# PRE-REHABILITATION SITUATION OF THE GAL OYA LEFT BANK SCHEME: ANALYSIS OF SOCIO-ECONOMIC CHARACTERISTICS

RESEARCH STUDY NO. 69

MARCH 1986

AGRARIAN RESEARCH AND TRAINING INSTITUTE,
114, Wijerama Mawatha, Colombo 7.

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## FOREWORD

The development of new irrigation infra-structure and the rehabilitation of old irrigation systems were given high priority by the Government during the past decade. Appreciating the Government's efforts in this area and realising its potential in the increasing of agricultural production in the country, several donor agencies came forward to support such projects. One of the first irrigation systems taken up for rehabilitation was the Gal Oya Left Bank with the assistance of the United States Agency for International Development (USAID).

The Gal Oya Water management project was implemented by the Ministry of Lands and Land Development and the Irrigation Department. The Agrarian Research & Training Institute (ARTI) was commissioned by the Irrigation Department to conduct socio-economic research in support of the rehabilitation effort. The specific assignments undertaken by ARTI included a baseline survey of socio-economic conditions of the potential beneficiaries, periodical and end of project evaluations and an action research programme to establish farmer organizations for water management. Under a collaborative arrangement with the Cornell University in USA, a number of Consultants, both short term and long term, worked with the ARTI research team on this project from its inception.

A number of studies have already been published under this programme. The present study describes the pre-project situation of the project area in terms of demography, housing, farm resource endowments, paddy production, household income and other institutional and infra-structural aspects. The primary objective of the bench-mark analysis was to help in assessing the project's impact on the beneficiaries from time to time and in its final evaluation.

Several Research & Training Officers took part in this research project at various stages. However, as far as this study is concerned special mention should be made of Dr. C.M. Wijayaratne, Mr. M.L. Wickremasinghe and Mr. R.B. Senaka Arachchi who designed the baseline survey and farm record-keeping programme.

I am also grateful to the Ministry of Lands & Land Development, the Irrigation Department, USAID and Consultants of the Cornell University headed by Prof. Norman Uphoff for their collaboration and Assistance in the research programme.

My thanks are due to all those who were involved in this study who made it possible to make this report available.

T.B. Subasinghe
DIRECTOR.

ACKNOWLEDGEMENT

This report presents the bench-mark situation of Gal Oya Left Bank area prior to the commencement of the USAID (United States Agency for International Development) assisted rehabilitation programme. Dr. C.M. Wijayaratne and Mr. R.B. Senakaarachchi (Research & Training Officer, ARTI) are responsible for the design as well as the implementation of the socio-economic survey of which the findings are presented in this report. I express my sincere thanks for their dedication and hardwork, particularly when facilities for prolonged work were not conducive under the Gal Oya Scheme in Ampara during 1979.

I appreciate the critical review and suggestions made by Dr. Randolph Barker, Consultant from the Cornell University, USA, particularly, on chapters 6 and 7. Dr. Norman Uphoff, Consultant, from Cornell University helped me in editing while Dr. J.D. Brewer, Consultant, from Cornell University assisted me in various ways in the preparation of the report. I thank both of them for their assistance.

I express my gratitude to Mr. T.B. Subasinghe, Director, ARTI for the facilities and encouragements given to me for writing this report.

Mr. S. Munasinghe, District Lands Officer, provided access to relevant documents available at the Kachcheri of Ampara. His assistance is gratefully acknowledged. My final thanks go out to all the members of the Gal Oya Water Management Project, ARTI who assisted me during the course of compilation and analysis of data and writing of the report.

The author takes full responsibility for the analysis, presentation and final development of this work and for errors or factual misrepresentations, if any, appearing in this report.

A.S.W

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## GLOSSARY

| | |
|---|---|
| AGA | Assistant Government Agent who operates under the Government Agent. The latter, the chief of Executive in the district. |
| Ande | System of property transaction in which the right of operation is transferred to anotner person who agrees to pay an agreed value to the property owner. |
| Command area | The track of land served by irrigation work. |
| DAC | District Agricultural Committee which is empowered to make and implement decisions related to agricultural production and marketing in a district. The Irrigation Ordinance makes provision for the DAC. |
| District | Basic administrative unit of which there are 26 in the Island. |
| Dry Zone | That part of the Island which receives less than 40" of annual rainfall. |
| GA | Government Agent is the chief executive in a district |
| Kachcheri | Office of the Government Agent |
| KVS | Krushikarma Viyapthi Sevaka, the field level extension worker of the Department of Agriculture. |
| Liyadda | A plot of paddy land which is surrounded by bunds. |
| Maha Season | The North-East monsoon which brings in rain during the period October through February. It is the main rain season in the Dry Zone. |
| OFC | Other Food Crops are those other than the staple crop which is paddy in most cases. Examples of OFCs which are often planted in Gal Oya are pulses, chillies, tobacco, vegetables and sugar cane. |
| Paddy (Oriza Sativa) | Unhusked whole grain of the staple food of Sri Lankans. |
| Periya Kalapuwa | Periya means large in Tamil and Kalapuwa means lagoon in Sinhala language respectively. Hence Periya Kalapuwa refers to large lagoon. |
| Yala Season | The South-West monsoon which brings in rain during the period from March through May. It provides little rain in the Dry Zone. |
| Yaya Palaka | Official who represents a track of paddy land at the Agrarian Service Centre. Yaya Palaka is appointed under the Agrarian Services Act No. 58 of 1979. |

Chapter One

# INTRODUCTION

## 1.1 Major Irrigation Schemes in Sri Lanka

One important feature of agricultural development during the post-colonial period of Sri Lanka has been the importance placed on the development of jungle lands, particularly in the Dry Zone, in an effort to increase agricultural production. For this purpose, major reservoirs have been constructed and people were settled around them utilizing hitherto uncultivated jungle lands. Successive governments have in this way attempted also to reduce high population pressures in the Wet Zone by opening up of new settlements in sparsely populated Dry Zone areas. The importance of major irrigation schemes in agricultural development be seen in the extent of new lands brought under cultivation and contribution to national paddy output by such schemes (Table 1).

Table 1.1 - Extent Cultivated and Production of Paddy by Irrigation Schemes

| Irrigation Scheme* | Percent Extent Cultivated | | Percent of National Paddy Production | |
|---|---|---|---|---|
| | 1980/81 Maha | 1980 Yala | 1980/81 Maha | 1980 Yala |
| 1. Major | 37.1 | 45.5 | 45.9 | 54.7 |
| 2. Medium & Minor | 25.3 | 17.2 | 22.6 | 15.7 |
| 3. Rainfed | 37.6 | 37.3 | 31.5 | 29.6 |

* Major, medium and minor schemes relate to the magnitude of the scheme based on command area. Major scheme is one with a command of over 1,000 acres while a medium scheme has a command area of 200 to 1,000 acres. A scheme with a command area of less than 200 acres is classified as minor.

Source : Data Bank, ARTI.

## 1.2 The Gal Oya Scheme

One of the major irrigation schemes constructed by the government of Sri Lanka, in the early 50's, is the Gal Oya Irrigation Scheme. The scheme which is second now only to the Mahaweli Ganga Development Project in size was originally intended to protect against flood damage, provide safe drinking water, and generate electricity as well as to irrigate agricultural lands. The scheme is in the Eastern Province of the island. The reservoir with a capacity of 770,000 acre-feet is situated in the Monaragala administrative district while the command area of about 120,000 acres is located in the Ampara and Batticaloa districts, about two-thirds in the former district (Map 1.1).

The scheme is divided into 3 main sub-systems, the Left Bank (LB)

which occupies about one-half of the total extent while the Right Bank (RB) and River Division (RD) account for the balance. The major crop in the Left Bank and the River Division is paddy whereas considerable land in the Right Bank is devoted to sugar cane production. For administrative and management purposes, the three sub-systems are carved out into several colony units each denoted by a number. The distribution of colony units in respect of LB area is shown in the Map 1.2.

Settlement in the LB was commenced in 1950/51 with the location in units 1 and 2 of the households who lost their property through the filling of reservoir. Subsequently, more people were settled from other parts of the country until 1957/58 when the final batch of 348 families were located in the tail-end area (Table 1.2). The settlers in the LB of Gal Oya form a heterogeneous population drawn from several geographic regions (Table 1.3) and belonging to the three major racial groups of the island.

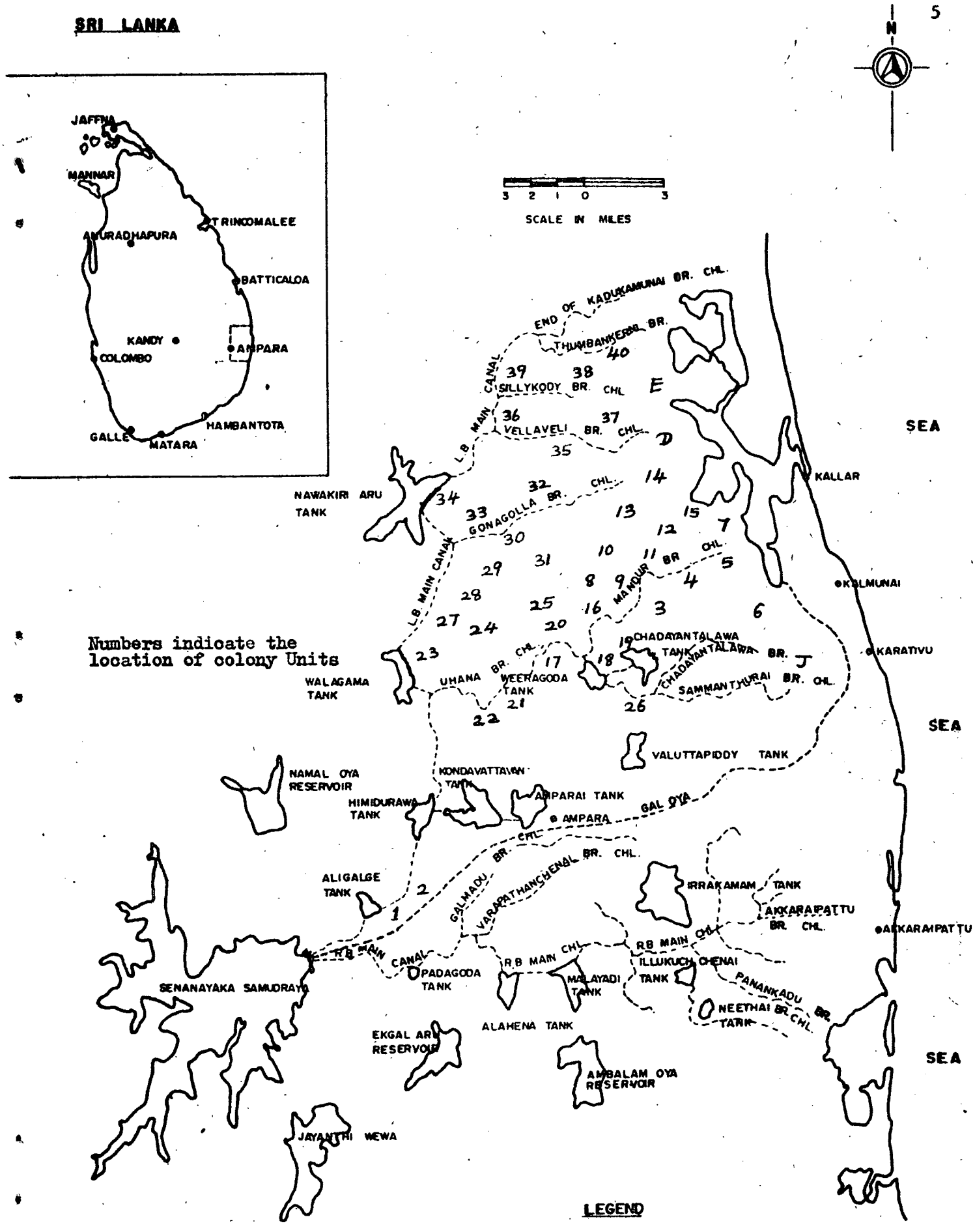
The responsibility of development, operation and maintenance of the scheme was placed in the Gal Oya Development Board (GODB) which was established by Act of Parliament No. 51 of 1949. Subsequently, the GODB was replaced by the River Valleys Development Board (RVDB).

Table 1.2 - Progress of Colonist Settlement

| Financial Year | Administrative Units | Families Settled | Cumulative Frequency |
|---|---|---|---|
| 1950/51 | 1 and 2 | 296 | 296 |
| 1951/52 | 3, 4, 5, 8, 9, 10, 11, 12, 19 and part of 18 | 1500 | 1796 |
| 1952/53 | 6, 7, 13, 14, 15, 16, 17 and parts of 10, 22, 23, 24, 25 and 26 | 1765 | 3561 |
| 1953/54 | 27, 28, 29 and 30 | 600 | 4161 |
| 1954/55 | 31, 32, 33 and 34 | 619 | 4780 |
| 1955/56 | Parts of 35, 36 and 37 | 332 | 5112 |
| 1956/57 | Nil | 0 | 5112 |
| 1957/58 | Parts of 38, 39 and 40 | 348 | 5460 |
| 1961/62 | 35, 36, 37, 38, 39, 40 and 41 | 857 | 6317 |
| 1962/63 | Block D, E and J | 2321 | 8638 |

Note : The actual number of farm families settled in the LB area is not known. Unofficial sources indicate that over 15,000 farm families have been settled up to mid 1960.

Source: Annual Reports of the GODB




Map 1: Map of Gal Oya Irrigation System

Table 1.3 - Peasant Colonization by Area of Origin and Colony Units

| Area of Origin | Colony Units | Number of Settlers |
|---|---|---|
| Area of Authority | 1, 2, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 19, 24, 25, 27, 35, 36, 37, 38, 39, 40, 42, 43 | 2013 |
| Badulla | 20, 23, 24, 27, 30, 33, 34 and 36 | 488 |
| Colombo | 8, 10 | 92 |
| Chilaw | 10, 31 | 23 |
| Galle | 24, 31 | 75 |
| Hambantota | 26, 32 | 196 |
| Jaffna | 16 | 10 |
| Kurunegala | 31, 36 | 77 |
| Kalutara | 30 | 100 |
| Kegalle | 3, 10, 17, 18, 19, 20, 21, 29, 33, 34, 36 | 819 |
| Kandy | 3, 8, 9, 20, 21, 22, 29 | 451 |
| Matara | 6, 28, 32, 36 | 216 |
| Nuwara Eliya | 8, 36, 41 | 231 |
| Puttalam | 31 | 40 |
| Ratnapura | 28, 34 | 128 |
| Total | | 5859 |

Note: Details of settlement of other colony units are not available.

Source: Annual Report of the GODB

Many problems have emerged in the Gal Oya Scheme, since its inception. The substantial increase in population and irregular/inefficient distribution of irrigation water have affected the effective functioning of the scheme. The problem of water distribution[1] has been so acute that it is adequately supplied only to some of the units located close to the reservoir, namely head units. The other units far away from the reservoir (tail units) do not receive water, not only for cultivation but also for domestic purposes during certain parts of the year. The distribution of water among settlers is far from equitable even within head units; the reliability with which water is delivered has badly deteriorated over the years due to lack of control capability within the scheme. Maintenance and regular cleaning of channel have not been attended to; different income groups have emerged as a result of poor water distribution and subsequent differences in paddy productivity within the system. Furthermore, the fragmentation of land and illegal land transactions have diminished the effective size of originally allotted land to marginal economic status.

Problems related to water use have been increased following the neglect of operation and maintenance, the deteriorated conveyance system and absence of control structures of the irrigation network. The United States Agency for International Development (USAID) Mission in its project paper, Sri Lanka Water Management (383-0057) made the following statement about Gal Oya. "The rehabilitation programme along the Left Bank is needed because canal erosion and siltation severaly limits any control over system water flows. Over 15,000 acres in the lower section of the system are not receiving reliable irrigation water or domestic service due to extreme deterioration and siltation of the main branch, distributory and

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1 See ARTI Research Report No. 48 - "1980 Year Book for Sri Lanka Water Management Research".

field channels". The Mission further says "at Gal Oya, excessive and insufficient water issues are occurring at the same time, both causing severe losses of crop production and contributing to the poor quality of rural living".

In considering the above state of affairs and particularly the low water management efficiency of the scheme, the government sought external assistance in order to rehabilitate and develop Gal Oya Scheme. The USAID in responding to Sri Lanka's request, drew up a project proposal in order to rehabilitate the Left Bank of the Gal Oya Scheme beginning in 1979.

## 1.3 Objective of Study

The programme of rehabilitation of the Gal Oya Project involved the improvement of physical control of the system, better water management training and extension advice for officers, farmers, etc. and research on both technical and socio-economic aspects pertaining to water management. Periodic assessments will be undertaken in order to evaluate the project's standing and to assess its achievements.

This report presents the bench mark situation[2] of Gal Oya against which progress resulting from rehabilitation can be measured. The specific objectives of this study therefore are to:

a) Assess socio-economic aspects of land use, agricultural production and water use and income patterns,

b) Provide information pertaining to the standard of living,

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2 This report however does not provide pre-project situation with regard to water distribution for agricultural production and domestic use within the scheme. These issues have already been published in "1980 Yearbook for Sri Lanka Water Management Research", ARTI Research Report No. 48.

education, health and sanitation, and demographic characteristics of the population, and

c) Evaluate the availability and utilization of agricultural supporting services such as credit, insurance, marketing, communication, extension work, etc. within the Gal Oya colonization scheme.

## 1.4 Research Methodology

In order to collect information about the pre-project situation, a sample survey (Baseline Survey) was carried out in the Gal Oya Irrigation Scheme. The sampling design was a stratified two-stage simple random sample with Colony Units as the primary sampling unit, field channels as the secondary units, and allotments[3] along selected field channels as the tertiary sampling units. In the first phase of sampling, the Gal Oya Scheme was sub-divided into three strata, namely the Right Bank, the River Division and the Left Bank. The second phase had 3 stages; first a random sample of 18 Colony Units (villages) was selected out of a total of 40 Units in the Left Bank area. At the second stage of sample selection, along a major distributary channel within the selected colony area, three field channels were selected to represent head, middle and tail sections[4] of the selected distributary's command area. A sample of 480 allotments was randomly selected from field channels in each of the sections of a

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3 An allotment is the block of land given to each settler at the time of colonization.

4 The head, middle and tail portions were marked out in terms of the distance along the length of the distributary channel. The first one-third portion of the distributary channel from the point of its take from branch channel is designated head portion; the second one-third distance from the end of head portion is identified middle and the last section as tail portion.

distributary. Allotments were selected on a random basis as follows: if the number of allotments in a selected field channel was less than 20, all were included in the sample; if the allotments were more than 20, a random sample of 20 was selected. The sample frame for all three sites was the list of allotment numbers prepared by the Cultivation Officers[5] of the Department of Agrarian Services in their respective areas. The details of the final sample selected for the study are presented in Table 1.4.

The field survey was launched during the first quarter of 1980, and the field work itself was continued for 5 weeks. A single visit personal interview based on a structured questionnaire was administered to each selected farm household. The interviews were performed by 12 trained field investigators. Two Research and Training Officers supervised and checked the data collection work during the entire 5-week period of the survey. Some data related to paddy production were collected through the continued farm record keeping survey which commenced with the 1979/80 Maha season and continued concurrently with the baseline survey. Both these surveys collected data from the same sample of households, drawn from the population of the Left Bank as outlined above.

## 1.5 Data Sought

Data collected from the baseline survey can be grouped into three categories as follows:

(a) Demographic and other social aspects,

(b) Farm resource characteristics, and

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5 Cultivation Officer is a village level officer attached to the Department of Agrarian Services.

(c) Institutional and other supporting services.

The continuous farm record keeping survey on the other hand, collected data on agricultural productivity, resource use, output levels and income position throughout the cultivation season. This survey is in progress since 1979/80 Maha season.

Table 1.4 - Distribution of Colonization Units and Number of Allotments in the Left Bank Command

| Colonization Unit/Village | No. of Selected Allotments |
|---|---|
| 2 | 30 |
| 3 | 36 |
| 7 | 22 |
| 8 | 30 |
| 10 | 20 |
| 14 | 19 |
| 17 | 29 |
| 21 | 40 |
| 22/23* | 38 |
| 24 | 19 |
| 26 | 22 |
| 30 | 49 |
| 32 | 24 |
| 35 | 21 |
| 39 | 20 |
| Block 'D' | 20 |
| Block 'E' | 20 |
| Block 'J' | 21 |
| Sample | 480 |

* Originally only Unit 22 was included in the sample. Later, it was found that the head field channel of the selected distributary channel in Unit 22 cuts into Unit 23 as well. Hence the notation Unit 22/23 is used to denote the actual location of the sample for the selected Unit, namely Unit 22.

## 1.6 Limitations of the Study

The study has three weaknesses as shown below.

(a) Gal Oya is a settlement scheme where a large number of encroachers[6] are involved. Some encroachers obtain water from irrigation channels while others secure irrigation water by blocking drainage channels. Still other encroachments are purely rainfed. Most of the encroachers are not permanent residents of the encroached allotment but visit it (the encroached land) only when there is cultivation. Among encroachers themselves there are land transactions which make it impossible for Cultivation Officers to prepare an accurate list of encroachers. Therefore, when the final sample for the study was selected from the lists prepared by Cultivation Officers, it is likely that encroachers were excluded from the sample. Hence, the findings of this survey are biased towards colony farmers who have a legal access to irrigation water and land.

(b) The method of data collection was essentially through direct interviews. Therefore, recall bias of the respondents can result, particularly with regard to credit and marketing transactions, and household expenditures, all of which are not collected in the long-term farm record keeping survey.

(c) As there is a high degree of illegal land transactions, mortgaging, leasing, etc., respondents are reluctant to disclose accurate information on these matters, particularly because the interviewers were strangers to them. In general,

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6 Land reserved for irrigation maintenance operations, jungle corridors, public convenience, etc. have been subsequently encroached upon by the growing population, particularly the second and third generation of settlers.

the degree of operation of leased and ande tenanted land is underreported. This suggests that the actual extent of lands possessed by a family and the resulting per family income generated by several parcels of operational holdings may be somewhat underreported.

Chapter Two

# POPULATION AND DEMOGRAPHIC CHARACTERISTICS

This chapter presents the characteristics of the population, such as age and sex composition, literacy, education, employment, labour force, etc. in the Left Bank of Gal Oya.

## 2.1 Population Composition

The study population comprises of 2494 individuals belonging to 436 families drawn from 18 colony units of the Left Bank area. Age and sex-wise distribution of population indicates that 36% are adult men while 28% are adult women with a children population in the age group 0 - 14 of 35% (Tables 2.1 & 2.2). A notable feature is that the proportion of children is higher particularly in tail units such as 7, 36, 39, Block 'J', etc. than in the head units of the system, with the exception of head unit No. 2. The average dependency ratio[7] of the population is 62%, indicating a large proportion of dependents per economically active person in the study area. As shown in Table 2.2, the dependency ratio is very high in tail units mostly because of the large numbers of children in those units.

## 2.2 Age Structure

The age profile presented in Table 2.2 brings out the predominance

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7 Dependency ratio refers to the proportion of people above 65 years and below 14 years over the total population in the age range of 15 to 65 years.

of young people in the age below 25 years which account for over 60% of the enumerated population. Children below 14 years account for 35% of the population while people over 65 years amount to only 3%, which is by far the lowest frequency group of all 7 age categories.

