receiver Rs.
0- 1000	3	4	6.4	478	101	108	9.7	433	13	13	7.5	638	117	125	9.2	456
1001- 4000	14	19	30.6	1096	354	426	38.1	2101	35	40	23.1	2479	403	485	35.8	2125
4001- 7000	15	18	29.0	4058	195	271	24.2	3800	46	56	32.4	4553	256	345	25.5	3935
7001- 10000	7	16	26.0	3034	73	112	10.0	5509	27	33	19.1	6697	107	161	11.9	5544
10001- 14000	1	1	1.6	12480	45	78	7.0	6842	9	11	6.4	9411	55	90	6.6	7218
14001- 18000	0	0	0.0	-	29	57	5.1	7944	5	9	5.2	8699	34	66	4.9	8047
18001- 24000	2	2	3.2	20720	11	19	1.7	11909	5	8	4.6	12986	18	29	2.1	12814
24001- 32000	1	2	3.2	15122	13	30	2.7	11510	2	3	2.1	20520	16	35	2.6	12489
32001 +	0	0	0.0	-	7	17	1.5	23553	0	0	0.0	-	7	17	11.4	23553
All groups	43	62	100.0	4032	828	1118	100.0	4067	142	173	100.0	5380	1013	1353	100.0	4233

\+ Income data for 4 households are not available.

* Rounded-off to the nearest rupee.

Table B.7 : Per capita Annual Income[+] according to household income group.

	Wet Zone			Intermediate Zone*			Dry Zone			All Zones		
	Population		Per capita income (Rs.)	Population		Per capita income (Rs.)	Population		Per capita income (Rs.)	Population		Per capita income (Rs.)
	N	%		N	%		N	%		N	%	
0 - 1000	12	5.6	159	440	10.0	106	60	8.2	138	512	9.6	111
1001 - 4000	58	26.9	625	1859	42.4	481	140	19.1	708	2057	38.6	531
4001 - 7000	78	36.3	941	1080	24.6	954	273	37.3	934	1431	26.8	949
7001 - 10000	47	21.9	1162	385	8.8	1602	139	19.0	1589	571	10.7	1563
10001 - 14000	5	2.3	2496	267	6.1	1995	50	6.8	2056	322	6.0	2018
14001 - 18000	0	-	-	157	3.6	2875	30	4.1	2610	187	3.5	2840
18001 - 24000	11	5.1	3767	70	1.6	3244	30	4.1	3463	111	2.1	3348
24001 - 32000	4	1.9	7560	80	1.8	4316	10	1.4	6156	94	1.8	4650
32001 +	0	-	-	45	1.1	8898	0	-	-	45	0.9	8898
All groups	215	100.0	2325	4383	100.0	1037	732	100.0	1271	5330	100.0	1075

+ Rounded-off to the nearest rupee

* Income data for 4 households (24 persons) are not available.