Table 2.1 - Percentage Distribution of Population by Sex

| Unit | % Distribution of Men | Women | Children* |
|---|---|---|---|
| 2 | 32 | 26 | 42 |
| 3 | 32 | 29 | 35 |
| 7 | 29 | 24 | 47 |
| 8 | 38 | 31 | 31 |
| 10 | 36 | 29 | 35 |
| 14 | 38 | 28 | 34 |
| 17 | 35 | 30 | 35 |
| 21 | 40 | 33 | 27 |
| 22/23 | 38 | 29 | 33 |
| 24 | 46 | 30 | 24 |
| 26 | 35 | 35 | 30 |
| 30 | 40 | 28 | 32 |
| 32 | 40 | 33 | 27 |
| 35 | 40 | 27 | 33 |
| 39 | 30 | 21 | 49 |
| Block 'D' | 33 | 23 | 44 |
| Block 'E' | 35 | 30 | 35 |
| Block 'J' | 34 | 26 | 40 |
| Average for Left Bank | 36 | 29 | 35 |

* Below 14 years (both sex) is classified as children.
Source : Survey Data

## 2.3 Family Size

The average family size for the Left Bank area is 5.7 persons with a range of 5-7, compared with the Island's average of 5.

Table 2.2 - Age Distribution of Population (in percentage)

| Unit | 0-5 years | 6-14 years | 15-25 years | 26-35 years | 36-55 years | 56-65 years | 65 years | Dependency ratio |
|---|---|---|---|---|---|---|---|---|
| 2 | 18 | 23 | 30 | 12 | 14 | 3 | 0 | 70.8 |
| 3 | 13 | 22 | 21 | 21 | 11 | 8 | 4 | 63.9 |
| 7 | 17 | 30 | 21 | 11 | 16 | 4 | 1 | 91.2* |
| 8 | 12 | 23 | 24 | 17 | 14 | 6 | 4 | 54.2 |
| 10 | 16 | 16 | 22 | 15 | 18 | 6 | 6 | 62.2 |
| 14 | 15 | 22 | 27 | 11 | 14 | 6 | 5 | 72.6 |
| 17 | 12 | 23 | 23 | 18 | 14 | 6 | 4 | 48.8 |
| 21 | 11 | 17 | 30 | 20 | 14 | 3 | 5 | 47.2 |
| 22/23 | 13 | 20 | 26 | 20 | 7 | 9 | 5 | 60.0 |
| 24 | 10 | 14 | 29 | 21 | 15 | 7 | 4 | 38.2 |
| 26 | 11 | 20 | 26 | 15 | 11 | 14 | 3 | 52.5 |
| 30 | 12 | 19 | 21 | 22 | 11 | 10 | 5 | 72.2 |
| 32 | 12 | 15 | 28 | 23 | 7 | 11 | 4 | 44.3 |
| 35 | 8 | 26 | 30 | 11 | 14 | 10 | 1 | 52.1 |
| 39 | 11 | 38 | 22 | 8 | 18 | 3 | 0 | 95.0* |
| Block 'D' | 15 | 29 | 19 | 11 | 16 | 9 | 1 | 81.6 |
| Block 'E' | 15 | 20 | 30 | 14 | 15 | 4 | 2 | 59.7 |
| Block 'J' | 13 | 27 | 30 | 8 | 17 | 3 | 2 | 72.0 |
| Sample average | 12.6 | 22.4 | 25.6 | 16.3 | 13.1 | 6.6 | 3.2 | 62 |

* These figures are suspicious
Source : Survey Data.

## 2.4 Ethnicity

Settlers can be grouped into three major ethnic categories, namely Sinhalese, Tamils and Muslims with the first group the largest category (65%) while the Tamils and Muslims comprise of 26% and 9% respectively (Table 2.3). The three ethnic groups are not evenly distributed over the Left Bank area. All head units and a few middle units are occupied by Sinhalese settlers while the other groups are located in tail units of the system. Both Sinhalese and Tamils live

together in unit 14, 16, and D 2 whereas Muslims and Tamils live together in units 7 and Block 'J'.

Table 2.3 - Percentage Distribution of Farmers by Literacy and Ethnicity

| Unit | Literate | Ethnicity Sinhala | Tamil | Muslim |
|---|---|---|---|---|
| 2 | 81 | 100 | 0 | 0 |
| 3 | 78 | 100 | 0 | 0 |
| 7 | 68 | 0 | 86 | 14 |
| 8 | 91 | 100 | 0 | 0 |
| 10 | 90 | 0 | 100 | 0 |
| 14 | 81 | 5 | 95 | 0 |
| 17 | 86 | 100 | 0 | 0 |
| 21 | 81 | 100 | 0 | 0 |
| 22/23 | 86 | 100 | 0 | 0 |
| 24 | 80 | 100 | 0 | 0 |
| 26 | 94 | 100 | 0 | 0 |
| 30 | 87 | 100 | 0 | 0 |
| 32 | 88 | 100 | 0 | 0 |
| 35 | 90 | 0 | 100 | 0 |
| 36 | 32 | 100 | 0 | 0 |
| 39 | 75 | 100 | 0 | 0 |
| Block 'E' | 87 | 0 | 0 | 100 |
| Block 'J' | 66 | 0 | 5 | 95 |
| Sample average | 83 | 65 | 26 | 9 |

Source : Survey Data,
GODB Annual Report.

## 2.5 Literacy

The Adult Literacy rate[8] of the study population is about 83% which is slightly less than the national average of 85%. Only 10 colony units, namely 3, 8, 10, 17, 22, 26, 30, 32, 35 and Block 'E' were comparable with the national average in terms of literacy. The majority in units 7, 36 and Block 'J' are illiterate.

## 2.6 Education

Seventy five percent of the study population have received primary education which is compulsory in Sri Lanka. However, units 39 and Block 'D' are exceptions as the proportion of un-educated is high in these two units (Table 2.4). The number with primary education is lowest (27%) in Block 'D'. The low-level of primary education in units 39 and Block 'D' may be due to the non-existence of basic educational facilities in the area. It is evident that the distance to a primary school from a household of these two units ranges from 4-8 miles. Twenty four percent of the people have received education beyond grade 6; only 6% have passed the General Certificate of Education (GCE) Ordinary Level Examination. The number of people receiving education beyond GCE Advanced Level Examination is very small (1%) while only 0.08% of the study population are graduates.

## 2.7 Labour Force Participation Rate

The Study shows a labour force[9] approximating to 42% of the sample population. The proportion of the economically active population to

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8 Adult literacy rate refers to the percentage of population aged over 15 years who can read and write.

9 Labour force includes economically active persons including the unemployed, but excluding housewives, students, and other economically inactive groups.

Table 2.4 - Distribution of Level of Education in Relation to Colony Units (in percentage)

| Unit | Un-edu-cated | Pri-mary level | Grade 6 to GCE | GCE pass-ed | GCE (A/L) pass-ed | Under Gradu-ates | Gradu-ates | Un-classi-fied |
|---|---|---|---|---|---|---|---|---|
| 2 | 27 | 40 | 24 | 8 | 1 | 0 | 0 | 0 |
| 3 | 22 | 49 | 19 | 7 | 2 | 0 | 1 | 0 |
| 7 | 28 | 46 | 18 | 4 | 3 | 1 | 0 | 0 |
| 8 | 23 | 43 | 31 | 3 | 0 | 0 | 0 | 0 |
| 10 | 23 | 35 | 32 | 9 | 1 | 0 | 0 | 0 |
| 14 | 17 | 43 | 25 | 13 | 2 | 0 | 0 | 0 |
| 17 | 20 | 40 | 32 | 7 | 1 | 0 | 0 | 0 |
| 21 | 22 | 46 | 26 | 3 | 3 | 0 | 0 | 0 |
| 22/23 | 25 | 41 | 26 | 7 | 1 | 0 | 0 | 0 |
| 24 | 27 | 38 | 29 | 3 | 2 | 1 | 1 | 0 |
| 26 | 14 | 47 | 29 | 8 | 1 | 0 | 0 | 1 |
| 30 | 15 | 43 | 33 | 7 | 1 | 0 | 0 | 0 |
| 32 | 22 | 43 | 26 | 9 | 0 | 0 | 0 | 0 |
| 35 | 19 | 56 | 19 | 6 | 0 | 0 | 0 | 0 |
| 39 | 50 | 34 | 10 | 4 | 1 | 1 | 1 | 0 |
| Block 'D' | 68 | 27 | 4 | 1 | 0 | 0 | 0 | 0 |
| Block 'E' | 22 | 53 | 14 | 9 | 2 | 0 | 0 | 0 |
| Block 'J' | 29 | 40 | 22 | 6 | 3 | 0 | 0 | 0 |
| Average for Levt Bank | 25 | 43 | 24 | 6 | 1 | 0.1 | 0.08 | 0.08 |

Source : Survey Data

the working age[10] population (labour force participation rate) is 55.8 for the Left Bank. The corresponding rate for the Island is 46.5.

10 Working age population is that part of the population below 65 and above 14 years.

## 2.8 Employment

The majority (90%) of settlers are employed in agriculture. The second largest group (6%) are involved in service sector such as government jobs. Only 4% of the work force is engaged in the industrial sector.

The survey does not identify a major difference in the rate of employment between the two sexes. The proportion of women engaged in agriculture, however, is slightly higher than that of men. Four percent of men and 3% of women are employed in the industrial sector while employmet in the service sector is 6% each.

Of those who are employed in the agricultural sector, 65% are full-time paddy farmers while 24% are helpers in paddy production. Agricultural labourers[11] who work on a daily wage amount to only 1% in the sample. The number employed in other occupational categories such as business, self employment and craft level activities is negligible.

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11 The number of hired labourers in fact may be higher than what the study has shown. As was shown in chapter 1, the present study enumerated only those farmers who are officially settled in the area. The position of second generation of settlers has not considered most of whom belong to the category of hired agricultural labourers.

Chapter Three

# HOUSING AND HOUSEHOLD FURNISHINGS

The modern definition of housing includes the living environment which consists of the dwelling unit and supporting facilities such as water supply, sanitary facilities including toilets and sewerage disposal, and basic community, commercial and recreational facilities.

The first part of this chapter will analyse ownership and rent/lease arrangements related to housing while the second part will examine the quantitative and qualitative aspects of the housing problem in Gal Oya. The third part deals with the support facilities connected with housing.

## 3.1 Housing Ownership and Lease/Rent Status

There are two types of dwelling units owned by settlers: First those constructed by the GODB at the commencement of the settlement scheme in 1951/52. These dwelling units have brick walls, tile roofs and cement floors, accounting for about 56% of houses. The second type consists of those constructed by the settlers amounting to 39% of houses. Ownership of the rest of dwelling units has not been identified (Table 3.1). Analysis of the distribution of houses indicates that these two types are differently located across colony units of the Left Bank area. Units where more colony type houses have been reported are 2, 3, 8, 10, 24, 26, 30, 32, 39 and Block 'E'. On the other hand, units 7, 14, 17, 21, 36 and Block 'J' are reported to have more of settler-constructed houses. Reasons for this pattern of distribution will be explained later.

Perusal of data in Table 3.1 shows that 95% of houses in the Gal Oya Scheme are owner-occupied as against 69% for the Island. It also shows that the number of leased/rented houses within the project area is negligible.

Table 3.1 - Distribution of Ownership and Tenancy Status of Houses in the Left Bank Area (in percentage).

| Unit | Colony | Tenancy and Ownership of houses: Owned | Rented | Leased | No rent | Other | No response |
|---|---|---|---|---|---|---|---|
| 2 | 63 | 30 | 0 | 3 | 2 | 0 | 0 |
| 3 | 57 | 40 | 0 | 0 | 0 | 0 | 3 |
| 7 | 23 | 73 | 0 | 0 | 4 | 0 | 0 |
| 8 | 76 | 24 | 0 | 0 | 0 | 0 | 0 |
| 10 | 85 | 15 | 0 | 0 | * | * | 0 |
| 14 | 21 | 63 | * | 0 | 5 | 5 | 5 |
| 17 | 36 | 57 | 3 | 0 | 3 | 0 | 0 |
| 21 | 25 | 72 | 0 | 0 | 2 | * | * |
| 22/23 | 53 | 34 | 0 | 0 | 0 | 5 | 8 |
| 24 | 74 | 26 | 0 | 0 | 0 | 0 | 0 |
| 26 | 77 | 23 | 0 | 0 | 0 | 0 | * |
| 30 | 56 | 37 | 0 | 0 | 2 | 0 | 4 |
| 32 | 96 | 4 | 0 | 0 | 0 | 0 | 0 |
| 35 | 100 | * | 0 | 0 | 0 | 0 | 0 |
| Block 'D' | * | 100 | * | 0 | 0 | 0 | 0 |
| 38 | 90 | 5 | 5 | 0 | 0 | 0 | 0 |
| Block 'E' | 79 | 21 | 0 | 0 | 0 | 0 | 0 |
| Block 'J' | 10 | 80 | 0 | 0 | 10 | 0 | 0 |
| Average for Left Bank | 56 | 39 | 0.02 | ** | 0.08 | 1.9 | 1.4 |
| Sri Lanka | NA | 69 | 10 | NA | 12 | 5 | 4 |

NA Not Available

* Not reported

** Negligible

Note: Some houses have been constructed by the settlers themselves.

Source: Survey data
Census of Population and Housing,
Department of Census and Statistics (1981).

## 3.2 Quantitative and Qualitative Aspects

It is also important to consider the availability of space in terms of number of occupied rooms in each dwelling unit.

A majority of housing units has an average of two habitable rooms (Table 3.2). Table 3.2 also shows small-sized houses to be more prevalent in tail areas of the system. The percentage of houses with 2 or less than 2 rooms is about 46% in the sample as a whole. Considering the average household size of 5.7, it is seen that each room in 46% of dwelling units is occupied by more than two persons. The norm of more than two persons per habitable room cannot be accepted as a comfortable living standard. Hence, there is some degree of overcrowdedness particularly within the houses located in tail areas.

Another factor that should be considered in this perspective is the physical quality of a dwelling unit in terms of the type of materials used for roof, walls and floor. Accordingly three categories of dwelling units, namely permanent, semi-permanent and improvised, have been identified.

A permanent house is one where the materials used for roof, wall and floor are of durable types such as tile/asbestos, cement/bricks and cement respectively. A semi-permanent house is one where any mixture of durable and non-durable materials are used. An improvised house is constructed with poor quality, less durable materials such as cadjan, palmyrah leaves, wattle and daub, etc.

Of the 436 housing units studied, 38% were permanent whereas 54% and 7% were semi-permanent and improvised respectively[12].

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12 It should be noted that these data are relevant mainly to colony settlers as encroachers have not been included in the sample. If however, the encroachers were included in the sample, the number of improvised houses may be higher.

Table 3.2 - Distribution of Habitable Housing Units by number of Rooms by Colony Units (in percentage)

| Unit | Number of Rooms | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | Over 4 | No response |
| 2 | 10.3 | 24.1 | 17.2 | 10.3 | 20.6 | 17 |
| 3 | 20 | 28.5 | 14.2 | 11.4 | 17.1 | 8 |
| 7 | 22.6* | 36.3 | 18.1 | 13.6 | 0 | 9 |
| 8 | 23.3 | 20 | 16.6 | 20 | 20 | 0 |
| 10 | 10 | 15 | 30 | 35 | 0 | 10 |
| 14 | 36.8 | 42.1 | 10.5 | 0 | 5.2 | 5 |
| 17 | 13.7 | 31 | 17.2 | 13.7 | 17.2 | 8 |
| 21 | 13.1 | 31.5 | 21 | 18.4 | 15.7 | 0 |
| 22/23 | 5.7 | 20 | 22.8 | 20 | 22.8 | 8 |
| 24 | 15.7 | 21 | 21 | 26.3 | 15.7 | 0 |
| 26 | 59 | 22.7 | 13.6 | 0 | 4.5 | 0 |
| 30 | 8.6 | 26 | 26 | 23.9 | 13 | 2 |
| 35 | 0 | 4.7 | 0 | 0 | 0 | 95 |
| 39 | 26.3 | 15.7 | 0 | 0 | 0 | 58 |
| Block 'D' | 77.7 | 11.1 | 0 | 0 | 0 | 11 |
| Block 'E' | 42.1 | 26.3 | 5.2 | 5.2 | 0 | 11 |
| Block 'J' | 4.7 | 23.8 | 33.3 | 19 | 14.2 | 5 |
| Left Bank | 21 | 24.6 | 16.2 | 13.8 | 11.3 | 12 |
| Sri Lanka | 30.8 | 32.3 | 17.8 | 9.9 | 9.2 | 0 |

* 4.5% of the houses have no rooms

Note: Information in respect of unit 32 is not available

Source : Survey Data

Census of Population and Housing,
Department of Census and Statistics (1981).

The distribution of three types of houses within the scheme is compared with the quality of houses in different sectors of the Island as seen in Table 3.3. The Table indicates that the number of permanent houses in Gal Oya is less than the corresponding national figure. The semi-permanent and improvised dwelling units are a little higher than the corresponding figures for the Island.

Table 3.3 - Distribution of Quality of Houses by Colony Units (in percentage)

| Unit | N=456 Permanent | Semi-permanent | Improvised | No Response |
|---|---|---|---|---|
| 2 | 23 | 57 | 20 | 0 |
| 3 | 49 | 37 | 6 | 8 |
| 7 | 41 | 45 | 14 | 0 |
| 8 | 62 | 38 | 0 | 0 |
| 10 | 90 | 10 | 0 | 0 |
| 14 | 21 | 63 | 11 | 5 |
| 17 | 29 | 71 | 0 | 0 |
| 21 | 38 | 54 | 8 | 0 |
| 22 | 23 | 73 | 4 | 0 |
| 24 | 74 | 21 | 5 | 0 |
| 26 | 82 | 18 | 0 | 0 |
| 30 | 20 | 72 | 8 | 0 |
| 32 | 78 | 13 | 9 | 0 |
| 35 | 5 | 90 | 5 | 0 |
| 39 | 50 | 35 | 15 | 0 |
| Block'D' | 6 | 89 | 5 | 0 |
| Block'E' | 26 | 69 | 5 | 0 |
| Block'J' | 30 | 70 | 0 | 0 |
| Gal OYa Left Bank | 38 | 54 | 7 | 0.9 |
| Sri Lanka | 42 | 52 | 6 | |

Note : Information in respect of unit 32 is not available.
Source : Survey Data
Census of Population and Housing,
Department of Census and Statistics (1981).

A notable feature in Table 3.3 is that Unit 2 has the largest number of improvised dwelling units. As Unit 2 is better watered with adequate amount of additional lands that would be brought under cultivation, more new settlers may have been attracted into this unit. The increasing number of settlers may have increased the demand for new houses. In Units 7, 14 and 39, the increase in population may have shot up the demand for new houses. As the

construction of an improvised dwelling unit is both convenient and cheap, the number of this type of houses may have gone up.

## 3.3 Utility Services for Dwelling Units

There are three conventional utility services required for a better quality of life and standard of living. They are a source of domestic water supply, toilet facilities, and energy for household use.

### 3.3.1 Water Supply for Domestic Purposes

The two main sources of water available for domestic use are irrigation channels and wells; 57% of the farm families depend on the irrigation channels. The channels are the only source of domestic water supply for 18% of the farm families. The details of sources of water supply for bathing and drinking purposes are given in Table 3.4. The percentage of farm families who depend on well water supply is higher in tail areas than in head areas.

### 3.3.2 Toilet Facilities

Toilet facilities are another indicator of better quality of standard of living. Total of 57% of the settler families depend on unprotected irrigation channel water for domestic purposes. The lack of toilets may lead to the pollution of surface water bodies by human faeces rendering them unsafe for drinking purposes. The situation is grave as 48% of the settlers have no toilets at all. The types of toilets available within the scheme compared with the status of other sectors are shown in Table 3.5.

Table 3.4 - Source of Water for Drinking (D) and Bathing (B) by Colony Units (in percentage)

| Colony Units | Source of Water | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Well | | Irrigation Channel | | Tank | | Stream | | Other | |
| | D | B | D | B | D | B | D | B | D | B |
| 2 | 70 | 3 | 30 | 90 | 0 | 0 | 0 | 7 | 0 | 0 |
| 3 | 100 | 34 | 0 | 54 | 0 | 8 | 0 | 3 | 0 | 0 |
| 7 | 82 | 18 | 9 | 14 | 9 | 23 | 0 | 46 | 0 | 0 |
| 8 | 100 | 52 | 0 | 17 | 0 | 24 | 0 | 0 | 0 | 0 |
| 10 | 95 | 55 | 0 | 20 | 5 | 25 | 0 | 0 | 0 | 0 |
| 14 | 95 | 74 | 0 | 10 | 0 | 5 | 0 | 5 | 0 | 0 |
| 17 | 100 | 34 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 69 | 33 | 18 | 61 | 0 | 5 | 0 | 0 | 13 | 0 |
| 22/23 | 97 | 13 | 3 | 71 | 0 | 13 | 0 | 3 | 0 | 0 |
| 24 | 95 | 16 | 5 | 84 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 95 | 0 | 4 | 0 | 0 | 100 | 0 | 0 | 0 | 0 |
| 30 | 96 | 17 | 2 | 56 | 0 | 23 | 0 | 2 | 0 | 0 |
| 32 | 100 | 4 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 | 100 | 81 | 0 | 14 | 0 | 5 | 0 | 0 | 0 | 0 |
| 39 | 80 | 75 | 10 | 20 | 0 | 0 | 10 | 6 | 0 | 0 |
| Block 'D' | 33 | 100 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Block 'E' | 89 | 84 | 0 | 0 | 10 | 16 | 5 | 0 | 0 | 0 |
| Block 'J' | 100 | 48 | 0 | 24 | 0 | 0 | 0 | 5 | 0 | 19 |

Source : Survey Data.

Table 3.5 -Toilet Facilities by Colony Units (in percentage)

| Colony Unit | Type of Toilet | | | |
|---|---|---|---|---|
| | Pit | Bucket | Water Seal | None |
| 2 | 43 | 0 | 14 | 50 |
| 3 | 46 | 0 | 11 | 43 |
| 7 | 33 | 14 | 5 | 48 |
| 8 | 45 | 0 | 31 | 24 |
| 10 | 5 | 0 | 55 | 40 |
| 14 | 23 | 0 | 0 | 76 |
| 17 | 24 | 0 | 28 | 48 |
| 21 | 74 | 0 | 18 | 8 |
| 22/23 | 50 | 0 | 23 | 26 |
| 24 | 63 | 0 | 32 | 5 |
| 26 | 19 | 0 | 48 | 33 |
| 30 | 40 | 0 | 17 | 43 |
| 35 | 5 | 0 | 0 | 95 |
| 39 | 0 | 0 | 0 | 100 |
| Block 'D' | 11 | 0 | 0 | 89 |
| Block 'E' | 0 | 0 | 5 | 94 |
| Block 'J' | 24 | 5 | 9 | 62 |
| Left Bank Sample | 34 | 1 | 18 | 48 |
| Rural Sector | 43 | 0.3 | 17 | 35 |
| Sri Lanka | 38 | 2 | 22 | 31 |

Note: Information on Unit 32 has not been collected.

Source : Survey Data
Census of Population and Housing
Department of Census and Statistics (1981)

The number of people without toilet facilities is higher in Gal Oya than in other sectors. In some of the tail units almost all of the settlers have no toilets. In considering particularly the high population of children in tail units, the lack of toilet facilities can be a health hazard.

### 3.3.3 Energy for Domestic Use

Energy requirement for domestic purposes are of two types, namely lighting and cooking. The number of houses with electricity facilities is only 5% (Apendix Table A 1). Hence, the majority depends on kerosine oil for lighting while firewood is the major source of cooking.

Chapter Four

# FARM AND HOUSEHOLD ASSETS

Ownership of farm household items can be taken as an indicator of the degree of affluence of a farm household. The farm and household resources can be grouped into four categories as listed below:

a) Livestock,
b) Type and quality of houses,
c) Farm implements and tools, and
d) Household utilities.

The ownership of houses and other related matters were discussed in chapter 3. This chapter discusses farm and household resources such as livestock, farm implements, household utilities, etc.

Farm assets, particularly those required for agriculture, are of two types: first, farm tools and livestock which assist the farm operator in the completion of agricultural operations in time, thus reducing the need for staggering; second, the implements and livestock that are available for hire which can be an important source of farm income.

## 4.1 Livestock

Animal husbandry includes four types of animals, namely cattle, buffalo, poultry and goats. There is no indication of pig husbandry in the area. Cattle husbandry is practised mainly as a source of draught power. It also provides milk which has a growing demand in the area. In the study population, 32% of the farmers had buffaloes

and 53% of farmers own neat cattle. The propostion of farm families having goats and poultry are respectively 1.5% and 26% (Table 4.1).

Table 4.1 - Distribution of Farmers by Type and Purpose of Animal Husbandry (in percentage)

| Colony Units | Type of Livestock | | | | | |
|---|---|---|---|---|---|---|
| | Buffalo (working) | Buffalo (milking) | Neat Cattle (working) | Neat Cattle (milking) | Goat | Poultry |
| 02 | 20 | 7 | 47 | 30 | 0 | 20 |
| 03 | 56 | 0 | 26 | 33 | 2 | 13 |
| 07 | 11 | 0 | 46 | 38 | 0 | 19 |
| 08 | 31 | 5 | 42 | 21 | 0 | 10 |
| 10 | 52 | 7 | 18 | 23 | 2 | 23 |
| 12 | 52 | 0 | 27 | 10 | 0 | 24 |
| 17 | 60 | 0 | 50 | 0 | 0 | 15 |
| 22/23 | 18 | 9 | 45 | 23 | 0 | 0 |
| 24 | 37 | 0 | 26 | 26 | 0 | 14 |
| 26 | 9 | 0 | 33 | 14 | 0 | 81 |
| 30 | 17 | 0 | 8 | 8 | 0 | 0 |
| 32 | 0 | 0 | 30 | 25 | 0 | 20 |
| 35 | 18 | 14 | 14 | 32 | 4 | 54 |
| 39 | 0 | 5 | 68 | 31 | 0 | 26 |
| Block 'D' | 11 | 0 | 11 | 11 | 0 | 83 |
| Block 'E' | 5 | 0 | 26 | 5 | 10 | 10 |
| Block 'J' | 9 | 0 | 14 | 0 | 9 | 71 |
| Left Bank Sample | 29 | 3 | 32 | 21 | 1 | 26 |

Note : Information missing for unit 21.

Source : Survey Data

Buffalo

The buffalo is a good source of farm power and a source of income. The buffalo milk which has a limited use is not much popular as the milk from neat cattle in the study area. About 80% of these animals are used as a source of farm power while the balance 18% is used for milking purposes (Table 4.2). However, only 3% of the farmers have buffalo for milk only indicating the unsatisfactory market demand for buffalo milk. The exceptions are Units 7 and 26 where the number of animals kept for milking are large.

Table 4.2 - Distribution of Animal Population by Purpose (in percentage)

| Category | % of Population |
|---|---|
| Buffalo (working) | 82 |
| Buffalo (milking) | 18 |
| Neat cattle (working) | 54 |
| Neat cattle (milking) | 46 |
| Buffalo out of total Animal population | 42 |
| Neat cattle out of total Animal population | 58 |

Source : Survey Data

The average number of animals kept per family is about 3. The buffalo population is found largely in head units since wallowing facilities are better available in these units.

Neat Cattle

Neat cattle are kept for the twin purposes of the supply of milk and draught power. The preference for neat cattle may be because of its heat tolerance, particularly in the drought-hit tail areas, and its relative disease-free nature.

A total of 32% and 21% of farmers utilize neat cattle for draught and for milk purposes respectively. Of the total neat cattle population, 54% is used for draught while 46% is used for milk purposes. Unlike buffalo milk, neat cattle milk has a variety of uses which gives it a better demand in the study area.

The distribution of neat cattle population across the colony units is found in Table 4.3. It is seen that a larger number of these animals are reared for milk purposes in each colony unit, except unit 26. Unit 7 had the largest number of milking cows while unit 8 had the largest number of draught animals. The average heads of neat cattle kept per family is 2.6 (Table 4.4).

Table 4.3 - Distribution of Total Animal Population by Purpose and by Colony Units (in percentage)

| Colony Units | Buffalo | | Neat Cattle | |
|---|---|---|---|---|
| | Milk | Draught | Milk | Draught |
| 2 | 7 | 5 | 9 | 10 |
| 03 | 0 | 17 | 7 | 6 |
| 7 | 0 | 4 | 7 | 8 |
| 8 | 2 | 4 | 2 | 5 |
| 10 | 8 | 17 | 5 | 5 |
| 14 | 0 | 10 | * | * |
| 17 | * | 9 | * | 8 |
| 21 | 7 | 10 | 6 | 14 |
| 22/223 | 59 | 5 | 12 | 8 |
| 24 | * | 8 | 5 | 5 |
| 26 | * | 1 | 3 | 3 |
| 30 | 0 | 2 | 1 | 2 |
| 32 | * | 0 | 5 | 3 |
| 35 | 15 | 5 | 18 | 2 |
| 39 | 2 | 0 | 17 | 8 |
| Block 'D' | 0 | 1 | 2 | 2 |
| Block 'E' | 0 | 1 | 1 | 2 |
| Block 'J' | 0 | 1 | * | 2 |
| Sample Total | 100 | 100 | 100 | 100 |

* Not reported

Source : Survey Data

Table 4.4 - Number of Heads of Animals per Household by Type

| Type | Average number per household |
|---|---|
| Buffalo | 3.2 |
| Neat cattle | 2.6 |
| Goat | 5.7 |
| Poultry | 5.8 |

Source : Survey Data

Goat

Goat rearing which is practised as a source of meat is not popular except in some Tamil and Muslim villages in the tail area. There are five units where goat rearing is reported namely 7, 12, 30, Block E and J. The proportion of goat farmers in the entire study area is only 1% and the average number of animals kept per family is 5.7.

Poultry

Poultry husbandry is practised widely except in units 26 and 32. Twenty six percent of farmers are engaged in poultry rearing in the study area. It is much more popular in the tail than in the head area. The average number of birds kept per family that keeps poultry is 5.8.

## 4.2 Farm Implements

The possession of farm implements can be considered as an indicator of intensity of agricultural activities in the area; it is a crude

measure of disposable income of farm families. The study shows the presence of such implements as mammoties, iron and wooden ploughs, rotovators, seeders, dusters, spray machines, water pumps and both two-wheeled and four-wheeled tractors in the area. More of them are found in the head units than in the tail units, except the wooden plough which is found more in the latter units (Table 4.5). The number of seeders and rotovators appeared to be small since seeding and weeding operations are largely done by other means.

Table 4.5 - Distribution of Farm Implements by Types

| Implement | Number of implements possessed per 100 households | | |
|---|---|---|---|
| | Whole Sample N=436 | Head Units N=217 | Tail Units N=219 |
| Mammoties | 205 | 207 | 203 |
| Wooden Plough | 23 | 7 | 38 |
| Iron Plough | 77 | 105 | 49 |
| Sprayer | 13 | 19 | 6 |
| Duster | 2 | 3 | 1 |
| 2-wheeled tractor | 1 | 2 | * |
| 4-wheeled tractor | 1 | 3 | 0 |
| Water pump | 2 | 3 | 1 |
| Seeders | 1 | 2 | 0 |
| Rotovators | * | 1 | 0 |

Head Units: 2, 3, 8, 17, 21,22/23, 24 and 30

Tail Units: 7, 10, 14, 26, 32, 35, 39 and Blocks D, E, and J

* Negligible

Source: Survey Data

Each household in units 2, 8, 17, 21, 23, 24 and 30 possesses a larger number of a variety of implements while those in units 3,7, 14, 26, 32, 35, 39, Block D, E and J have each a fewer number of implements. This difference in possession may be due to following reasons. First the agricultural activities in the former units are active during both seasons since water is assured whereas the converse is true in the case of latter units. With the increase in intensity of agricultural activities, a variety of implements will be required in order to perform many tasks; second the tail units are poorer and the head units are richer. Hence, the possession of implements appears to be a reflection of wealthiness.

## 4.3 Household Utilities

The investment in consumer durables indicates the wealth of a household and is indirectly a measure of household income. Any increase in income is likely to be spent first on food, followed by expenditure on household utilities. Of the total 436 household studied, 16% families had clocks, 34% petromax lamps, 25% sewing machines, 29% almirahs and 25% owned at least one set of furnitire.[13] The percentage of households having radios and cassettes are 59 and 2 respectively. Only 3% of the households had such electric goods as fans, cookers, etc. (Table 4.6). The consumer durables however, were not evenly distributed across the LB area; households in head units had a variety of utilities while those in the tail areas had both small numbers and fewer varieties. Some tail units, namely 35 and 39 can be considered as very 'poor' since few consumer durables have been reported in them.

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13 A set of furniture includes 3 or more different pieces of items.

Table 4.6 - Ownership of Consumer Durables by Colony Units (percentage household possessing)

| Unit | Wall Clocks | Petromax Lamps | Radios | Cassette Recorders | Sewing Machines | Kerosene Cookers | Almirah | Furniture (3 or more pieces | Electrical Items |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 13 | 30 | 53 | 3 | 27 | 0 | 23 | 17 | 3 |
| 3 | 15 | 49 | 41 | 0 | 33 | 0 | 41 | 44 | 0 |
| 7 | 31 | 50 | 65 | 0 | 35 | 0 | 58 | 46 | 0 |
| 8 | 21 | 47 | 79 | 0 | 32 | 11 | 32 | 53 | 0 |
| 10 | 20 | 59 | 75 | 0 | 25 | 2 | 36 | 59 | 0 |
| 14 | 17 | 28 | 55 | 3 | 38 | 0 | 31 | 34 | 7 |
| 17 | 15 | 45 | 75 | 0 | 25 | 5 | 65 | 65 | 0 |
| 21 | 14 | 43 | 60 | 6 | 20 | 6 | 29 | 34 | 0 |
| 22/23 | 31 | 48 | 76 | 0 | 31 | 0 | 52 | 45 | 0 |
| 24 | 17 | 33 | 67 | 0 | 33 | 0 | 17 | 21 | 0 |
| 26 | 27 | 45 | 86 | 5 | 59 | 9 | 14 | 0 | 0 |
| 30 | 0 | 10 | 33 | 5 | 0 | 5 | 10 | 0 | 0 |
| 32 | 0 | 5 | 60 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 | 5 | 23 | 68 | 5 | 9 | 0 | 41 | 0 | * |
| 39 | 16 | 16 | 42 | 5 | 21 | 0 | 21 | 0 | 5 |
| Block 'D' | 0 | 0 | 39 | 0 | 6 | 0 | 6 | 0 | 6 |
| Block 'E' | 16 | 5 | 42 | 0 | 5 | 11 | 5 | 0 | 5 |
| Block 'J' | 14 | 19 | 48 | 5 | 33 | 5 | 43 | 5 | 14 |
| Left Bank Sample | 16 | 34 | 59 | 2 | 25 | 3 | 29 | 25 | 3 |

: *Not reported

Source : Survey Data

Appendix Table A 1.

Proportion of Dwelling Units with Electricity Supply by Colony Units (in percentage)

| Unit | With electricity supply | Without electricity supply | No response |
|---|---|---|---|
| 02 | 03 | 97 | 00 |
| 03 | 03 | 97 | 00 |
| 07 | 09 | 82 | 09 |
| 08 | 00 | 97 | 03 |
| 10 | 25 | 75 | 00 |
| 14 | 05 | 84 | 10 |
| 17 | 21 | 76 | 03 |
| 21 | 02 | 95 | 03 |
| 21/23 | 00 | 95 | 05 |
| 24 | 00 | 100 | 00 |
| 26 | 00 | 100 | 00 |
| 30 | 06 | 88 | 06 |
| 32 | | | |
| 35 | 00 | 100 | 00 |
| 39 | 00 | 100 | 00 |
| Block D | 00 | 90 | 10 |
| Block E | 00 | 95 | 05 |
| Block J | 14 | 81 | 05 |
| Left Bank Sample | 05 | 91 | 04 |

Note : Data for Unit 32 are not available.

Source : Survey Data.

Chapter Five

# COMMUNICATION AND TRANSPORT

This chapter discusses ownership, readership/listening and the pattern of utilization of mass media communication sources in the study area. The two main sources of mass communication receiving attention in this section are the radio and the news paper. This will be followed by a discussion on type and mode of transport, utilized in the area.

## 5.1 Communication

### 5.1.1 Spread

The proportions of households owning radios and buying newspaper are 63% and 19% respectively. Ownership of weekly papers is higher than of daily papers. Of both types of media, exposure to radio is more regular since 56% of the settlers listened to radio daily. The exposure to daily papers is higher than either to weekly or cartoon papers. Reading papers is less popular than listening to radio probably because of the poor literacy in the area.

Although 63% of the settlers owned a radio, only 56% of them listened daily. On the other hand, the proportion of people reading newspapers is higher than those owning newspapers. The latter indicates the occurrence of some type of shared reading.

Table 5.1 Distribution of Farmers by Ownership and Exposure to Mass Media (in percentage)

| Type of Mass Media | Owner-ship | Exposure | | | | |
|---|---|---|---|---|---|---|
| | | Daily | Several times a week | Once a week | Some-time | Never- |
| Radio | 63 | 56 | 5 | 0.2 | 23 | 8 |
| Papers: | | | | | | |
| Daily | 18 | 19 | 18 | 3 | 36 | 14 |
| Weeklies | 20 | 3 | 2 | 37 | 23 | 20 |
| Cartoon papers | 11 | 2 | 3 | 9 | 20 | 33 |

Source: Survey Data.

### 5.1.2 Place of Reading/Listening

The popular places of reading/listening are home, neighbour's home, boutique and other places such as soports club, library, etc. A high preference for reading at village boutiques was found. This popularity is maintained for all three types of newspapers. Note that the proportion of farmers reading in their homes appears to be less than the proportion of farmers buying newspapers (Table 5.2). The proportion of home listening to radio is less than those who possess radio.

Table 5.2 - Percentage Distribution of Farmers by Location of Reading and Listening

| Source of Media | Place of Reading/Listening | | | | |
|---|---|---|---|---|---|
| | Home | Neighbour's home | Boutique | Other | No response |
| Radio | 60 | 11 | 19 | 2 | 8 |
| Papers: | | | | | |
| Dailies | 14 | 13 | 56 | 6 | 11 |
| Weeklies | 17 | 9 | 45 | 5 | 24 |
| Cartoon | 8 | 7 | 18 | 2 | 65 |

Source: Survey Data

### 5.1.3 Credibility of Mass Media

The level of credibility of mass media can be divided into seven categories as shown in Table 5.3. The proportion of respondents believing everything and almost everything amounted to 23% and 33% for news paper and radio respectively. This indicates a higher credibility of information disseminated by radio than attributed to newspapers. Moreover, the proportion of people not believing radio and newspapers at all is respectively 1% and 2%.

Table 5.3 - Distribution of Farmers by Credibility Attributed to Mass Media (in percentage)

| Level of Credibility | Newspaper | Radio |
|---|---|---|
| Believe everything | 8 | 14 |
| Believe almost everything | 15 | 19 |
| About half | 31 | 23 |
| Little | 12 | 10 |
| Do not believe at all | 2 | 1 |
| Do not know | 2 | 2 |
| No response | 15 | 18 |

Source: Survey Data

There is no evidence of a relationship between the level of credibility of mass media and ethnicity.

With regard to the reasons for exposure, it appears that the majority (50%) obtain country news from the mass media. The proportion of people interested in reading development news is 36%, while 25% are interested in recreation/entertainment type of reading. Radio listening, on the other hand, is mainly for recreation, while 41% of the listeners obtain village news from radio (Table 5.4). The percentage of people reading newspaper to obtain agricultural news is 10% while only 7% obtain such information from radio. Other popular reading features are government news and announcements, local and world news, and weekend stories. Among popular features in radio are news and announcements (34% of listeners), drama (25%) and music programmes (8%).

Table 5.4 - Reasons for Listening/Reading by Source of Mass Media (in percentage) N = 462

| Reason | Newspaper | Radio |
|---|---|---|
| Extra-village news | 50 | 41 |
| Recreation/entertainment | 25 | 47 |
| Development news | 36 | 37 |
| Advertisement | 10 | 12 |
| Other | 3 | 5 |
| No Response | 7 | 5 |

Source : Survey Data

## 5.2 Transport

The survey identifies four types of transport namely bicycles, bullock carts, motor cycles, and motor cars. The ownership of tractors was discussed in Chapter 4. The most popular type of human transport is the bicycle which is owned by 58% families. The number of families owning bullock carts is only 17%. The ownership of motor cycle and motor car is negligible. As shown in Table 5.5, the proportion of families owning bicycle is high in some tail units. This perhaps may be because of the large number of agricultural labourers in some tail villages who makes use of the bicycle to get to other villages where they are employed.

Unit 2 has the lowest percentage of families possessing bicycle where public transport is available in close proximity. Moreover, as people are living closer to their agricultural lands, the need for individual transport may not be greater in this unit.

Table 5.5 - Ownership of Type of Transport by Units
(percentage families owned)

| Unit | Bullock Cart | Bicycle | Motor Bicycle | Motor Car |
|---|---|---|---|---|
| 02 | 23 | 37 | 3 | 0 |
| 03 | 15 | 46 | 0 | 0 |
| 07 | 27 | 54 | 0 | 0 |
| 08 | 21 | 63 | 0 | 5 |
| 10 | 7 | 66 | 0 | 0 |
| 14 | 7 | 48 | 0 | 3 |
| 17 | 10 | 60 | 0 | 0 |
| 21 | 37 | 67 | 0 | 0 |
| 22/23 | 17 | 43 | 0 | 0 |
| 24 | 36 | 73 | 0 | 0 |
| 26 | 42 | 63 | 0 | 0 |
| 30 | 4 | 82 | 0 | 0 |
| 32 | 4 | 71 | 4 | 0 |
| 35 | 9 | 62 | 0 | 0 |
| 39 | 10 | 70 | 0 | 0 |
| Block D | 5 | 22 | 0 | 0 |
| Bolck E | 26 | 47 | 0 | 0 |
| Block J | 19 | 76 | 0 | 5 |
| Left Bank Sample | 17 | 58 | * | 1 |

* Negligible

Source: Survey Data

The distance to the closest bus route from the household ranges from few yards to, one mile in the case of Units 2, 3, 8, 10, 17, 21, 22/23, 24, 26, 30, 32, 35, Block J and E; it is greater than 3 miles from a household in Units 7, 14, 39 and Block D. Only 61% of the houses can be approached by a motor vehicle and the proportion of houses without this facility is 37%.

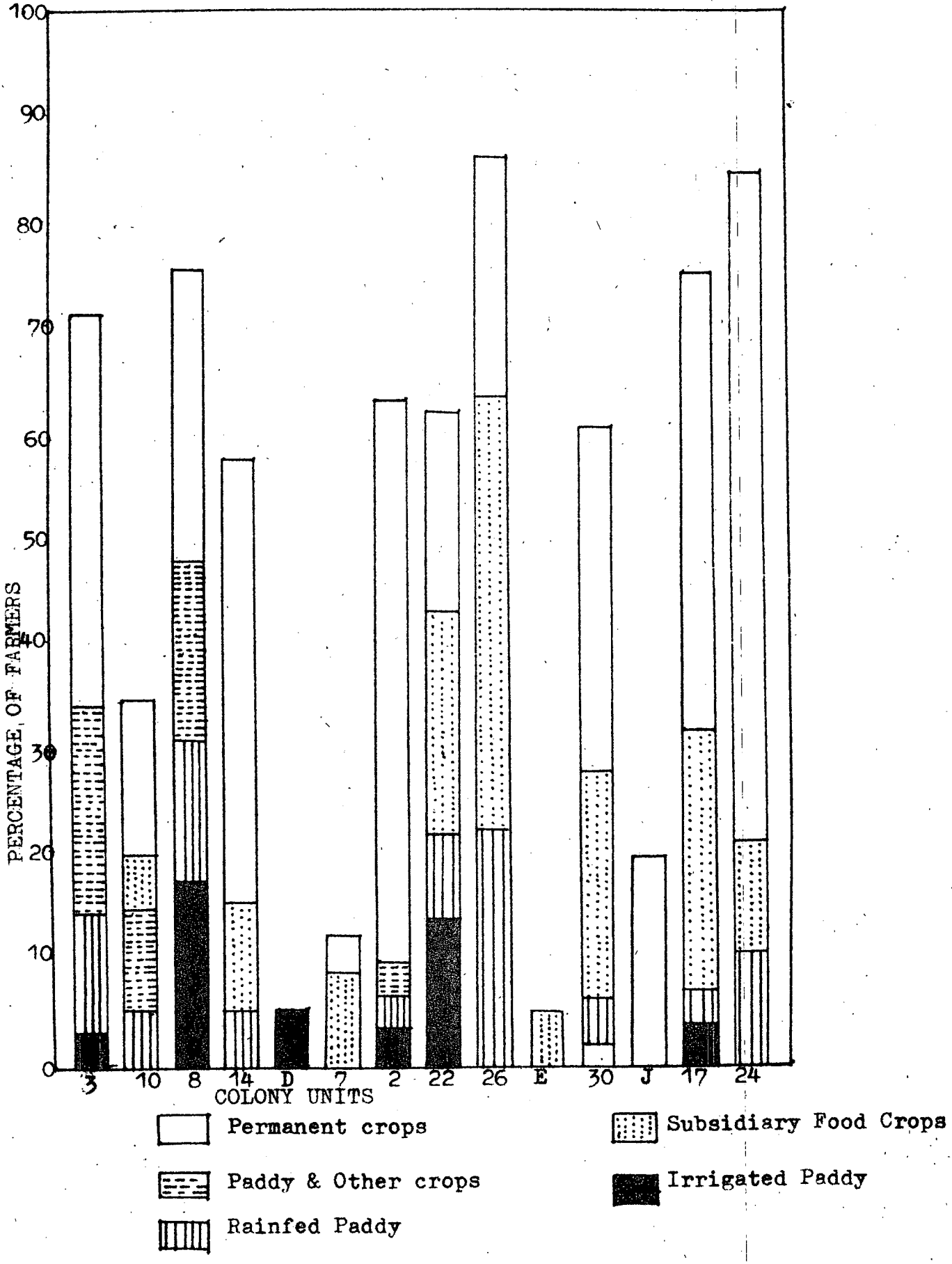


Figure 1: Distribution of Farmers Cultivating Highland Allotment During 1979/80 Maha Season.

Chapter Six

# LAND TENURE AND LAND USE

This chapter focusses on land ownership, land tenure and the pattern of land use in the Left Bank area of Gal Oya Scheme. A section on the cultivation of Other Field Crops (OFCs) those besides paddy, is also included.

## 6.1 Land Ownership and Land Tenure

### 6.1.1 Land Ownership

Agricultural land in the Left Bank of Gal Oya Scheme can be divided into four major categories. First, there are colony lands developed by the Gal Oya Development Board (GODB) from 1950/51 through 1958 and handed over to the settlers. A second category consists of lands cleared and developed by the GODB for various activities such as those given to a co-operative society, 500 acres of coconut planted by the Board, etc. Subsequently they were distributed among the settlers. A substantial extent of lands which were earmarked for channel, tank and road reservations, grazing grounds, etc. encroached upon by farmers forms the third category of lands. Some of the encroached lands have been later regularized by the government. Finally, there are large extents of Purana lands[14] held by the

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14 Purana Lands are those which have been traditionally cultivated by inhabitants before the settlement scheme came into being.

settlers, which constitute the Pattipola Ara lands together with other paddy areas south of Batticaloa Lagoon and around Periya Kalapuwa.

The first land distribution was in 1950/51 for those settlers whose lands were submerged in the waters of the Senanayaka Samudraya. In the initial years of colonization, each settler family received about four acres of lowlands[15] and three acres of highlands[16] whom have been settled in colony units 1 and 2. The same land allocation procedure continued till 1953, by which time colony units 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,16, 17, 18, 19, 22, 23, 25 and 26 were completed. In 1953, the GODB revised the land policy so that each settler was thereafter allocated three acres of lowland and two acres of highland. Later the extent of land allocated per settler was further reduced to two and one acre each of lowland and highland respectively. The settlers in colony units 35, 36, 37, 38, 39, etc. were given with comparatively small extents of land compared to other Units established prior to them.

Since then many changes have affected the land ownership status in the scheme. Among them are the emergence of Ande system of operation by tenants, mortgaging and leasing of the allotted land. Moreover, sub-division of land has been inevitable because of the increase in population. Accurate official information is not yet available with regard to the actual extent of different categories of land owned by the settlers in the scheme. The current pattern of land ownership in the scheme as revealed by the survey are 92.7% colony lands, 6.5% Purana

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15 Lowland allotments are provided with irrigation facilities where paddy is usually grown.

16 Highland are generally unirrigable where perennial crops are cultivated. The colony house is constructed on the highland.

Land and 0.8% other forms of ownership the majority of which are encroachments[17] (Table 6.1).

Table 6.1 - Composition of Agricultural Land (in percentage)

| Type | Highland | | Lowland | | Total |
|---|---|---|---|---|---|
| | S | J | S | J | |
| Colony Lands | 24.9 | 0.6 | 71.9 | 2.5 | 92.7 |
| Purana Lands | 8.5 | 0 | 84.7 | 6.7 | 6.5 |
| Other | 14.4 | 0 | 85.5 | 0 | 0.8 |

S Singly Owned J Jointly Owned
Source : Survey Data

6.1.2 Size of holding

The size distribution of different types of owned lands is presented in Table 6.2. It is interesting to note that the average size of both highland and lowland colony allotments has decreased in almost all Colony Units from the initial size. Colony Unit 35 has registered an increase in the size of both colony highland and lowland while there has been some type of consolidation of colony lowland in Units 14 and Block J. This may be due to the abandonment of some allotments in the Units 14, 35

17 It should be noted that the present study was not focussed on the encroachements. The number of encroachers therefore are much higher than what the study has shown. Also see section 6.1.4 below.

and Block J by original allottees which have subsequently been taken over by the remaining settlers. The intensity of sub-division of colony lowland is tremendous in the case of colony Units 3, 8, 22/23, 24, and 30. Most of these Units have an assured water supply during both seasons and have registered a high yield because they are located in the head area. These features in turn may have attracted more new farmers, particularly those belonging to the second and third generation of settlers into these Units. As a result, the average size of land held by a settler may have reduced in those Units. It may also be noted that land sub-division is minimum in Unit 26, owing mainly to its poor land productivity and subsequent lesser capacity to support a growing population.

The intensity of sub-division of colony highland allotments follows a pattern similar to that of lowland allotments. The land sub-division in general, is greater in head Units of 17, and 24 and less in tail Units. The differential rate of highland fragmentation across colony units can be explained as follows; Unit 2 has a comparatively large area under its command so that the need for further sub-division of already allotted highland is not great; owing to the poor land capability in unit 26, the new generation of settlers may not have opted to settle in this Unit. On the other hand, Unit 17 includes some Purana areas, where facilities for human inhabitation such as water availability, transport, etc. are well established. As such, more people belonging to the new generations may have settled in this unit which has led to further fragmentation of already allotted land.

### 6.1.3 Tenure and Operation of Agricultural Land

Important attributes of land tenure includes ownership, method of operation of the land, and the size of operational holding. This section will examine some of these issues.

Table 6.2 - Size Distribution and Change in Size of Owned Allotments by Colony Units (average size in acres)

| Unit | Purana Land | | Colony Land | | | | Other[a] | |
|---|---|---|---|---|---|---|---|---|
| | Highland | Lowland | Highland | | Lowland | | Highland | Lowland |
| | | | Size | % Increase(+)/ Decrease(-) | Size | % Increase(+)/ Decrease(-) | | |
| 2 | 3.0 | * | 2.5 | - 16 | 3.2 | - 20 | 1.0 | 0.7 |
| 3 | * | 4.0 | 1.9 | - 37 | 2.8 | - 30 | 0.5 | 1.0 |
| 7 | * | * | 0.8 | - 73 | 3.3 | - 17 | * | * |
| 8 | * | * | 1.6 | - 47 | 2.7 | - 31 | * | * |
| 10 | * | * | 1.9 | - 36 | 3.5 | - 12 | * | 6.0 |
| 14 | 1.0 | 2.0 | 1.4 | - 52 | 4.5 | + 12 | * | * |
| 17 | * | * | 0.7 | - 76 | 3.2 | -19 | * | * |
| 21 | * | * | 1.6 | - 44 | 2.8 | - 29 | 0.5 | 1.2 |
| 22/23 | 2.0 | 1.0 | 1.2 | - 58 | 2.6 | - 35 | * | * |
| 24 | * | * | 0.7 | - 76 | 3.7 | - 65 | * | * |
| 26 | 2.0 | * | 2.1 | - 28 | 3.9 | - 1 | * | * |
| 30 | * | * | 1.0 | - 65 | 2.5 | - 36 | * | 0.5 |
| 32 | 0.7 | 6.9 | 1.4 | - 52 | 6.7 | - 69 | * | * |
| 35 | * | * | 2.0 | + 50 | 3.0 | + 50 | * | * |
| Block D | * | * | 1.9 | - 37 | 2.8 | - 29 | * | * |
| Block J | 0.2 | 2.6 | 0.6 | - 40 | 3.1 | + 55 | * | 14.0 |
| Left Bank Sample | 1.5 | 4.7 | 1.5 | | 3.2 | | 0.6 | 3.2 |

a Include encroachments, reserved land, etc.

* Not reported.

Source : Survey Data.

As mentioned in section 4.1.1, there appears to be three modes of land operation, namely owner-operation, operation of ande/mortgaged/leased land, and operation of encroached land. Owner-operation is the most prevalent mode of activity which constitutes 79% of highland and 82% of lowland in the sample (Table 6.3). The size as well as the frequency of owner-operated lands is greater in tail areas than in head areas with the average size of the owner-operated allotments being 1.3 and 3.0 acres of highland and lowland respectively. The allotments operated on ande/mortgaged/leased basis account for 2% of highland and 14% of lowland. The frequency of ande operation of the lowland is highest in Colony Units 10 and 17, with percentages of 30 and 31 respectively. The average size of leased/mortgaged/ande land is 0.9 in the case of highland and 1.7 for lowland. Small-sized allotments tend to be leased out or given on ande basis as it becomes uneconomical to operate them.

Encroached areas reported in the present study account for 16% and 1% of the total highland and lowland respectively. The reported encroached highlands are more in the better watered head Units as facilities for human inhabitation are better established in them. The reported lowland encroachments are highest in the Units 2, 14 and 30 while highland encroachments are greater in Units 17, 22, 26 and 32. The size of the encroached highland is 1.2 acres while that of lowland is 1.7 acres. The status of encroached land is much more complicated in the study area than what the above figures indicate. People have encroached upon every bit of state land where cultivation can be undertaken. In addition, most of the un-irrigable lands have also been encroached upon particularly by the families of second and third generation of settlers to put up dwelling units. Areas encroached include all types of channel, bund, road and catchment reservations, and areas earmarked for playgrounds, cemetaries, pasture land, etc. Some of the

Table 6.3 - Size Distribution of the Operational Holdings (Average size in acres)

| Colony Unit | Owner operated | | Ande/leased mortgaged | | Encroached | | Other | | Overall average size | |
|---|---|---|---|---|---|---|---|---|---|---|
| | High-land | Low-land | High-land | Low-land | High-land | Low-land | High-land | Low-land | High-land | Low-land |
| 2 | 2.5 (86) | 2.6 (74) | 1.0 (1) | 1.8 (22) | 1.7 (10) | 1.3 (4) | 1.0 (4) | * | 2.3 | 2.2 |
| 3 | 1.9 (32) | 2.4 (79) | * | 1.4 (8) | * | * | 0.8 (8) | 1.4 (13) | 1.7 | 2.1 |
| 7 | 0.9 (100) | 3.2 (78) | * | 3.5 (21) | * | * | * | * | 0.9 | 3.3 |
| 8 | 1.6 (95) | 2.6 (76) | 0.7 (5) | 2.1 (22) | * | 2.0 (2) | * | * | 1.4 | 2.4 |
| 10 | 1.8 (97.5) | 3.5 (94) | * | 0.9 (30) | 0.7 (2) | * | * | 3.0 (4) | 1.7 | 3.3 |
| 14 | 1.2 (100) | 4.3 (90) | * | 2.0 (5) | * | 3.0 (4) | * | * | 1.2 | 4.0 |
| 17 | 0.6 (27) | 2.6 (66) | * | 1.7 (31) | 1.4 (73) | 2.0 (2) | * | * | 1.0 | 2.3 |
| 21 | 1.2 (78) | 2.5 (76) | 0.4 (3) | 1.0 (21) | 0.9 (12) | * | 1.0 (7) | 1.2 (3) | 0.8 | 1.8 |
| 22/23 | 1.2 (67) | 2.3 (73) | 3.0 (8) | 1.3 (24) | 1.2 (29) | 1.5 (1) | * | * | 1.2 | 1.9 |
| 24 | 0.7 (81) | 3.5 (91) | 0.5 (3) | 1.6 (8) | 1.1 (16) | * | * | * | 0.7 | 3.3 |
| 26 | 1.0 (79) | 3.1 (37) | * | 2.2 (12) | 0.9 (29) | 1.0 (1) | * | * | 1.0 | 2.9 |
| 30 | 0.9 (73) | 2.4 (76) | * | 1.5 (17) | 0.7 (19) | 1.7 (6) | 0.5 (1) | * | 0.6 | 2.9 |
| 32 | 1.5 (63) | 6.4 (93) | * | 4.5 (1) | 3.0 (32) | * | * | * | 1.8 | 6.2 |
| 35 | 2.0 (100) | 3.0 (100) | * | * | * | * | * | * | 2.0 | 3.0 |
| 39 | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A |
| Block D | * | 3.0 (100) | N.A | N.A | N.A | N.A | N.A | N.A | N.A | 3.0 |
| Block E | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A | N.A |
| Block J | 0.5 (100) | 3.2 (73) | * | 5.0 (7) | * | * | * | 14.0 (20) | 0.5 | 3.5 |
| Left Bank | 1.3 (79) | 3.0 (82) | 0.9 (2) | 1.7 (14) | 1.2 (16) | 1.7 (1) | 0.8 (2) | 2.8 (2) | 1.2 | 2.8 |

* Not reported.
N.A. Not available.
(Figures in parenthesis are percentages of highland and lowland allotments operated under each category)
Source : Survey Data.

Appendix Table A.2

Distribution of the Uncultivated Land by Colony Units During 1979/80 Maha Season

| Unit | Average sample highland area uncultivated (acres) | Average sample lowland area uncultivated (acres) |
|---|---|---|
| 02 | 1.0 | 1.9 |
| 03 | 1.2 | 1.2 |
| 07 | 0.2 | 4.0 |
| 08 | 1.2 | 1.0 |
| 10 | 2.7 | 2.0 |
| 14 | 1.0 | * |
| 17 | 0.8 | 1.6 |
| 21 | 1.8 | 1.8 |
| 22/23 | 1.1 | 1.4 |
| 26 | 1.4 | 1.8 |
| 30 | 2.0 | 2.0 |
| 32 | 0.5 | * |
| Block J | 1.2 | 3.1 |

* Not available

Source : Survey Data

encroached lands are added on to the existing Colony allotment, while other encroachers have either begun to cultivate or put up dwelling units on a piece of encroached land which is entirely separated from the colony allotments.

Some of the newly encroached lands have been issued temporary permits with for cultivation under the provisions of Land Development Ordinance (LDO) Acts Nos. 60 and 16 of 1961 and 1969 respectively. The majority of encroached lands, however, cannot be made regularised by the law because such lands either interfere with the proper management of land and water resources or in some cases affect communal life in the area. On the other hand, regularization of encroached lands which form a part of the existing legal allotment may be difficult, because it has to be done after a careful re-surveying of all such areas. The re-surveying itself is a cumbersome procedure which has not been attempted since the time of planning the settlement in 1950s.

Table 6.4 below gives a tentative picture of the status of encroached land in part of the Left Bank area.

Table 6.4 - Area and Number of Cases of Encroached Land by AGA Division in the Left Bank

| AGA* Division | Status of Encroachments | | | | | |
|---|---|---|---|---|---|---|
| | Regularised under law | | Pending regularisation | | Pending Prosecution before a Courts of Law | |
| | No. of individuals | Area (acre) | No. of individuals | Area (acres) | No. of individuals | Area (acres) |
| Uhana | 2463 | 2223.25 | 6777 | 7371.75 | 1686 | 1601.0 |
| Samanthurai | 2757 | 2042.25 | 5244 | 6227.25 | 1006 | 1840.75 |
| Kalmunai | 580 | 89.0 | 595 | 90.75 | 223 | 299.3 |

Note: The above figures provide details of land encroached only for that part of the LB Scheme which comes under the administration of Ampara district. Details for the other part under the administration of Batticaloa district is not included. The collection of latter has been difficult due to several logistic reasons.

* Assistant Government Agent

Source: Lands Branch, Kachcheri, Ampara

The above figures are best approximations and the actual area encroached can be much greater which is not known to any degree of accuracy. As the figures in Table 6.4 indicate, the approximate number of encroachers in part of the LB area is 21,331 which exceeds the total number of families allotted land in the whole of LB scheme at the time of settlement. The present estimate of the latter is about 15,000 farm families.

Under the provisions of the LDO Acts already referred to, the Government Agent (GA) in the district is expected to prosecute against those who encroached upon State land before a Courts of Law. However, the process of preparation for prosecution takes such a long time because of two main reasons. First, the authorities concerned have not been able to identify the actual number of people together with the location of encroached land area correctly. This has prevented the issuing of notice of ejection or prepare cases for prosecution of the encroachers. Second, some encroachers attempt to escape from law through the patronage of local politicians. Still some other encroachers continue to enjoy the benefits of encroached land with the support of the authorities concerned. Because of these reasons, prosecution against encroachers has been a most difficult and complicated task which often tends to be neglected by the authorities.

### 6.1.4 Joint ownership

There appears to be two categories of owner-operated lands, namely single ownership and joint ownership. In the case of single ownership, the land is owned and operated by a single person, whereas the joint ownership involves the operation of an allotment by two or more persons together. Joint ownership is reported more for lowland (5.5% of total lowland) whereas for the highland it is only 2%. Colony Units where joint ownership is more frequently reported are 3, 8, 21 and 22 (Table 6.5); the size of jointly-owned land is also smaller than for singly owned land.

The incidence of joint ownership appears to be higher in those Units where the decrease in size of the original allotment is found to be greater. Hence, the emergence of joint ownership can be considered as a means of checking further sub-division of cultivated land.

Table 6.5 - Distribution of Joint Ownership of Owner Operated Lands by Colony Units

| Colony Units | % of Total Highlands | % of Total Lowlands |
|---|---|---|
| 2 | * | 10 |
| 3 | 3 | 16 |
| 7 | * | * |
| 8 | 6 | 7 |
| 10 | 5 | 6 |
| 14 | * | * |
| 17 | 5 | 9 |
| 21 | 2 | 12 |
| 22/23 | * | 15 |
| 24 | * | 2 |
| 26 | * | 3 |
| 30 | * | * |
| 32 | * | 2 |
| 35 | * | * |
| 36 | * | * |
| 39 | * | * |
| Block J | 2 | * |
| Left Bank Sample | 2 | 6 |

* Not reported

Source: Survey Data

## 6.2 Land Use

Land use essentially indicates types and nature of agricultural operations carried out both on the highland and lowland. Agricultural activities are comprised of both livestock and crop husbandry; the former has already been discussed in Chapter Four. This section discusses land use in relation to annual and perennial crop production. The annual crops include the cultivation of paddy and Other Food Crops on highland, lowland, and on chena,[18] while perennial crop production is based exclusively on the highland allotment.

### 6.2.1 Lowland Utilisation

Paddy was the major crop grown on the lowland across the entire system during 1979/80 Maha season. However, few farmers in middle Units such as 3, 10, 26 and many in tail Units of 7, 14, and Block E have planted paddy on the lowlands by 'dry sowing' (This technique will be discussed in chapter 7). The proportion of farmers adopting dry sowing technique ranges from 3% to 65%. A small percentage of farmers in Units 8 and 26 were reported to have planted lowlands with Other Field Crops (OFCs) such as cowpea and vegetables during the same season. During 1980 Yala season, lowlands have not been planted due to lack of water in tail Units such as 7, 14, Block D, E, and J. However, the head Units have been planted with irrigated paddy[19], as water was not a constraint during that season. In addition, a few

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18 Chena is a slash and burn system of cultivation on land outside allotment. It is essentially a shifting type of farming.

19 All paddy varieties that are in use at present in the scheme are irrigated paddy. Some farmers however, cultivate irrigated paddy varieties under water deficit highland conditions. The lack of a suitable rainfed paddy variety is indeed a problem.

farmers in Units 8 and 26 have also planted lowlands with tobacco during 1980 Yala season. As water issued were not getting beyond these Units, the availability of water may not have been adequate for a crop of paddy during Yala season. However, the meager supplies reaching them might be adequate for OFCs. No head Units were reported to have planted with OFCs on lowland during 1980 Yala season. The survey shows the prevailing pattern of lowland utilization to be paddy during both Maha and Yala in head Units, and paddy during Maha followed by fallow in Yala in tail Units.

The average size of cropped lowland allotment in 1979/80 Maha and 1980 Yala are given in Table 6.6. It shows that there was a decrease in the size of the area cropped from Maha to Yala season in almost all units. A greater decrease in Yala area is observed in the tail Units than in the head Units. The plot size for irrigated paddy is greater than for any other crop in most of the Units during both seasons.

### 6.2.2 Highland Utilization

The crops cultivated on the highland are rainfed paddy, other Field Crops such as maize, finger millet, manioc, banana, chillies, vegetables, pulses such as cowpea, green gram, Lanka parippu, black gram, etc., and tree crops (Section 6.2.3 discusses the cultivation of tree crops). The utilization of the highland is more active in Maha season than in Yala where no crops are cultivated on tail farms during the latter season. The crops planted during 1980 Yala season in head units were banana, vegetable, and paddy. During Maha season, a mixed pattern of crops was observed on the highlands. The percentage of farmers cultivating different crops is illustrated in Figure 1.

Cases of irrigated paddy on highland ranges from 2 to 17%;

Table 6.6 - Average Plot Size In Relation to Crop and Colony Units during 1979/80 Maha and 1980 Yala Seasons (Average Size in acres)

| Unit | Lowland Areas | | | | | Highland Areas | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 Yala | | 1979/80 Maha | | | 1980 Yala | | | 1079/80 Maha | | | |
| | Irrigated paddy | OFC | Irrigated paddy | Rainfed paddy | OFC | Irrigated paddy | Rainfed paddy | OFC | Irrigated paddy | Rainfed paddy | OFC | Free Crops |
| 2 | 2.3 | * | 3.0 | * | * | * | * | * | * | 1.5 | 2.0 | 1.1 |
| 3 | * | * | * | * | * | * | * | * | * | * | * | * |
| 7 | * | * | 3.1 | * | * | * | * | * | * | * | 1.1 | * |
| 8 | 3.2 | 1.0 | 3.4 | 1.0 | 0.7 | 1.5 | 1.0 | 0.6 | 0.6 | 0.7 | 0.7 | 1.1 |
| 10 | 3.4 | * | 3.5 | 1.0 | * | * | * | * | * | 0.5 | 0.25 | 0.5 |
| 14 | * | * | 2.5 | 4.5 | * | * | * | * | * | 0.5 | 0.8 | 0.60 |
| 17 | 3.0 | * | 3.2 | * | * | * | 0.5 | * | * | 0.5 | 4.6 | 0.7 |
| 21 | 1.7 | * | 1.8 | * | * | * | 0.7 | * | * | 0.8 | 0.3 | 0.9 |
| 22/23 | 1.9 | * | 1.8 | * | * | * | * | * | 1.0 | 0.7 | 0.8 | 0.6 |
| 24 | 2.1 | * | 3.0 | * | * | * | 1.0 | * | * | 1.0 | 0.3 | 0.4 |
| 26 | 2.0 | 4.0 | 3.4 | * | * | * | * | 0.5 | * | 1.0 | 0.75 | 0.7 |
| 30 | 2.1 | * | 2.0 | * | * | * | * | * | * | 0.2 | 0.5 | 1.1 |
| 32 | * | * | * | * | * | * | * | * | * | * | * | * |
| 35 | 3.0 | * | 3.0 | * | * | * | * | 2.0 | * | * | * | * |
| 39 | * | * | * | * | * | * | * | * | * | * | * | * |
| Block D | * | * | 3.0 | * | * | * | * | * | * | 3.0 | * | * |
| Block E | * | * | * | * | * | * | * | * | * | * | 2.0 | * |
| Block J | * | * | 2.8 | 2.7 | * | * | * | * | * | * | * | 1.0 |

* Not reported

a Water obtained through illicit tapping of irrigation channels

Source : Survey Data

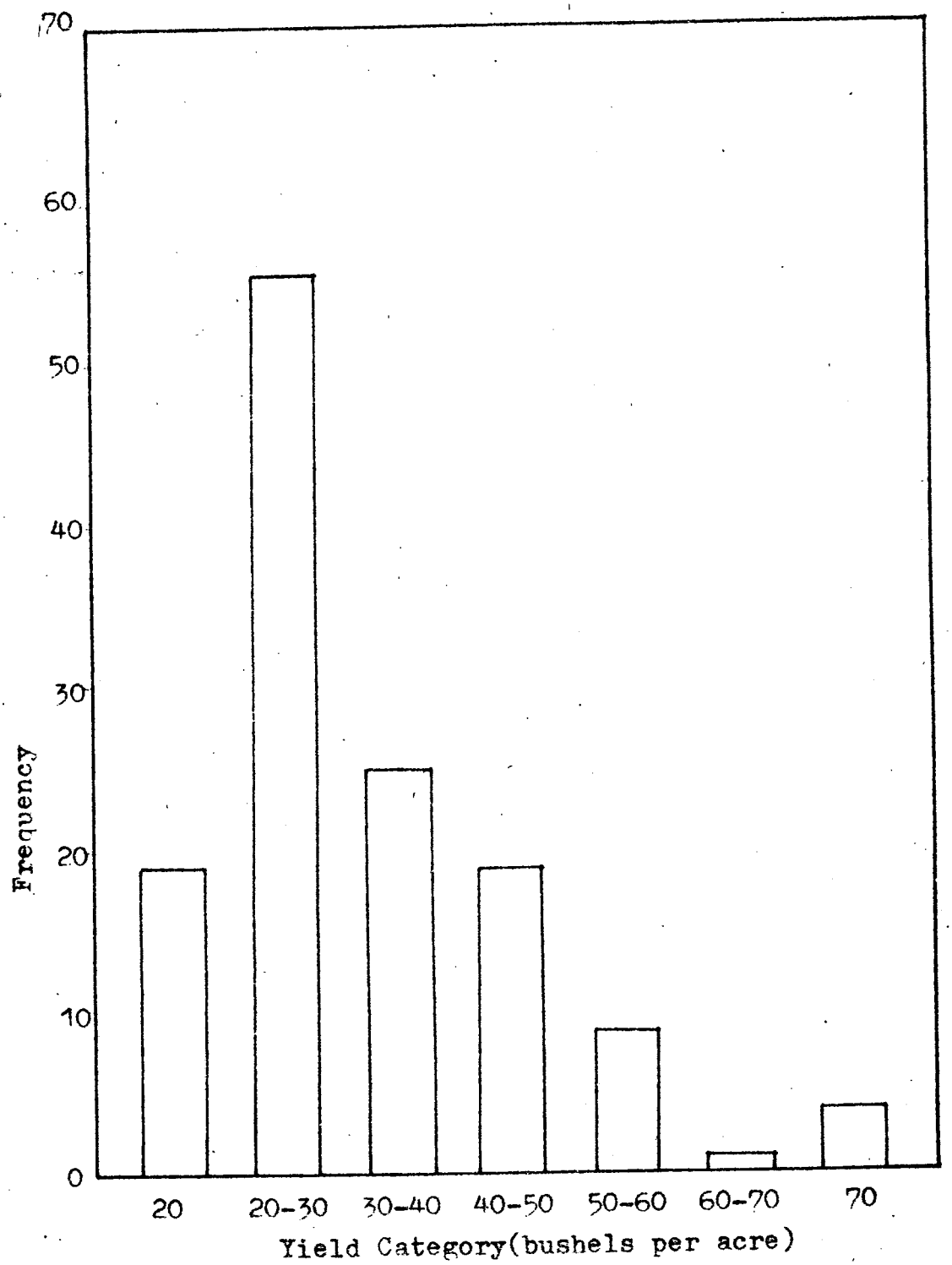


Figure 2: Distribution of Per Acre Paddy Yield in the Left Bank During 1979/80 Maha Season

the only tail Unit where such paddy was reported on highland was Block 'D' which gets much drainage water. The farmers in head units obtain channel water for cultivation of highland with lowland paddy by illicit means. The majority of farmers have planted paddy and Other Field Crops (OFC) in a mixed pattern on highland during 1979/80 Maha season. The OFC cultivated were cowpea, green gram, and chillies, while grain crops such as finger millet were less frequently reported.

The average size of the cropped highland is much smaller than the allotted land during both seasons. The cropping intensity decreases from Maha to Yala season across the LB area (Table 6.7).

Table 6.7 - Cropping Intensity by Location

| Factor | Cropping Intensity* 1979/80 Maha | 1980 Yala |
|---|---|---|
| Head area lowland | 100 | 93 |
| Head area highland | 100 | 12 |
| Overall head area | 100 | 82 |
| Tail area lowland a | 100 | 30 |
| Tail area highland a | 100 | 3 |
| Overall tail area a | 100 | 27 |
| Left Bank sample | 100 | 63 |

a These figures are based on the area cropped during 1979/80 Maha season.

* Cropping Intensity = $\frac{\text{area sown}}{\text{Total asweddumized area}} \times 100$

Note that the area sown during Maha season is taken as 100.
Head Area : Colony units 2, 3, 8, 17, 21, 22/23, 24 and 30.
Tail area : Colony Units 7, 10, 14, 26, 32, 35, 39 and Blocks D, E and J.
Source : Survey Data

The greatest decrease in the intensity from Maha to Yala season is recorded in the tail area highland while the smallest decrease is with the head area lowland. Lowland cropping intensity in the tail area during Yala season is only 30% compared to the corresponding Maha season. The cropping intensity for highland is 3% and 12% for the tail and head areas respectively. The major constraint to highland utilization is the lack of water. At present the upland paddy grown on the highland during Yala season is mostly irrigated with illegal tappings of irrigation channel water. As paddy requires more water than any other crop, cultivation of paddy on the highland during Yala season might lower the efficiency of utilization of irrigation water. The highland may be planted with OFCs which require much less water than paddy. The saving on water can be used for cultivation of additional acres of highland or some more lowland downstream.

The preceding analysis of land use pattern indicates that head area farmers have over-all larger cropped allotments of both highland and lowland compared to tail area farmers; the head farmers are also blessed with the facility of cultivating during both seasons. The yield and subsequent income from agriculture, therefore, tends to be very much higher in head colony Units whereas farmers in the tail areas continue to be poor. This income disparity resulting from differential performance in agricultural production may not be remedied, unless the intensity of cropping is increased in tail farms, by augmenting irrigation water supply particularly during the Yala season, through greater water use efficiency and savings in head end areas.

### 6.2.3 Chena cultivation

Chena cultivation is reported only in Colony Units 21, 22 and 24 where pockets of forest lands yet exist in the adjoining

areas. In the sample, only 6 farmers reported having cultivated chena during 1979/80 Maha season. The types of crops grown are vegetables and kurakkan (millets) the average size of reported chenas is 1.8 acres.

## 6.3 Perennial Crop Production

Permanent tree crops such as coconut, lime, jak, orange and drumstick have been planted on highland. Coconut is the most common tree crop, found in almost all farms.

The types of crops planted depended upon the type of seed or planting materials supplied by the GODB. Although several tree crop varieties such as jak, mango, drumstick, guava, orange, pomagranate, aricanut, lime and breadfruit were provided by the GODB, only coconut has established well in the settlement area. Coconut growing is reported in 15 Units; Units 7 and 26 have reported very few farms with coconut, while Block D, Block E and Unit 35 have not reported them at all. Other types of tree crops were found to be grown under a mixed pattern in the homestead. The average extent under tree crops is 1.0 acre per farm and 21% of the highland sample area is planted with tree crops.

Tree crops were encouraged by the GODB because they provide shade and fruits for consumption. Additionally, tree crops can also supplement farm income particularly during periods of drought. However, their contribution to farm income is insignificant in the Gal Oya Left Bank at present.

## 6.4 Uncultivated Lands

The survey reveals that some of the highland as well as lowland allotments have not been cultivated by the owner; they are either cultivated by another person or left entirely abandoned. The distribution of the uncultivated land is given in Appendix Table A.2.

The reasons for non-cultivation are inadequate water, financial difficulties, wild animals and unsuitability of the land for cultivation (Table 6.8). The proportion of highland uncultivated due to lack of water is greater than the lowland. Overall, 37% of lowland and 69% of highland are not cultivated at all mainly because of unsuitability for cultivation.

Table 6.8 - Reasons for Uncultivation (Percentage of total uncultivated land)

| | Reason | % of Uncultivated Land | |
|---|---|---|---|
| | | Highland | Lowland |
| 1 | Inadequate water | 28 | 22 |
| 2 | Financial difficulties | 0 | 0.4 |
| 3 | Reserved for grazing | 2 | 0.8 |
| 4 | Wild animals | 10 | 0.8 |
| 5 | Unsuitable land | 30 | 14 |

Source : Survey Data.

## 6.5 Cultivation of Other Field Crops (OFC)

Cultivation of Other Field Crops during the Yala season has been encouraged by several agencies including the Department of Agriculture (DA). The OFC can profitably be cultivated on lowland as they require less water than for paddy during the Yala season. Cultivation of OFC has several other advantages as well; family labour can be employed during both seasons and soil fertility is better maintained.

The Department of Agriculture recommends a range of suitable OFC, such as pulses, onions, chillies, vegetables, etc. Attempts to popularize cultivation of OFC have not been successful under either minor or major irrigation schemes. The choice of the farmer has been for paddy whenever water is available and nothing during deficit seasons.

The status of planting OFC on lowland is very poor in the Left Bank area as no farmer reported to have done so, during 1980 Yala season. However, a few farmers have indicated a possibility of growing OFC as the drainage and soil fertility characteristics are appear to be good in some selected fields of the project area; some have also indicated that as water is available in selected fields, OFC can be grown on such fields. However, 26% of farmers indicated that OFC cannot be cultivated at all due to the following reasons; bad drainage 57%, salinity 4%, infertile soil 9%, and lack of water 82%. The main reason for not cultivating OFC therefore is the lack of water which is a general feature affecting paddy as well. However, the lack of water was indicated mostly by tail-end farmers where problem of water is acute. Some other possible reasons would be inadequate experience/exposure to OFC practices, marketing problems and lack of knowledge, as paddy has been the only crop grown in the settlement's lowland since the inception of the scheme.

In order to compare the preference for growing paddy vis-a-vis OFC, farmers' rating of each of 12 categories that should be taken into account when choosing between cultivating paddy or OFC is shown in Table 6.9.

Table 6.9 - Farmer Preference Towards Selected Factors Involved with the Cultivation of Other Field Crops vis-a-vis Paddy (in percentage) N = 428

| Factor | Rating Category | | | | |
|---|---|---|---|---|---|
| | More | Less | No Difference | Not Known | No Response |
| Requirement of Water | 10 | 82 | 2 | 1 | 9 |
| Requirement of Knowledge | 25 | 44 | 23 | 2 | 9 |
| Demand for Labour | 27 | 54 | 12 | 2 | 9 |
| Crop Protection Need | 29 | 29 | 30 | 3 | 9 |
| Requirement of Fertilizer | 11 | 68 | 13 | 3 | 10 |
| Weed Problem | 16 | 54 | 21 | 4 | 10 |
| Disease Outbreaks | 14 | 51 | 25 | 5 | 10 |
| Problem of Insects, Pests, etc. | 13 | 50 | 27 | 5 | 10 |
| Total expense | 14 | 64 | 10 | 6 | 10 |
| Income | 13 | 67 | 10 | 10 | 10 |
| Over-all Profit | 14 | 61 | 10 | 10 | 10 |
| Over-all Preference | 6 | 71 | 13 | 2 | 12 |

Source : Survey Data

Table 6.9 shows that the majority of farmers have indicated that OFCs require less water, knowledge, labour, fertilizer, weed and disease control attention; however with present prices the income and profit will also be less, creating a less preference for OFC. Because of these reasons, OFC cultivation has not been attempted by farmers in the Left Bank of Gal Oya scheme. However, this subject should be studied in greater detail; agronomically, ecologically, socially and economically advantageous crops must be introduced and popularized. The extension service and other supporting efforts must also be geared in order to encourage cultivation of OFC by farmers.

Chapter Seven

# ADOPTION OF MODERN TECHNOLOGY AND RETURNS TO PADDY CULTIVATION

The drive to improve productivity of farmland has been greatly assisted by modern agricultural technology, particularly with the release of new high-yielding varieties of crop plants. The type and nature of technology is many and varied. This Chapter[20], will investigate the present status of adoption of high-yielding varieties, methods of land preparation and plant establishment, fertilizer, weed control and other agro-chemical application practices and the use of farm power with regard to paddy production in the study area. Finally costs and returns to paddy production in 1979/80 Maha season within the Left Bank of Gal Oya Scheme will also be presented.

## 7.1 High Yielding Varieties

The main types of varieties adopted in the settlement are new high-yielding varieties which mature in 3 - 3 1/2 months and old improved varieties (Table 7.1). Farmer preference for the former group of varieties is great as almost the total extent, representing 98% of sampled farmers and area, are adopting them. There were only two cases for the entire settlement where old improved varieties have been planted.

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20 A detailed analysis of paddy yield, labour use and cost of production in the Left Bank area is included in the ARTI Research Study No. 48- "1980 Year Book for Sri Lanka Water Management Research".

Table 7.1 - Adoption and Popularity of Paddy Varieties in 1979/80 Maha (in percentage)

| Variety | Crop duration (months) | Extent | Farmers |
|---|---|---|---|
| A. New Improved | | | |
| BG 34 - 8 | 3 | 12 | 28 |
| BG 34 - 6 ) | | 15 | 13 |
| BG 94 - 1 ) | 3 1/2 | 38 | 34 |
| BG 90 - 2 ) | | 8 | 9 |
| B. Old Improved and Traditional | | | |
| H 4 | 4 - 4 1/2 ) | 1 | 2 |
| Devereddiri | 5 ) | | |
| C. Mix of New Improved | | | |
| BG 34 - 8; 34 - 6; ) 94 - 1; 90 - 2. ) | 3 - 3 1/2 | 27 | 15 |

BG and H refer to Batalagoda and Hambantota respectively where these varieties were found.

Source : Survey Data

BG 94 - 1 which is a 3 1/2 month variety is widely adopted and is preferred by many farmers. Thirty four percent of farmers representing 38% of the sampled extent have adopted BG 94 - 1 during 1979/80 Maha season. The next in line in terms of the extent under cultivation is BG 34 - 6, but it ranks third by popularity. The extent under BG 90 - 2 and BG 34 - 8 are respectively 8% and 12%. The only old improved variety cultivated in the study area is H 4 while Devereddiri which is an old variety was found cultivated by only one farmer. The extent under their cultivation however is negligible (1%). As seen in the foregoing Table, 15% farmers have adopted a mix of different new improved varieties comprising BG 34 - 6, BG 34 - 8, BG 90 - 2, which occupy 27% of the total

sampled extent. In such cases however, each separate liyadda[21] was found to be planted with a single variety. The number of farmers adopting BG 34 - 8 variety across colony Units was found to range from 5 - 60%. There appears to be no relationship between the extent under this variety and the location of colony Unit with regard to water availability. This implies that farmers in water-deficit areas have not resorted to the selection of short-aged varieties.

## 7.2 Fertilizer Application

Use of chemical fertilizer is an important agronomic practice particularly in realising the potential productivity of recently developed high-yielding paddy varieties. Three aspects which should be considered in the adoption of fertilizer practices are the rate of application, time of application, and the selection of appropriate fertilizer materials.

Three types of fertilizer materials have been recommended for application in the Dry Zone by the Department of Agriculture. They are Basal Mixture (V1)at the time of final ploughing, Urea at 2 weeks and 6 weeks after sowing, and Top Dressing Mixture (TDM) at 6 weeks after planting paddy.

The study shows that farmers use all three types of materials together with NPK mixture and Ammonium Sulphate the latter two are not recommended for Dry Zone application. Of the three recommended types, the proportion of farmers applying Urea is 90% for the Left Bank area as a whole with a range of 64 - 100%. More farmers in tail Units applied Urea than in head Units, except in head Unit 24 where all farmers applied Urea. The percentage of farmers applying TDM was 61% with a variation in the proportion from 28 - 100% across

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21 Liyadda is the plot of paddy land surrounded by its own bunds.

Colony Units. Again more farmers in tail Units applied TDM than in head Units. V 1 Basal fertilizer mixture was reported to have been applied by only 33% farmers, the range being 6 - 92%. The nature of application of TDM was, however, not related to the location of colony Units in terms of water availability.

Of those applying fertilizer, the percentage using them at the correct stage of crop growth is 63% for urea, 32% for TDM and 24% for V 1 mixture (Table 7.2).

Table 7.2 - Fertilizer Use by Variable Factors

| Factor | Urea | TDM | V 1 |
|---|---|---|---|
| Quantity applied per acre (cwt)[a] | 1.14 | 0.81 | 0.89 |
| Quantity recommended per acre (cwt) | 1.25 | 1.0 | 1.5 |
| Percentage farmers applying fertilizer | 90 | 61 | 33 |
| Percentage farmers applying at[b] correct growth stage of paddy | 63 | 32 | 24 |
| Percentage extent fertilized[c] | 92 | 66 | 34 |

a Quantity of fertilizer applied by sample farmers divided by the applied acreage.

b Number of farmers applying fertilizer at correct growth stage divided by the total number of sample farmers.

c Fertilizer applied acreage divided by the total sample extent.

Note : All figures rounded to the closest full number.

Source: ARTI Farm Record Keeping Survey.

The extent receiving any quantity of urea is 92% followed by TDM with 66%. Only 34% of the total sample extent received V 1 mixture.

The preceding analysis shows the scope available for improvement of fertilizer practices adopted by farmers in the Left Bank System. Special mention should be made of the farmers using fertilizer at incorrect stages of crop growth which could clearly be corrected by efficient extension efforts. Emphasis should also be given to encourage farmers to use V 1 and TDM mixtures as their application rates as well as those applying are much below the desired level, based on present recommendations.

In general, fertilizer is better used in tail areas than in head areas as the rate as well as timing of fertilizer application appeared to be more in agreement with recommendations. This may be due to their need to obtain the best possible yield with meagre supply of irrigation water they get.

## 7.3 Weed Control

Weed control is a standard requirement for best yields with the adoption of high-yielding paddy varieties. This is done either with the use of weedicides or manually. In the study area, 71% farmers have used weedicides to control weeds during 1979/80 Maha season. However, this percentage varies from 22-100% across Colony Units. Chemical weed control is done on 73% of the paddy area. The rest of the extent is either manually weeded or weeds are not controlled at all.

## 7.4 Pest and Disease Control

In the study area, 82% of farmers use insecticides or fungicides against pest or disease outbreaks. The number using plant protective chemicals is more than those who use weedicides. It is also higher than the proportion using $V_1$ or TDM mixtures. This

indicates the relative importance given by farmers to pest control in order to reduce crop damage rather than making an investment of fertilizer.

The major pest problems reported by farmers were Gall Midge, Brown Plant Hopper and leaf eating caterpillar attacks. Among the most prevalent diseases were Rice Blast and Brown Leaf disease. Both pest and disease attacks were found to be more in better water available head Units than in tail Units. Diseases however were not reported at all in tail Units. This may be because of the drier climate is less conducive for the development of disease-causing organisms. In almost all cases of pest/disease attacks, farmers have resorted to chemical control. It was observed that 33 different formulations of pest/disease controlling chemicals have been applied during 1979/80 Maha season.

## 7.5 Method of Stand Establishment

The most popular system of stand establishment is broadcasting or sowing of germinated seed paddy on a prepared seed bed; 42% of farmers have followed this method during 1979/80 Maha season. Transplanting was not popular as around 3% of farmers (particularly those in head areas) and 1% of the area used this practice exclusively while row seeding was not reported in the area at all. Six percent reported a combination of broadcasting and transplanting (Table 7.3).

The survey also identified two major systems of broadcasting as follows: the head area reported sowing with germinated paddy which was spread over a muddy seed bed. In tail areas, the system adopted however was "dry sowing" where ungerminated seed paddy was sown on a dry seed bed, which was later covered by a thin layer of soil in order to prevent the seed being attacked by pests. The Units where dry sowing adopted were 7, 14, 39, Block D and Block J where there is a deficiency in the supply of irrigation water even during Maha season.

Table 7.3 - Method of Planting by Extent and by Respondents (in percentage)

| | Extent | Farmers adopting |
|---|---|---|
| Broadcasting | | |
| Mud | 68 | 75 |
| Dry | 25 | 17 |
| Transplanting | 1 | 3 |
| Transplanting and broadcasting | 6 | 6 |

Source : ARTI Farm Record Keeping Survey.

The seed rate was between 1.5-7.5 bushels per acre, and tail areas reported a particular high seed rate on account of 'dry sowing'. With dry sowing the rate of germination is poor, so tail farmers adopted several rounds of sowing. The average rounds of sowing in tail areas were 4-5 as against 1-2 in most of the head areas. One farmer in unit 14 has sown eleven times during 1979/80 Maha season and even 6 rounds of seeding were not rare in tail Units.

The type of paddy varieties used even with dry sowing were the same as those used with mud sowing.

## 7.6 Use of Farm Power

Farm power is used in the performance of two major agricultural operations, i.e., land preparation and threshing of paddy. The other areas where limited mechanical farm power has been involved are application of pesticides and winnowing of paddy. In this section, farm power use on land preparation and threshing will be discussed.

Land preparation is done either through tractor power or animal

power. The number of farmers who depended on respective power sources are 9% and 83% (Table 7.4). Most farmers in two tail Units namely 7 and Block 'J' depended only on tractor power in order to perform timely land preparation; the other tail Units used a combination of mechanical and animal power. The position of head Units is that none of the farmers used tractor power alone, but rather a combination of tractor and animal power. Nevertheless the dependency on the latter source of power was predominant in head Units. More intensive use of animal power in head Units may be due to their economisation of tractor power use. As irrigation water was abundantly available throughout the season in head Units, there was no necessity to adhere to a tight schedule of land preparation activity utilizing a heavy input of tractor power. In tail Units, on the other hand, as planting has to be done with monsoon rains, land preparation has to be performed within a short period of time.

Table 7.4 - Use of Farm Power for Land Preparation and Threshing by Source (in percentage)

| | Source of Power | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Tractor | | Buffalo | | Tractor & Buffalo | | No Response | |
| | Extent | Number of persons | Extent | Number of persons | Extent | Number of persons | Extent | Number of persons |
| Land preparation | 12 | 9 | 79 | 83 | 7 | 6 | 2 | 1 |
| Threshing | 92 | 92 | 2 | 2 | 1 | 1 | 4 | 4 |

Source : ARTI Farm Record Keeping Survey

As seen in Table 7.4, 12% of the total extent is tractor ploughed while the extent ploughed by buffalo power is 79%. The remaining 7% of land is prepared by a combination of animal and tractor power.

Table 7.4 also sheds light on the composition of farm power used for threshing. It is evident that 92% of farmers use tractors for threshing while those using buffaloes for this purpose are only 2%. It should be noted that none of the tail farmers have used buffaloes for threshing. Extentwise, tractor power is used for 79% of the area while the extent threshed by buffaloes is 2%.

## 7.7 Paddy Yield

The paddy yield in the Left Bank of Gal Oya was relatively low and the majority of farmers were realising a yield of less than 40 bushels per farm during 1979/80 Maha season. This was mainly because of the Brown Plant Hopper damage during the season in which the Study was undertaken. As seen in Figure 3, the largest frequency of farmers reported a yield of 20 - 30 bushels; only 14% farmers have reported a farm yield of over 50 bushels. Based on these data, the yield per acre for 1979/80 Maha season was 34 bushels with a range of 17 to little over 70 bushels.

## 7.8 Costs and Returns to Paddy Production

The cost of inputs and other services require a heavy outlay for paddy production. The cost component has two major categories, i.e., operating costs and fixed costs. The former involves the cost of material inputs, labour and other items which decrease with the scale of farming operations. The latter denotes those which are independent of the scale of farming operations such as land rent, capital cost of tractor, etc. In this section the focus will be on operating costs of paddy production only. Furthermore, profitability will be calculated taking only operating cost into account.

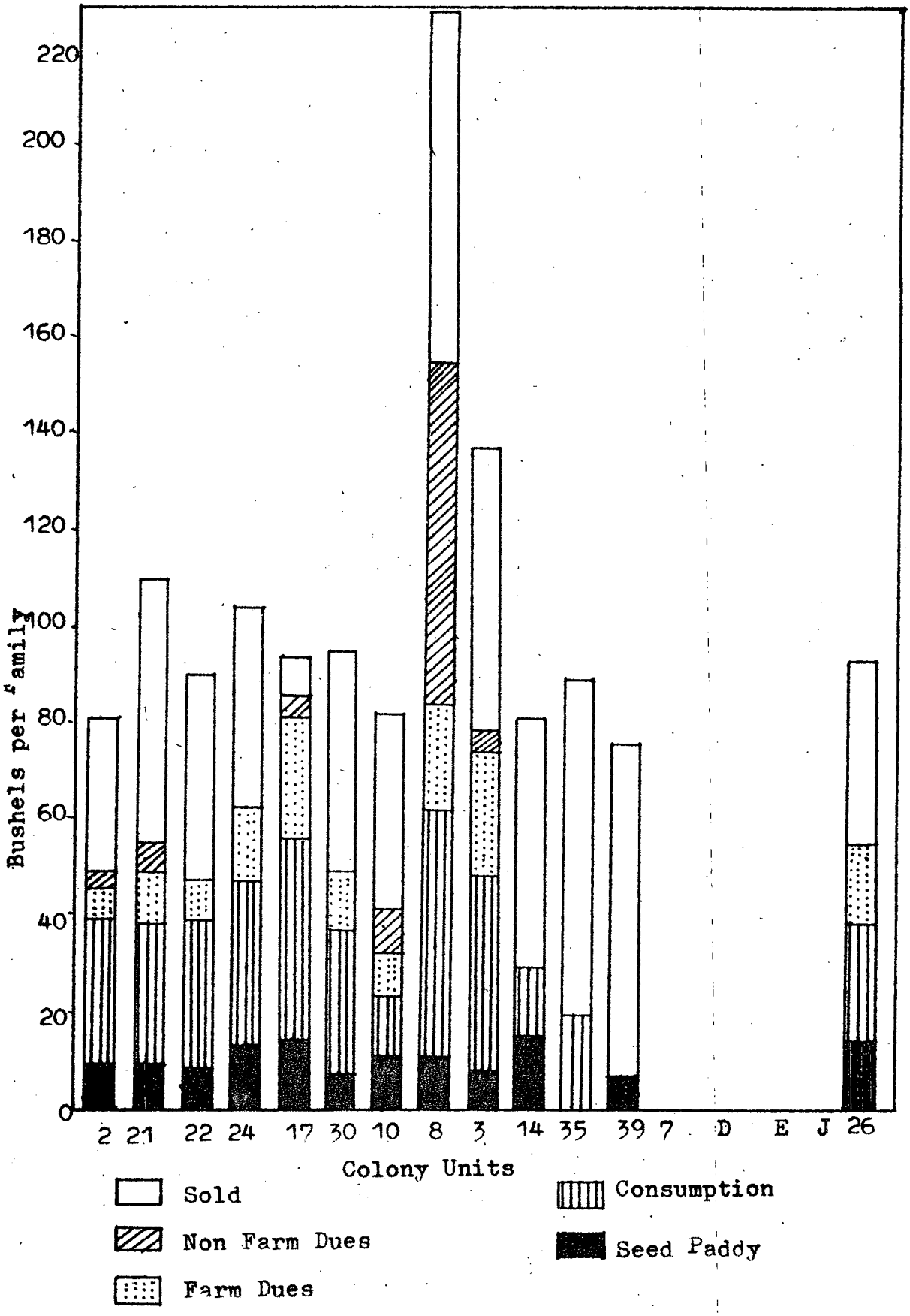


Figure 3: Disposal of Paddy Output During 1979 Yala Season

The cost of production by input items is shown in Table 7.5. It is evident that cost of labour comprises of 50% of total cost of paddy production and the cost of hired labour alone is 24% of production cost. The next most important item is cost of seed paddy which is 12% of total cost. The cost of buffaloes is Rs. 143 per acre, little higher than the relevant tractor cost. It must be noted that almost all head Units used buffaloes for land preparation work, most of which were owned animals.

Table 7.5 - Cost of Paddy Production in the Left Bank System, 1979/80 Maha (Rs. per acre) N = 479

| Input | Cost/Acre | % of Total Cost | C.V. (%) |
|---|---|---|---|
| 1. Labour | | | |
| Family | 271 | 21.27 | 38.22 |
| Hired | 306 | 24.01 | 42.51 |
| Exchange | 43 | 3.37 | 111.62 |
| Contract | 20 | 1.56 | 274.5 |
| Total labour cost | 640 | 50.23 | 20.1 |
| 2. Farm Power | | | |
| Tractor | 110 | 8.63 | 58.54 |
| Animals | 143 | 11.22 | 40.69 |
| Total cost | 253 | 19.85 | 19.76 |
| 3. Seed Paddy | 151 | 11.85 | 37.15 |
| 4. Chemical Fertilizer | 100 | 7.84 | 32.0 |
| 5. Weedicides | 46 | 3.61 | 50 |
| 6. Other Agro-chemicals | 61 | 4.78 | 38.36 |
| 7. Other Materials | 23 | 1.80 | 78.26 |
| Total | 1274 | 100 | 13.5 |

Note : Family labour and other non-purchased items were costed using appropriate market price.
Source: ARTI Farm Record Keeping Survey

The cost of fertilizer, weedicides and other chemicals are Rs. 100 Rs. 46 and Rs. 61 per acre respectively. The cost of other chemicals is higher than for weedicides as different chemicals (with varying prices) have been applied. Furthermore, as the number of farmers using other chemicals is higher than those using weedicides, the expenditure on the latter items has gone up. Other material costs such as fencing, sacks, etc. account for Rs. 23 per acre which is the lowest of all categories of input items.

The variability in cost is indicated by the coefficient of variability values in the Table 7.5. As can be seen, the largest variability in cost is for contract labour followed by the cost of exchange labour. These two types of labour arrangements have a strong link to the socio-cultural relations of settlers who have been brought from many parts of the country. In effect, therefore one can expect a high variability in these labour transactions as their socio-cultural environments are different. The difference in cost of tractor can be explained as follows. As we have seen in section 7.6, the tail farmers used more tractor power as they have to perform land preparation within a limited time period. The head-end farmers on the other hand used more animals and saved on tractor use as they have no time limitation during which to carry out this task. The cost of seed paddy is also a factor of high variability as the actual seed rate varies from 1.5 to 7.5 bushels per acre over the settlement. The variability in cost of weedicides, fertilizer and other agro-chemicals may be due to differences in the adoption of these practices as mentioned in sections 7.2, 7.3 and 7.4.

Focus is then directed towards returns to paddy production in the scheme. For this purpose returns per acre and per farm are used. Returns and profitability of paddy production in the selected Units and for the Left Bank system are given in Table 7.6. Gross paddy income per farm ranges from Rs. 180 to 12,800 with a mean of Rs. 335/-. The net income per acre is quite variable and relatively

Table 7.6 - Returns and Profitability of Paddy Production during 1979/80 Maha Season

| Returns and Profitability | Units | | | | | | | | | | | | | | Block D | Block E | Left Bank Sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 7 | 8 | 10 | 14 | 17 | 22/23 | 24 | 27 | 30 | 32 | 35 | 39 | | | |
| Yield/Ac. (Bushels) | 41 | 48 | 29 | 30 | 33 | 25 | 46 | 35 | 26 | 40 | 40 | 37 | 32 | 26 | 20 | 23 | 34 |
| Income/Ac. (Rupees) | 1644 | 1923 | 1160 | 1200 | 1331 | 1000 | 1832 | 1416 | 1046 | 1598 | 1600 | 1480 | 1276 | 1040 | 800 | 920 | 1329.0 |
| Average Farm Size (Acres) | 2.0 | 2.0 | 3.9 | 2.5 | 3.1 | 3.9 | 2.0 | 1.5 | 3.5 | 1.6 | 1.9 | 2.6 | 3.0 | 3.0 | 3.0 | 2.9 | 2.7 |
| Gross Income/ Farm (Rupees)[a] | 3333 | 3809 | 4481 | 3014 | 4092 | 3962 | 3663 | 2255 | 3685 | 2278 | 3081 | 3897 | 3828 | 3174 | 2420 | 2647 | 3351.0 |
| Net Income/ Acre (Inc. F.L.C.)[b] | 412 | 561 | -320 | -53 | 369 | -352 | 441 | 160 | -43 | 407 | 420 | 449 | -354 | -374 | -301 | -343 | 73.7 |
| Net Income/ Manday (Rupees) | 7 | 19 | -9 | -2 | 9 | -5 | 10 | 4 | -1 | 9 | 11 | 14 | -7 | -10 | -8 | -11 | 1.9 |

Note :

[a] Disposable farm output multiplied by the sale price of a bushel of paddy.

[b] The difference between total cash income and the total operating cost. Data in respect of Block J are not available

FLC Family Labour Cost

Source : ARTI Farm Record Keeping Survey

lower in tail areas than in the head area. This can be a result of less use of family labour in tail Units such as 7, 8, 14, 35, 39, Block D and Block E. Based on these data it can be concluded that paddy production has been barely profitable only in head colony Units during 1979/80 Maha season. This can be attributable to differential water availability across the scheme. However, mention should also be given to the high incidence of Brown Plant Hopper attack which affected the paddy crop during the same season.

Chapter Eight

# INCOME AND HOUSEHOLD EXPENDITURE

The three main categories of farm income in the settlement area are agricultural, off-farm, and non-agricultural income. Agricultural income includes income from crop production and animal husbandry; the off-farm income includes house rent, leasing of allotments and agricultural wages, while the main sources of non-agricultural income are employment in state sector establishments, business enterprises, medical and other professions, and skilled jobs. The first part of this chapter (section 8.1 through 8.1.4) examines the composition, variation and other aspects of household income. This will be followed by a discussion on household expenditure in section 8.2.

## 8.1 Income

### 8.1.1 Income from agriculture

As discussed in Chapter 6 the type of crops grown include permanent crops, Other Field Crops and paddy. Income derived from paddy dominates during both agricultural seasons, with gross income of Rs. 3201 and Rs. 3412 per family during the 1979/80 Maha and 1980 Yala season respectively.

Other crops contributing to family income are chillies, green gram, cowpea, ginger, millet, gingelly, vegetables, banana, manioc, maize and betel. Income from these crops was small in Yala; however as more farmers cultivate larger

Table 8.1 - Income from Other Crops in Relation to Colony Units (Average income per family in rupees)

| Unit | Chillies | | Cowpea | | Green Gram | | Finger Millet | | Gingelly | | Vegetables | | Banana | | Manioc | | Maize | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | Y | M | Y | M | Y | M | Y | M | Y | M | Y | M | Y | M | Y | M | Y | M | Y |
| 2 | 260 | NR | - | NR | 301 | NR | 42 | - | 198 | - | 54 | - | 186 | NR | 253 | NR | 800 | NR | 205 | - |
| 3 | NR | NR | - | NR | NR | 600 | NR | - | NR | - | - | - | 277 | 187 | 394 | 357 | NR | NR | NR | - |
| 7 | NR | NR | - | NR | NR | NR | NR | - | NR | - | - | - | 887 | NR | NR | NR | NR | NR | NR | - |
| 8 | 300 | 564 | - | 5700 | 70 | 102 | NR | - | NR | NR | - | - | 150 | 60 | 1854 | 100 | NR | NR | NR | - |
| 10 | 300 | NR | - | NR | NR | 300 | NR | - | NR | - | - | - | NR | NR | 100 | NR | 1207 | 1000 | NR | - |
| 14 | NR | NR | NR | NR | NR | NR | NR | NR | 65 | - | - | - | NR | NR | NR | NR | NR | NR | 40 | NR |
| 17 | 517 | NR | - | NR | 1974 | NR | NR | - | NR | - | NR | NR | 100 | 25 | 261 | 282 | 150 | 100 | NR | - |
| 21 | 150 | NR | - | NR | 200 | 100 | NR | - | NR | - | - | - | NR | NR | NR | NR | NR | NR | NR | - |
| 22/23 | 223 | NR | - | NR | NR | NR | 87 | - | 142 | - | - | - | 280 | NR | 504 | NR | NR | NR | 114 | - |
| 24 | NR | NR | - | NR | NR | NR | NR | - | NR | - | - | - | NR | NR | NR | 1500 | 300 | NR | NR | - |
| 26 | 367 | 160 | - | NR | NR | NR | NR | - | 10200 | - | - | - | 255 | 250 | 460 | 340 | NR | NR | NR | - |
| 30 | NR | 30 | - | NR | NR | 900 | NR | - | 2400 | - | - | - | 125 | 725 | 292 | 220 | 500 | 190 | NR | - |
| 35 | NR | NR | - | NR | NR | NR | NR | - | NR | - | - | - | NR | NR | NR | NR | NR | NR | NR | - |
| 9 | NR | NR | - | NR | NR | NR | NR | - | NR | - | - | - | NR | NR | 50 | NR | NR | NR | NR | - |
| Block E | 600 | NR | - | NR | NR | NR | 137 | - | 50 | - | - | - | 75 | NR | NR | NR | NR | NR | NR | - |
| Block J | NR | NR | - | NR | 100 | NR | NR | - | 100 | - | - | - | NR | NR | NR | NR | NR | NR | NR | - |
| Left Bank Sample | 201 | 47 | NR | 356 | 109 | 125 | 17 | NR | 822 | NR | 3 | NR | 145 | 78 | 260 | 175 | 185 | 81 | 22 | NR |

Note : Data for unit 32 and Block D are not reported.

Y - Yala M - Maha NR - Not reported

Source : Survey Data

extents of them during Maha, higher income has been reported except Units 35 and Block D. The Number of farmers cultivating these crops was 40 (Yala) and 135 (Maha). As shown in Table 8.1, family income from other crops varies widely from Rs. 30 to Rs. 10,200.

### 8.1.2 Income from livestock

Livestock income has been reported in 12 out of 18 colony Units studied. The number of farmers reporting an income during 1980 Yala and 1979/80 Maha were 34 and 36 respectively. Important sources of livestock income are working animals, milk and eggs. No income has been reported from sale of goat or neat cattle although these animal enterprises were observed within the settlement area. The composition of livestock income is presented in the following Table (Table 8.2).

Table 8.2 - Composition of Income from Livestock* (Rs, per family)

| Income Category | 1980 Yala | 1979/80 Maha | Annual Income |
|---|---|---|---|
| Income from draught animals | 908.00 (10) | 942.00 (10) | 1850.00 (20) |
| Income from milk | 620.00 (21) | 592.00 (24) | 1210.00 (45) |
| Income from poultry | 286.00 (8) | 327.00 (9) | 613.00 (18) |
| Other livestock sources | 978.00 (12) | 1300.00 (5) | 2362.00 (17) |

Figures in parenthesis indicate the percentage of total livestock income.

* Only for those farms which report income from livestock.

Source : Survey Data

As seen in Table 8.2 there is no substantial change in livestock income across seasons, except for other livestock sources. Of the four sources of livestock income, the highest earnings have been recorded from other livestock activities. The income from draught power animals occupies the second position while the share of income from milk is third. The lowest income has been recorded from poultry. It should be noted that the above picture does not indicate the true state of actual livestock production as some portion of livestock produce is utilized for home consumption. In the case of draught power, it was also seen that almost all farmers use own animals for their farm power needs. Income from livestock is derived in only a few Units; except for two head Units, 2 and 22, no other head Units have reported an income from draught power. The high cattle population in head Units, therefore, may be used in own farms. The number of Units reporting an income from poultry is higher than the Units reporting income from milk. Unit 26 had the largest income from livestock, almost double the mean livestock income in the settlement area. The income in Unit 26 is derived entirely from sale of milk (Table 8.3).

### 8.1.3 Off-farm income

Off-farm income refers to that part of farm income which is derived from agricultural activities other than operation of agricultural holding. Important sources of off-farm income are agricultural labour, house rent, property leasing, and giving operational paddy allotment away on Ande basis.

It is believed that off-farm income forms an important source of farm revenue at times when on-farm cultivation activities come to a stand still. Off-farm income was not recorded in respect of Colony Units 35, 39 and Block D.

Table 8.3 - Distribution of Livestock Income by Types and Colony Units (in rupees per family)

| Unit | Income from Draught Power | | Income from milk (Buffalo and Neat Cattle) | | Income from poultry | | other livestock Income | | Average Income in Maha | Average Income in Yala |
|---|---|---|---|---|---|---|---|---|---|---|
| | Maha | Yala | Maha | Yala | Maha | Yala | Maha | Yala | | |
| 2 | 1150.00 | 1150.00 | 250.00 | 250.00 | 534.00 | 1066.00 | - | - | 771.00 | 904.00 |
| 3 | NR | NR | NR | NR | 30.00 | 30.00 | NR | NR | 30.00 | 30.00 |
| 7 | NR | NR | 350.00 | 362.00 | NR | 150.00 | NR | NR | 250.00 | 320.00 |
| 8 | NR | NR | NR | NR | 40.00 | 60.00 | NR | NR | 40.00 | 60.00 |
| 14 | NR | NR | 600.00 | 600.00 | NR | NR | NR | NR | 600.00 | 600.00 |
| 22/23 | 1175.00 | 1175.00 | 392.00 | 320.00 | 216.00 | 216.00 | 2000.00 | 2000.00 | 653.00 | 617.00 |
| 24 | NR | NR | NR | NR | NR | NR | NR | 1500.00 | NR | 1500.00 |
| 26 | NR | NR | 1646.00 | 1660.00 | NR | NR | NR | NR | 1646.00 | 1660.00 |
| 30 | NR1 | NR | 720.00 | 720.00 | 654.00 | 330.00 | NR | 350.00 | 671.00 | 519.00 |
| 39 | NR | NR | 447.00 | 540.00 | 100.00 | 100.00 | NR | NR | 308.00 | 247.00 |
| Block E | 1000.00 | NR | NR | NR | NR | NR | NR | NR | 1000.00 | NR |
| Block J | NR | NR | NR | NR | 333.00 | 75.00 | NR | NR | 333.00 | 75.00 |
| Left Bank | 942.00 | 908.00 | 592.00 | 620.00 | 327.00 | 286.00 | 1300.00 | 978.00 | 576.00 | 597.00 |

Livestock income was not reported in units 10, 21, 32, 35 and Block D.

NR - Not reported

Source : Survey Data

Table 8.4 Distribution of Off-Farm Income by Colony Units (in percentage)

| Unit | Agricultural labour | | Rent | | Ande/Share | | Other | |
|---|---|---|---|---|---|---|---|---|
| | Yala | Maha | Yala | Maha | Yala | Maha | Yala | Maha |
| 2 | 52 | 47 | - | - | 1 | 1 | - | - |
| 3 | 36 | 37 | - | - | 27 | NR | - | - |
| 7 | 38 | 45 | - | - | 3 | 14 | - | - |
| 8 | 60 | 40 | NR | - | NR | NR | - | - |
| 10 | 47 | 53 | - | - | NR | NR | - | - |
| 14 | 49 | 51 | - | - | NR | NR | - | NR |
| 17 | 14 | 14 | - | - | 31 | 10 | - | - |
| 21 | 60 | 36 | - | - | NR | - | 4 | - |
| 22/23 | 14 | 10 | 76 | NR | NR | - | - | - |
| 24 | NR | NR | 100 | - | NR | - | - | - |
| 26 | 38 | 61 | - | - | NR | - | - | 11 |
| 30 | 38 | 36 | - | - | 26 | NR | - | - |
| 35 | NR | NR | NR | - | NR | - | NR | - |
| 39 | NR | NR | - | - | NR | - | - | - |
| Block D | NR | NR | - | - | NR | - | - | NR |
| Block E | NR | 100 | - | - | NR | - | - | - |
| Block J | 53 | 47 | - | - | NR | - | - | - |
| Left Bank Sample | 38 | 39 | 8 | NR | 7 | 5 | 1 | 1 |

Note : Data for Unit 32 are not reported

Source : Survey Data

The distribution of off-farm income (Table 8.4) shows that agricultural labour forms a major part (24 - 97%) of off-farm income in the study area. Payment to agricultural labour was made in kind (paddy) only in Unit 8; two households in Unit 22 have reported receiving rent in terms of paddy share. Except for these two instances, all other off-farm transactions have been in the form of cash payment.

Three major variations in the income from agricultural labour can be identified: First, income from agricultural labour is more in Yala than in Maha in head Units; second, tail Units register a higher off-farm income in Maha than in Yala; and finally, annual income from agricultural labour is lower in head Units (except Units 2 and 21) than in tail Units. With an increase in agricultural activities in Maha season, the demand for labour rises. As family labour is largely used in agricultural operations in head Units, the availability of labour for outside activities diminishes. As a result, income from agricultural labour diminishes in head Units during Maha season. The tail Units, on the other hand, use less family labour, particularly females, due to socio-cultural reasons; agricultural activities are carried out utilizing greater amounts of hired labour as such job opportunities for agricultural labour increases. This will result in greater family income from agricultural labour in tail Units. Moreover, as Yala cultivation is normally not undertaken in tail areas, the demand for labour within the area is less with subsequent drop in income from agricultural labour during Yala season. The share of each other component of off-farm revenue includes; Ande/share of allotment (5 - 7%), rent (8%), and other (1%).

### 8.1.4 Non-agricultural Income

Non-agricultural income includes all types of income other

than those associated with the farm allotment. Examples of non-agricultural income are outside employment, income from specialised skills, business enterprises and non-agricultural labour.

The largest amount of non-agricultural income is derived from public sector employment which is reported in all Units except 8, 21, 35 and 39. Business enterprises are the second most important component of non-agricultural income, producing 3 - 23% of total non-agricultural income. Income opportunities from non-agricultural labour are medicine, carpentry, masonery, etc (Table 8.5). The different components of non-agricultural income between Yala and Maha season were almost the same in the majority of Units; however, the income from non-agricultural labour was found to be more in tail Units during Yala than in Maha. This will be because of greater availability of labour during the Yala season since cultivation is not normally undertaken in tail areas. It must be also noted that non-agricultural labour income is low in head areas except in Unit 21.

## 8.2 Comparison of Household Income

A comparison of different sources of farm household income reveals that agriculture provides the greatest share of household income. The over-all share of agricultural income for the project area as a whole was 73% with a range of 45 - 96%. Hence, the importance of agriculture in the livelihood of settlers in Gal Oya. Non-agricultural income has overtaken agriculture's share only in Unit 17.

The next higher source of farm household income is non-agricultural income which was 21% (range 4 - 49%) of total income in the project area. Off-farm income appears to contribute only 4% of total income while the contribution of livestock income to the total

Table 8.5 Composition of Non-agricultural Income by Colony Units (in percentage of total income)

| Unit | Teaching | | Clerical | | Medicine | | Small Business | | Other Business | | Non-Agricultural labour | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yala | Maha | Yala | Maha | Yala | Maha | Yala | Maha | Yala | Maha | Yala | Maha | Yala | Maha |
| 2 | * | * | 15 | 15 | * | * | * | * | 2 | 2 | 10 | 10 | 23 | 23 |
| 3 | 9 | 9 | * | * | * | * | * | * | 6 | 6 | 9 | 20 | 26 | 14 |
| 7 | 20 | 20 | 6 | 22 | * | * | * | * | * | * | 6 | 9 | 8 | 8 |
| 8 | * | * | * | * | * | * | 7 | 10 | 16 | 16 | 3 | 2 | 28 | 17 |
| 10 | 25 | 25 | * | * | * | * | 8 | 8 | * | * | * | * | 17 | 17 |
| 14 | 18 | 18 | 16 | 16 | * | * | * | * | * | * | * | 7 | 14 | 14 |
| 17 | 3 | 3 | 3 | 3 | 2 | 2 | * | * | 26 | 26 | 4 | 4 | 12 | 12 |
| 21 | * | * | * | * | * | * | 6 | 7 | 4 | 3 | 56 | 17 | 7 | * |
| 22 | * | * | 30 | 30 | * | * | * | * | 11 | 11 | * | * | 10 | 10 |
| 24 | 10 | 10 | * | * | * | * | 9 | 9 | 10 | 10 | 3 | 3 | 17 | 16 |
| 26 | * | * | 12 | 18 | * | * | 3 | 4 | 4 | 5 | 17 | 23 | 5 | 8 |
| 30 | 4 | 3 | * | * | * | * | 3 | 3 | 4 | 4 | 13 | 13 | 27 | 25 |
| 32 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 35 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 39 | * | * | * | * | * | * | 19 | 19 | * | * | * | * | 31 | 31 |
| Block D | 36 | 36 | * | * | * | * | 14 | 14 | * | * | * | * | 4 | 4 |
| Block E | * | * | 23 | 23 | * | * | * | * | * | * | 14 | * | * | * |
| Block J | 15 | 15 | * | * | * | * | * | 23 | * | * | 26 | 14 | 4 | 3 |
| Left Bank Sample | 6 | 5 | 5 | 7 | 0.3 | 0.3 | 3 | 4 | 7 | 8 | 14 | 11 | 15 | 13 |

* Not reported
Source : Survey Data

income is the lowest with only 2%. However, there are variations in the composition of income in some of the colony units; examples are Units 21, 22 and 24 where income from livestock has taken the third place. In tail Units (Block D, Block E and Block J) as income from agriculture was low (also with no signs of improvement unless water availability is improved), some form of supplementary income may have to be generated in order to sustain the ever increasing population. The non-agricultural income appeared to be the most convenient avenue in this regard.

## 8.3 Household Expenditure

Major components of annual expenditure budget of the households include three basic necessities such as food, clothing, and shelter, plus education, recreational activities, fuel and firewood, and medical expenses. The allocation of annual expenditure in the sample is made as follows: Food 67%, clothing 9%, medical expenses and fuel/firewood 5% each, travel/communication and education 3% each, housing and religious activities 2% each, and sports/recreation and furniture 1% each (Table 8.6).

Although the above pattern of allocation is found in almost all Units, there were variations in the actual proportions of budgets across colony Units. Expenditure on clothing appears to be high in middle and tail areas. The lowest expenditure on basic necessities was observed in Units 35 and Block D. Investment in education was highest in Colony Units 17 while lowest such investment was recorded in Block D. All tail Units have reported a very low expenditure on sport activities as against head Units. Other items such as expenditure on furniture (0.1 - 2.4%), medical (2.5 - 15.7%) and religious activities (0.8 - 4.6%) were also found to vary across colony Units. However, there is no definite pattern of variation in the above expenditure items with regard to different colony Units.

Table 8.6 - Distribution of Household Expenditure (in percentage)

| Unit | Meals | Clothes | Housing | Education | Fuel | Travelling/ Communication | Sports/ Hobbies | Furniture | Medical | Religious |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 72 | 9 | 2 | 2 | 3 | 2 | 2 | 1 | 4 | 2 |
| 3 | 71 | 11 | 1 | 2 | 4 | 3 | 1 | 1 | 5 | 1 |
| 7 | 70 | 9 | 2 | 2 | 5 | 2 | a | 1 | 7 | 2 |
| 8 | 71 | 10 | 2 | 2 | 5 | 1 | 1 | 1 | 5 | 1 |
| 10 | 58 | 9 | 1 | 6 | 7 | 6 | 2 | 1 | 5 | 5 |
| 14 | 70 | 9 | 2 | 4 | 7 | 2 | 1 | 2 | 4 | 1 |
| 17 | 68 | 9 | 2 | 5 | 2 | 4 | 1 | 1 | 4 | 1 |
| 21 | 68 | 9 | 2 | 3 | 3 | 4 | 2 | 2 | 6 | 1 |
| 22 | 67 | 10 | 1 | 3 | 5 | 3 | 3 | 2 | 3 | 2 |
| 24 | 67 | 9 | 1 | 2 | 5 | 5 | 3 | 2 | 4 | 2 |
| 26 | 63 | 10 | * | 3 | 5 | 1 | 2 | 2 | 12 | 2 |
| 30 | 71 | 8 | 1 | 3 | 3 | 4 | 1 | 1 | 4 | 2 |
| 35 | 46 | 8 | 10 | 3 | 9 | 3 | 1 | 2 | 16 | 2 |
| 39 | 65 | 15 | 1 | 2 | 9 | 1 | 1 | 1 | 4 | 2 |
| Block D | 75 | 11 | 1 | a | 10 | a | * | * | 2 | * |
| Block E | 71 | 10 | 1 | 3 | 5 | 4 | * | a | 4 | 2 |
| Block J | 69 | 8 | 2 | 2 | 11 | 2 | a | 1 | 3 | 1 |
| Left Bank | 67 | 9 | 2 | 3 | 5 | 3 | 1 | 1 | 5 | 2 |

* Not available
a Negligible
Source : Survey Data

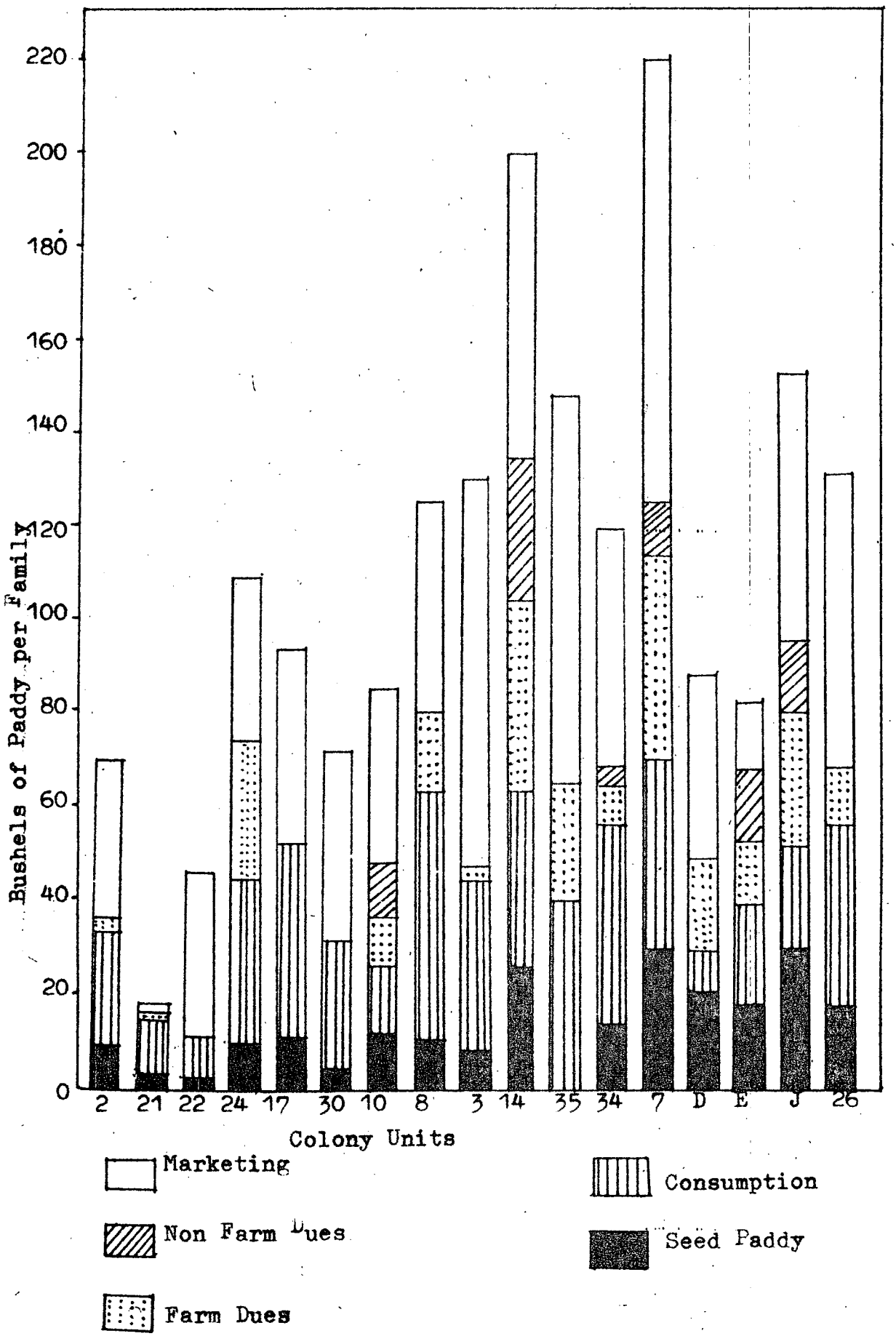


Figure 4: Disposal of Paddy Output During 1979/80 Maha Season

Chapter Nine

# INSTITUTIONS AND SERVICE FACILITIES

The state of agricultural supporting sercives such as agricultural credit, marketing, extension and other services provided by the State are the focus in this Chapter. Additionaly, a discussion on kanna meetings[23] is also included.

## 9.1 Agricultural Credit

### 9.1.1 Borrowings

The survey indicates that the proportion of farmers who have obtained cultivation loans during 1979 Yala and 1979/80 Maha is about 28%. Based on borrowings the villages can be classified into high and low borrowing areas; low borrowings have been reported in Units 17, 22, 26 and 39 while Units 10, 24, Block E are shown to have a high degree of borrowings. The other Units fall in between the two extremes in terms of credit borrowings. As was discussed in previous Chapters, agricultural activities in Units 26 and

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23 Kanna meeting refers to a meeting with officers and farmers officially settled organized before the commencement of each cultivation season. Important decisions with regard to water issue and other agricultural operations are presented to farmers at this meeting for their concurrence and adoption.

39 are less intense mainly because of inadequate water supply. The extent of borrowing therefore may have been low. Furthermore, as agricultural output and farm income are low in these two Units, the repayments of loans may not be feasible. On the other hand, because of high agricultural output and overall high farm income in Units 17 and 22, the necessity to finance part of the cultivation expenses from outside may not exist. Hence, borrowings may have been little in those Units. The distribution of cash borrowing by colony Units are shown in Table 9.1.

The overall poor performance with regard to credit borrowings[24] perhaps may be due to the high incidence of defaulters.

### 9.1.2 Source of Credit

Table 9.1 indicates the sources from which settlers obtain credit. These sources can broadly be divided into (a) Institutional and (b) Non-institutional; 51% of borrowings are from the former source while 48% obtain credit from the latter. Of the three institutional sources, People's Bank ranks first in terms of credit disbursement, followed by the Bank of Ceylon. The cooperatives rank last with only 7% of total disbursements.

The important non-institutional sources are local money lenders, relatives and friends. Although the tail Units are reported to have less borrowing, it was observed during the survey that tail-end farmers obtain credit on a personal basis from local

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24 It should be noted that this study has not considered the position with regard to informal sources of credit (non-institutional). Such transactions although occupy a trivial position in the study area, may not be recorded due to their concealed nature.

Table 9.1 - Percentage Distribution of Farmers Obtaining Credit by Source and by Colony Units (N = 443)

| Unit | Institutional Sources | | | Non-Institutional Sources | | | Not Obtaining |
|---|---|---|---|---|---|---|---|
| | Bank of Ceylon | Peoples/ Rural Bank | Co-operatives | Private money lender | Relative | Other | |
| N: | 38 | 76 | 31 | 77 | 51 | 9 | 217 |
| 2 | 17 | 31 | * | 21 | 9 | * | 27 |
| 3 | 3 | 28 | * | 25 | 16 | 3 | 44 |
| 7 | 4 | 32 | * | 14 | 18 | 9 | 32 |
| 8 | 3 | 7 | 14 | 21 | 17 | * | 38 |
| 10 | * | 20 | 50 | 10 | * | * | 25 |
| 14 | 10 | 37 | 21 | 5 | 10 | * | 42 |
| 17 | 10 | 14 | 3 | 10 | 10 | * | 59 |
| 21 | 5 | 8 | 10 | 33 | * | 5 | 54 |
| 22/23 | 19 | 11 | 3 | 8 | 11 | * | 57 |
| 24 | 31 | 31 | 16 | 16 | 5 | * | 16 |
| 26 | 5 | * | * | 14 | * | * | 81 |
| 30 | 13 | 15 | 4 | 30 | 21 | * | 36 |
| 35 | * | * | * | * | * | * | 100 |
| 39 | 5 | 5 | * | * | 5 | * | 90 |
| Block D | * | * | * | * | * | * | 100 |
| Block E | 5 | 37 | * | 31 | 5 | 21 | 16 |
| Block J | 5 | 28 | 9 | 14 | 28 | * | 33 |
| Left Bank Sample | 8 | 17 | 7 | 17 | 11 | 2 | 71 |

* Not reported
Note : Some farmers obtain credit from several sources
Source: Survey Data

money lenders. As these transactions are not reported in this survey, it can be stated that the actual credit transactions in tail areas may be higher than what was shown above.

The amount of credit obtained per person depends on the source of credit. Of the reported borrowings, a relatively larger amount being channeled through institutional sources than non-institutional sources. The average amount channeled through the Bank of Ceylon was Rs. 2579 while the amount channeled through the People's Bank was Rs. 1590. The average amount borrowed from local money lenders was about Rs. 1700. Therefore, in terms of reported credit volume, the institutional sources are more popular in the study area.

### 9.1.3 Purpose of Credit

Almost all those who obtained credit have done so in order to finance agricultural activities. Among other reasons for borrowing were private construction activities and personal reasons such as sickness, etc. The proportion of farmers who have borrowed money for agricultural activities is 81% whereas 29% and 4% have borrowed for small scale investments and other reasons respectively. The composition of total credit is made as follows: Agricultural 62%, personal 13% and small investments 25% (Table 9.2). The pattern of allocation of credit for different activities, seemed to be more or less similar across all colony Units. However, borrowing for agriculture appeared to be relatively higher in head than in tail Units.

The main crop requiring credit support is irrigated paddy[25]. But 8% of tail farmers indicated that they

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25 Irrigated paddy involves cultivation of paddy on a well prepared mud bed.

Table 9.2 - Borrowing in Relation to Purpose and Colony Units

| Unit | Purpose of Borrowing | | | | | |
|---|---|---|---|---|---|---|
| | Agricultural | | Personal | | Investment | |
| | % of total | Average amount per family (Rs.) | % of total | Average amount per family (Rs.) | % of total | Average amount per family (Rs.) |
| 2 | 80 | 1888 | 19 | 1243 | 1 | 400 |
| 3 | 60 | 1231 | 30 | 1516 | 10 | 3000 |
| 7 | 71 | 2814 | 3 | 750 | 7 | 3000 |
| 8 | 80 | 1359 | 16 | 638 | 3 | 800 |
| 10 | 89 | 1491 | 7 | 340 | 5 | 388 |
| 14 | 88 | 2191 | 12 | 825 | 2 | 500 |
| 17 | 89 | 1812 | 11 | 1275 | * | * |
| 21 | 78 | 1200 | 16 | 436 | 18 | 5100 |
| 22/23 | 90 | 1680 | 10 | 420 | 8 | 2500 |
| 24 | 99 | 2310 | 1 | 200 | * | * |
| 26 | 75 | 983 | 25 | 1000 | * | * |
| 30 | 83 | 1744 | 17 | 458 | * | * |
| 35 | * | * | * | * | * | * |
| 39 | * | * | * | * | 100 | 2500 |
| Block D | * | * | * | * | * | * |
| Block E | * | * | * | * | 100 | 2075 |
| Block J | 31 | 3250 | 20 | 3920 | 57 | 32649[a] |
| Left Bank | 62 | 1712 | 13 | 985 | 25 | 4374 |

* Not reported

a A figure suspicious

Source : Survey Data

obtained credit in order to finance rainfed paddy[26] cultivation. The average amount borrowed for wet paddy is Rs. 1479 per allottee while for dry paddy the amount is as high as Rs. 3245. This discrepancy may be due to greater amounts of hired labour used in farms in the tail areas. In general, upland paddy requires smaller investment than lowland paddy does with subsequent lower yield than the latter.

### 9.1.4 Problems of Credit

There appears to be some problems associated with the two main sources of borrowing. Credit could be obtained more quickly and conveniently from non-institutional sources although the interest rate is high. On the other hand, the institutional sources have their own weaknesses as they fail to operate according to farmers' needs. It was reported that the credit instalment due for land preparation is made available at a later stage and so on. Therefore, it is necessary to obtain credit from some other sources (often non-institutional) in order to perform timely operations.

The second major problem with regard to institutional credit is that the farmers have to make sure that their loan applications are guaranteed according to the stipulations laid out by the lending institution. Farmers have expressed much difficulty in securing the services of a guarantor. Some farmers have also indicated that they cannot obtain institutional credit as they have become defaulters.

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26 Rainfed paddy refers to stand establishment of paddy on a dry seed bed. This does not involve mudding.

The major problem with regard to non-institutional credit is the high rate of interest which is as high as 20% per month charged by money lenders. The question of default is not normally reported in the case of non-institutional credit, as loan transaction is solely personal.

### 9.1.5 Repayment of Loans

The pattern of repayment of loans obtained during 1979 is given in Table 9.3. Repayment of non-institutional credit is quicker than for institutional credit. The non-institutional credit is settled more quickly than institutional credit. However, it appears from the proceeding Table that in some cases even non-institutional credit has been defaulted. This may be because the present survey was undertaken at a time (March 1980) when Maha harvest was yet to be taken. As such the borrowings may not have been settled. It was observed that tail area farmers make loan repayment in kind, where paddy and animals such as goats are involved.

## 9.2 Marketing of Agricultural Produce

Paddy is the major crop produced for market by almost all settlers. Marketing of OFCs was reported only during 1979/80 Maha season while perennial crop produce such as coconut, fruits, etc. was occasionally marketed. Although marketing of livestock produce was reported, definite channels were not identified. As the nature and mode of disposal depends on the type of crop, the following discussion is arranged crop-wise.

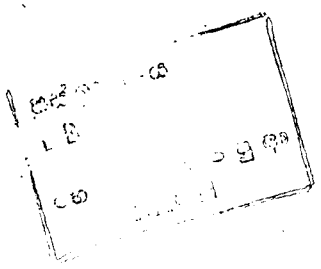
Table 9.3 - Repayment of Cultivation Loans Obtained in 1979 by Colony Units and by Source (percentage loan amount repaid)

| Unit | Bank of Ceylon | People's Bank | Coopera-tive | Money Lender | Rela-tive | Other |
|---|---|---|---|---|---|---|
| 2 | 30 | 12 | * | 10 | 58 | * |
| 3 | 0 | 22 | * | 61 | 40 | * |
| 7 | 7 | 50 | * | 100 | 0 | 0 |
| 10 | 0 | 68 | 57 | 100 | * | * |
| 14 | 40 | 10 | 16 | 0 | 0 | * |
| 17 | 19 | 70 | 100 | 10 | 90 | 0 |
| 21 | 33 | 34 | 12 | 21 | * | 67 |
| 22/23 | 18 | 19 | 100 | 0 | 31 | * |
| 24 | 9 | 60 | 54 | 32 | 0 | * |
| 26 | 0 | * | * | 0 | * | * |
| 30 | 41 | 5 | 21 | 38 | 22 | * |
| 35 | * | * | * | * | * | * |
| 39 | 100 | 0 | * | * | 100 | * |
| Block D | * | * | * | * | * | * |
| Block E | 12 | 0 | * | 68 | 0 | 0 |
| Block J | 0 | 15 | 0 | 4 | 20 | * |

Note: '0' indicates non-repayment

* not reported
Largest rank/s for each Unit underlined.

Source : Survey Data



### 9.2.1 Marketing of Other Field Crops (OFCs)

Among the OFCs produced for market are chillies, tobacco, pulses such as cowpea, green gram, black gram, Lanka parippu and finger millet, gingelly, vegetables, betel and bananas. These crops are sold mainly during the Maha season as production is high. The number of farmers producing for the market together with quantities are shown in Table 9.4.

Table 9.4 - Distribution of Farmers by Marketing of Crops by Season (Number of farmers and quantity marketed)

| Crop | 1979/80 Maha | | 1979 Yala | |
|---|---|---|---|---|
| | Number of farmers | Average quantity marketed per farmer (lbs.) | Number of farmers | Average quantity marketed per farmer (lbs.) |
| Chillies | 7 | 93 | * | * |
| Tobacco | * | * | 1 | 4000 |
| Cowpea | 3 | 73 | 3 | 205 |
| Green gram/black gram | 1 | 50 | * | * |
| Finger millet | 3 | 52 | * | * |
| Gingelly | * | * | * | * |
| Vegetables | 6 | 140 | * | * |
| Banana (bunches) | 4 | 33 | 5 | 11 |
| Betel leaves | 2 | 23000 | 2 | 20000 |
| Coconut | * | * | 1 | 30 |
| Orange | * | * | 1 | 375 |
| Peanut | * | * | 1 | 400 |
| Lanka parippu (bushels) | * | * | 1 | 5 |

* Not reported
Source:Survey Data

Marketing of other crops was found mainly in head areas and production in tail areas during Maha may be entirely for home consumption. The study identified six channels of marketing of OFCs in the area (Table 9.5). The State sector was poorly involved but private traders were very active in the sphere of marketing. Both wholesale as well as retail marketing operations were reported. Most farmers sell their produce to private traders in wholesale quantities; 27% of farmers reported selling to consumers direct. During 1979 Yala season, the majority of farmers have sold in retail quantities presumably because of small volume available for market. The place of disposal is mainly off the farm (76%-92%) while on-farm disposal amounts to about 8% - 24%.

Table 9.5 - Distribution of Farmers by System of Marketing Other Field Crops by Season (in percentage)

| Mode of Market | 78/79 Maha 21 | 79 Yala 15 | 79/80 Maha 26 |
|---|---|---|---|
| Wholesale market to private trader (on-farm) | 24 | 20 | 8 |
| Whilesale market to private trader (off-farm)* | * | * | 54 |
| Retail (Government) | 57 | 20 | * |
| Retail (Private traders) | * | 13 | 11 |
| Direct to consumer | 14 | 4 | 27 |
| Other | * | 7 | * |
| On-farm disposal | 24 | 20 | 8 |
| Off-farm disposal | 76 | 80 | 92 |

* Not reported
Source:Survey Data

### 9.2.2 Marketing of Paddy

Paddy marketing is done through State institutions such as the Paddy Marketing Board (PMB) and Cooperatives, or private traders either in wholesale or retail quantities. Unlike OFCs, the State institutions are prominantly involved in paddy marketing. This was the only channel through which farmers in head Units, i.e., 2, 21, 22, 24 and 17 have disposed of their paddies. The involvement of private sector in paddy marketing has been greater in tail Units. The share of each channel and system of marketing are shown in Table 9.6.

Table 9.6 - Paddy Marketing by Source

| | 1979 Yala | | 1979/80 Maha | |
|---|---|---|---|---|
| | Average quantity sold per farmer (bushel) | % crop sold | Average quantity sold per farmer (bushel) | % crop sold |
| Private traders | 43 | 81 | 61 | 61 |
| State institutions | 52 | 19 | 49 | 39 |

Source : Survey Data

An over-all preference for private traders is observed as over 60% of the crop is sold to private traders during 1979/80 Maha season. Additionally, the average quantity sold to private traders is 61 bushels per farmer as against 49 bushels in the case of State institutions. At the time of carrying out this survey, the 1980 Yala harvest was yet

to be taken in most of the head Units; the few farmers who had already taken the harvest early had disposed of it to State institutions in head Units. The picture with regard to previous Yala (1979 Yala season) however is much different as the shares of State and private sectors were 81% and 19% respectively. Nevertheless, it was observed that tail-end farmers preferred to market their crop through private traders.

### 9.2.3 Problems of Marketing

Marketing problems in the case of paddy have been reported by 212 farmers in 10 colony Units, whereas only 41 producers in 9 Units have reported problems of marketing OFCs. The types of marketing problems pertaining to paddy and OFCs are given in Table 9.7. It should be emphasized that tail area farmers have not reported many marketing problems with regard to either paddy or OFCs. This can be because that most of tail area farmers often obtain credit for agricultural operations and consumptive needs from local money lenders. The money lenders collect the produce from the farmer at the time of harvest in settlement of borrowings. Hence problems associated with disposal of paddy were not reported in tail areas.

Table 9.7 - Problems of Marketing by Crops (percentage farmer responses)

| Problem Category | Paddy N = 294 | Other Field Crops N = 41 |
|---|---|---|
| Inacurate weighing | 52 | 5 |
| Quality considerations | 22 | * |
| Delayed payment | 18 | * |
| Unfair price | 11 | 73 |
| Lack of store facilities | 5 | * |
| Transport problems | 8 | * |
| Lack of Institutional facilities | 11 | 29 |
| Other logistic considerations | 10 | * |

* Not reported

Source : Survey Data

Inaccurate weighing is the problem most frequently reported by many paddy farmers, followed by quality standards of paddy stipulated by purchasing agencies. Quality and purity are two important criterion which determine the price and purchasing status of paddy. These aspects are more strictly adhered to by State agencies than by private traders. Eighteen percent of the respondents have indicated that payments are delayed, particularly in the case of State marketing agencies.

With regard to OFCs, the most important problem appears to be the unfair price for produce. As indicated earlier, as the private sector is the only source involved with marketing of OFCs in the area, the price competitiveness

does not exist; the market price is fixed by traders to follow their wishes. Twenty-nine percent of farmers have also indicated lack of institutional marketing facilities in respect of OFCs. Only 8% of farmers indicated lack of transport facilities with regard to paddy. The other marketing problems are lack of institutional facilities and other logistic reasons. The marketing problems reported by farmers should serve as guidelines in the design of better marketing facilities.

### 9.2.4 Marketing Trends

A total of 37% of the farmers have indicated a deteriorating marketing trend with respect to paddy while 8% farmers reported such a trend for OFCs during last 10 years. The proportion of farmers indicating an improvement in the marketing status are 27% and 10% respectively for paddy and OFCs. As farmers have gradually taken up the cultivation of OFCs during last few years, it is possible that the marketing infrastructure may have improved to some extent. The proportion of farmers indicating a deterioration of market structure for paddy is larger in head areas than in tail areas. This may be due to the involvement of private traders in paddy marketing in the latter parts of the system.

### 9.2.5 Disposal of Paddy

Farm produce of paddy is disposed in four ways: A portion is sold in the market as discussed in section 9.2.2. Another portion is spent in the settlement of farm dues such as land rent, other expenses, etc. The third portion is set apart as seed paddy, and the fourth part is paddy reserved for consumptive use for the rest of the year. Although this was the general pattern of disposal of paddy, it was observed that certain farm dues, for example, payments for

113 & 114 pgs missing.

tractor and buffalo hire, credit transactions related to production, etc. are settled in cash in some Units.

The pattern of disposal of paddy output for 1979 Yala and 1979/80 Maha is shown in Figures 4 and 5 respectively. They indicate that the average quantity reserved for seed paddy is higher in tail Units, than in head Units. This may be because of 'dry sowing' technique adopted in tail areas which requires a greater amount of paddy on account of poor sprouting. The amount set apart for seed paddy after Yala harvest is greater than Maha harvest in head and middle Units. This may be because of higher requirement of seed paddy during the on-coming Maha season on account of additional area that may likely be planted such as highland, chena, etc. In tail areas, however, as Yala cultivation is not normally undertaken, the quantity of seed paddy set apart is either small or non-existent. The quantity set apart for consumption from the Maha harvest is higher in tail Units than in head Units. This may be because of greater consumption requirement in these Units as paddy cultivation is not normally practiced during Yala season. In head Units, however, the quantity of paddy reserved for consumption is greater after Yala harvest than in Maha harvest. The latter may be attributable to the likely increase in consumption needs particularly on account of possible increase in hired labour use during the forthcoming Maha planting season. The area planted during Maha season is greater than in Yala season. There is no paddy to be disposed of from the Yala season in tail areas as no cultivation is undertaken.

## 9.3 Contact and Relationship with Officers

The study area is served by a many field level officers from the Departments of Agrarian Services, Irrigation and Agriculture. The field level officers of the Department of Irrigation are Jala Palaka and Irrigation Overseers while Technical Assistants operates at a

higher level. The field level officer of the Department of Agrarian Services is known as Cultivation Officer, and the Agricultural Extension Worker (KVS) represents the Department of Agriculture.

Most farmers are familiar with the Cultivation Officer and then the Jala Palaka. Technical Assistant is known by 51% of farmers and only 43% of farmers are aware of the Irrigation Overseer (Table 9.8). Farmers in Block 'D' appeared to have had no contacts with many of the officers attached to the Department of Agrarian Services and the Department of Irrigation.

In terms of extension contact, 83% of the farmers say that they have been visited by KVS during Maha season while this proportion came down to 31% during Yala in the study area. The proportion of farmers visiting KVS was 84% and 46% during Maha and Yala season respectively. The proportion of farmers seeing the Jala Palaka was greater during Maha (34%) than in Yala (13%). Visits to Cultivation Officers were greatest among all types of officer contacts, both during Yala and Maha seasons. Only 3% of the farmers in the study area were involved with contact farmer groups of the Training and Visit system (T & V system) of extension programme organized by the extension wing of the Department of Agriculture. Contact farmer groups were reported in Units 3, 7, 8, 21 and 30.

Table 9.8 - Farmer Awareness of Officers by Colony Units (percentage known) N = 476

| Unit | Jala Palaka | Irrigation Overseer | Technical Assistant | Cultivation Officer |
|---|---|---|---|---|
| 2 | 27 | 30 | 40 | 93 |
| 3 | 69 | 50 | 39 | 94 |
| 7 | 41 | 45 | 73 | 100 |
| 8 | 87 | 47 | 43 | 100 |
| 10 | 75 | 35 | 35 | 100 |
| 14 | 21 | 21 | 37 | 100 |
| 17 | 38 | 17 | 14 | 100 |
| 21 | 77 | 67 | 54 | 90 |
| 22/23 | 71 | 55 | 42 | 81 |
| 24 | 58 | 53 | 79 | 100 |
| 26 | 100 | 36 | 100 | 86 |
| 30 | 61 | 51 | 71 | 90 |
| 32 | 79 | 17 | 13 | 100 |
| 35 | 86 | 81 | 71 | 81 |
| 39 | 25 | 5 | 25 | 70 |
| Block D | 22 | 17 | 28 | 22 |
| Block E | 89 | 95 | 95 | 100 |
| Block J | 76 | 33 | 62 | 100 |
| Left Bank Sample | 62 | 43 | 51 | 90 |

Note : Highest frequency underlined.

Source : Survey Data

## 9.4 District Agricultural Committee

The District Agricultural Committee (DAC), established under the provisions of the Irrigation Ordinance Legislative Enactment of Ceylon 1956, Chapter 453, is expected to undertake planning as well as monitoring the progress of activities connected with agriculture. It is a gathering of all heads of State institutions serving the agricultural sector in the Ampara district which is chaired by the Government Agent. The DAC decides on the schedule of agricultural activities prior to the commencement of each season which is later presented to the farmers at the cultivation meetings described in section 9.5 below. The farmers, in turn, are expected to follow the sequence of agricultural operations conveyed to them. The fact that DAC has no farmer representation in it, important field problems tend to be neglected at the time of taking decisions. So much so, the decisions taken by the DAC are often changed in order to accommodate important matters raised by farmers at the forum of cultivation meetings. The absence of farmers' point of view, therefore, can be considered as a limitation of the DAC.

## 9.5 Cultivation Meetings

The kanna (cultivation) meetings of cultivators are held before each planting season in order to plan and schedule cultivation operations under the provisions of the Irrigation Ordinance referred to above. These meetings are convened by the Government Agent and are attended to by officers of all State departments, cooperations, and banks involved with agricultural production and marketing together with farmers of the area. As the decisions taken at these meetings are expected to be implemented, high priority is given to them by officers.

### 9.5.1 Farmer Attendance at Cultivation Meetings

The study shows that only 38% of the farmers have attended

1980 Yala kanna meeting, and the proportion increased to 52% in 1979/80 Maha season. The farmers in head Units attended them in equal proportions between Yala and Maha season while farmers in the tail areas had attended meetings only in Maha season as Yala cultivation is normally not undertaken. The attendance of Kanna meetings by head areas farmers was poor; the reasons for which are shown in Table 9.9. Among them are, lack of awareness (32%), unavailability of time (42%), no usefulness (10%) and other reasons (15%). The lack of time for attending kanna meetings cannot be a reasonable explanation because these meetings are usually held at times when farmers are not very busy in their cultivation pursuits.

Table 9.9 - Reasons for not Attending Kanna Meetings

| Reason | % response |
|---|---|
| Unawareness of meetings | 32 |
| Lack of time | 42 |
| No use | 10 |
| Other | 15 |

Source : Survey Data

A majority of farmers are in the opinion that the decisions taken at these meetings are rarely implemented. Many deviations in water issues from what was agreed at these meetings are observed and farmers are not informed of such changes in advance. The farmers' poor attendance, in a way, therefore may be due to these limitations.

In regard to usefulness of cultivation meetings, 80% of farmers who attended have indicated that they are useful while 12% attributed no benefits to them. The reasons given by some head and middle farmers who have attended cultivation meetings are indicated in Table 9.10.

Table 9.10 - Reasons for Attending Kanna Meetings

| Reason | % response |
|---|---|
| Obtain date of water issue | 30 |
| Obtain information on cropping schedule | 53 |
| Better coordination of farmers activities | 38 |
| Other aspects of water distribution | 6 |
| No response | 21 |

Source : Survey Data

It appears that the main reason for attending these meetings is to obtain information on cropping schedule. The proportion of farmers receiving information on water issues is less, presumably because of their dependency on other sources such as fellow farmers and Jala Palaka of the Irrigation Department for such information.

Chapter Ten

# SUMMARY AND CONCLUSIONS

1. The objective of this study was to describe the benchmark situation in Left Bank of Gal Oya in terms of demography, housing, farm resource endowments, land tenure and land use, adoption of modern technology and returns to paddy production, household income and other institutional and infrastructural aspects. It is expected that the changes resulting from irrigation rehabilitation can be assessed at a later stage against the benchmark situation.

2. The study area is comprised of 5 hydrological sub-systems of the Left Bank main channel, and branch channels of Uhana - Mandur, Gonagolla, Sillikkody and Vellaveli. The 18 Colony Units randomly selected for the present study can be divided into three categories namely, head, middle and tail as follows: Those close to the reservoir are identified as head Units, for example Units 2, 21, 22, 24 and 30 while those Units further down from the reservoir are tail Units (7, 35, 39, 14, Block 'D', Block 'E', and Block 'J'); Units located in between the above categories are middle Units (10, 8, 3, 26). Head Units and to some extent middle Units have an assured supply of irrigation water during both Yala and Maha seasons, while most of the tail Units are essentially rainfed.

3. A sample of colonists was randomly selected to represent head and tail portions of distributary channel in each selected Colony Unit. Each selected settler was interviewed by trained investigators under the supervision of ARTI researchers. A long-term continuous farm record keeping survey was in progress concurrently with the

benchmark survey to monitor changes resulting from the irrigation rehabilitation.

4. The inhabitants of the Gal Oya scheme constitute a heterogeneous population as they have come from ethnically, geographically, agriculturally, environmentally, and socio-culturally different regions of the country. The administrative districts where the settlers have come from are Colombo, Galle, Kandy, Kegalle, Nuwara Eliya, and those from Inginiyagala and Pattipola Aru system and the West. The proportion of young people in the age group of 15 - 25 comprises of 26% of the enumerated population. Children below 14 years account for 35% while people over 65 years amounts to 3% of the population. The average family size is 5.7. The ethnic composition comprises of 65% Sinhalese, 26% Tamil and 9% Muslim families. The average literacy is 82% with higher proportion of illeterate people in the tail area of the system. The proportion of people with primary education ranges from 27 - 56% while with education up to G.C.E. (Ordinary Level) education ranges from 4 - 32%. The labour force amounts to 47% of total population. The main types of employment in the area are paddy farming (90%), service sector (6%) and industrial sector (4%).

5. The status of employment generation activities outside agriculture such as agro-processing industry, animal husbandry, handicraft industry and carpentry is poor.

6. Ninty five percent of houses are owner occupied. The demand for new houses has increased several fold with increases in population; there has not been a corresponding improvement in the quality of houses. The study has taken account only of the situation of colonists because of the sampling framework; the situation of encroachers appears to be severe but is underrepresented in the statistics. Toilet facilities are poor as only a fraction of the population has such facilities. Hence, the sanitary condition is far from satisfactory. As channel water is used for drinking

purposes, there is a greater chance of spreading water-borne diseases. The proportion of houses with electricity is only 5% and cooking is done mainly with firewood while kerosene oil is the major source of lighting.

7. Four types of animal husbandry enterprises, namely buffalo, neat cattle, poultry and goat, were observed in this study. Cattle rearing is mainly a source of draught power as 82% and 54% of buffalo and neat cattle population respectively are utilized for this purpose. Milk from neat cattle is more popular than curd prepared from buffalo milk as only 18% of buffalo population is milked. Head Units are reported to have more buffaloes than neat cattle and vice versa in tail Units. Average number of heads of buffalo is 3.2 while the corresponding figure for neat cattle is 2.6. Goat rearing is practised by 1% settlers while poultry rearing is reported by 26% settlers. Goat rearing is more popular in tail area while poultry husbandry is, in general, wide spread across the settlement area. The number of birds and goat heads kept per family is 5.7 and 5.8 respectively.

8. Prospects for livestock rearing both as a source of income and draught power in the settlement area are substantial. The major constraint is the inadequate grazing land for cattle. Cattle also pose a definite threat to irrigation channels as they trespass or are grazed and damage bunds. The highlands are relatively neglected and underutilized in livestock production. The scheme has few wallowing grounds for buffaloes.

9. There is an adequate ownership of most of the implements required for crop production. Of the needed implements, the number of spray machines and tractors are grossly inadequate; as dusters, seeders and rotavators are little used, their numbers may be considered adequate. The number of implements reported per family in tail Units is substantially lower then in head Units, except for wooden plough.

10. Ownership of household utilities is found to be more in head Units than in tail Units. Basic necessities such as clocks, sewing machines and furniture sets were few in number or totally absent in the households of the tail area. The lack of utilities reflects the low family earnings in tail Units. Only the radio has an extensive spread across all Colony Units in the study area.

11. Major sources of mass communication within the area are radio and newspaper. Exposure to radio and three categories of newspaper is very much higher than the extent of ownership by settlers. This indicates shared reading and listening to newspapers and radio respectively. The most preferred place of reading is the boutique. In the case of radio, home listenership was preferred. The credibility of information contained in mass media ranges from 3 - 60%. Newspaper reading was mainly to obtain country news while radio listenership was more for recreation and/or entertainment. The most common means of transport is the bicycle which is owned by 58% of families. The most common means of transport, particularly in tail Units is the bullock cart. Ownership of motor cars and motor bicycles is very low.

12. Three main types of lands, namely, colony (92%), Purana (6%), and encroached (1%) are held by settlers. The actual extent of encroached lands is much higher than indicated in this survey as encroachers were not represented in the sample to any significant degree. Under all three land categories, the size of lowland is greater than highland; however the average size of holding has greatly declined from early stages of colonization. The decrease in size of lowland allotment is greater than highland because of the greater fragmentation of lowland. Highland allotments have been subjected to little fragmentation as they are not utilized much across Colony Units. A locational difference in lowland fragmentation is also found in the head areas where yields are high it is greater than in tail areas. Two main systems of land operation, namely owner operated and tenant operated, are found.

Water assured Units of 17, 21, 22 and 23 had a higher proportion of tenants than areas with less assured water supply do.

13. Lowland is utilized entirely for paddy cultivation both in head and tail areas during Maha while it is utilized for paddy mainly in head Units during Yala. The study also shows that lowland is planted with irrigated paddy even during Maha season in some of the tail areas. The planting of Other Field Crops in the lowland during Yala is negligible. The average plot size of lowland holding across the system varies between 0.7 - 4.5 acres. The size of the cultivated land is relatively larger in the tail area than in head area.

14. Highland use is more 'regional specific' than lowland; head Units are reported to have planted rainfed paddy and Other Field Crops (OFCs) while a majority of tail Units have not planted lowland at all during Yala season. However, in the Maha season, rainfed paddy and OFCs are cultivated in head Units while only few tail Units are reported to have utilized highland. Tree crop planting is confined to head Units of which important crops are coconut and crop mixtures such as breadfruit, orange, mango, etc. In general, the plot size of the utilized highland is much smaller than the allotted highland across all studied Colony Units. Chena cultivation is not widespread and is confined to few Units.

15. The entire tail area is planted only in Maha season. The greatest decrease in cultivated extent during Yala is observed in the tail of the system where no crop was planted on the highland in that season.

16. Several instances of non-cultivation of allotted land were reported; lowland non-cultivation was greater than that of highland. The percentage of lowland not cultivated at all because of either inadequate water supplied or other constraints of technical nature such as poor land levelling, is 46%. The extent of highland left entirely abandoned is 58% of total non-cultivated lands.

17. Cultivation of Other Field Crops (OFC) on the lowland during Yala season was not reported in the study area. Lowland was left abandoned during Yala if water was not available. A few farmers indicated that OFCs can be planted during Yala whereas 26% indicated that no crop can be grown. Although farmers have indicated that the cost incurred on the cultivation of OFCs would be less, they preferred to plant paddy because, overall income from paddy is expected to be higher. It is suggested that extension is encouraged and marketing facilities provided, in order to popularize the cultivation of OFCs on lowland.

18. Almost all farmers (98%) adopt new improved high-yielding paddy varieties of 3 - 3 1/2 months age group. The number of farmers applying fertilizer as well as the percentage extent fertilized with Urea are high. A total of 61% of farmers applied TDM mixture for 60% of the extent while the proportion of farmers applying Basal Mixture (V 1) was only 33% to an extent of 34% of total cultivated paddy land. The rate of application of all three fertilizer materials was less than the recommended quantity. Weedicides and other agro-chemicals are extensively used in paddy cultivation in the area. Paddy stand establishment was done mainly through broadcasting; in head Units this was mainly on mud bed with germinated seed while in tail Units, dry sowing was observed. The seed rate was high (7.5 bushels per acre) in tail Units on account of dry sowing. Land preparation was done mainly through buffaloes as 79% of the total extent utilized animals. Tractors were more prominant in threshing.

19. Paddy yield during 1979/80 Maha season in the Left Bank area was low with only 34 bushels per acre mainly on account of the Brown Plant Hopper pest attack. Majority of farmers were getting a farm yield of less than 40 bushels.

20. Cost of labour accounts for about 50% of total cost of paddy production. Farm power cost was about 20%, followed by cost of seed paddy (12%), chemical fertilizer and weedicides amount to 8% and 3%

of paddy production cost. The cost per acre of paddy production was Rs. 1274 during 1979/80 Maha season. A high variability in the per acre cost of exchange and contract labour and tractor power and animal power was observed within the study area.

21. Returns to paddy production have been quite variable across the scheme and particularly poor in Units 7, 14, 35, 39, Block D and E during 1979/80 Maha.

22. Three major sources of household income are agriculture, off-farm earnings and non-agricultural income. Income from crop production is the greatest single source of revenue in the majority of the Units. Livestock income was reported only in 14 Units. Important sources of non-agricultural income are employment in other sectors, non-agricultural labour and business enterprises, while off-farm income is made up of agricultural labour, share of leased or ande operated allotment.

23. Average annual income per farm is Rs. 6832 which is more in Maha (Rs. 4094) than in Yala (Rs. 2737). Income from agriculture provides more than half the household income in all Units except Units 17, 7, Block D and E where non-agricultural income is greater than any other stream of income. Average household income from paddy is greater in Yala (Rs. 3412) than in Maha (Rs. 3201); income from other crops during Yala is very much lower (Rs. 16 per household) than in Maha (Rs. 131). Paddy income represents 62% of total annual household earnings. Livestock income per family is almost equal between Yala (Rs. 597) and Maha (Rs. 576) with slightly higher income during Yala season. Agricultural labour forms the major share of off-farm income which accounts for 75% of total off-farm income. Off-farm income is greater in Yala than in Maha season. Non-agricultural income represents 18% of total annual farm revenue where employment in State/private enterprises forms the greatest portion.

24. Food accounts for 57% of the total annual expenditure budget in the settlement area. The other household expenditure items are clothing 9%, medical and fuel/firewood 5% each, travel/communication and education 3% each, housing and religious activities 2% each, sports/recreation and furniture 1% each.

25. Institutional credit accounts for 51% of total reported borrowings while the share of non-institutional credit was 48%. However, the actual borrowings from non-institutional sources may be higher than what was reported in this study. The average amount reported borrowed from institutional and non-institutional sources are Rs. 2579 and Rs. 1590 respectively. Most borrowings are reported for agricultural activities which account for 62% of total borrowings. Other credit needs are personal (13%) and investments (25%). The main crop which necessitates borrowing cash is paddy where 'dry paddy' requires more credit volume (Rs. 3425 per farmer) than for irrigated paddy (Rs. 1479). Non-institutional credit is more free of problems than institutional credit; loan repayment also is more in the case of the former than the latter.

26. Among the OFCs produced for the market were chillies, tobacco, pulses, finger millet, gingelly, vegetables and plantain, all of which have been confined mainly to Maha season. Marketing was done mostly through private trader while 27% disposed direct to consumers. Farm gate sale was found to be practised by 8 - 24% of farmers while proportion of farmers disposing off the farm ranged from 79 - 92%.

27. Private traders purchased 61 - 81% of paddy output with only 39 - 19% crop purchased by State institutions in 1979/80 Maha and 1980 Yala season respectively. Average quantity of paddy sold to private trader was 61 bushels per farmer whereas the corresponding figure for the State institution was 49 bushels.

28. More marketing problems were reported for paddy than for other

crops. Inaccurate weighing, quality considerations, delayed payments and unfair price were the main problems faced by paddy farmers while unfair price, absence of institutional support and inaccurate weighing were the three problems reported by Other Crop producers. Improvement in marketing trends was reported by 27% farmers as against 37% reporting a deteriorating trend of marketing over the last few years.

29. Paddy output is disposed of in several ways; a substantial portion of the total output is marketed to private and/or State institutions; next in importance was the quantity utilized against the settlement of both farm and non-farm debts. Paddy reserved for consumption averages about 25 bushels per family per season; the stock reserved as seed paddy is much greater in tail Units than in head Units.

30. The study area is covered by field level officers belong to three major departments related to agriculture, namely Agriculture, Irrigation and Agrarian Services. Majority of farmers were familiar with the Cultivation Officer while Technical Assistant and Irrigation Overseer were known by few farmers. Visits to KVS of the Department of Agriculture were more than all other officer contacts as 84% of farmers have visited with him during Maha season. Visits to all officers during 1980 Yala season were less intensive as cultivation was not done.

31. Yala attendance of Kanna meetings was poorer (36% of farmers) than attendance during Maha season (52%). Main reason for their not attending is attributed to little importance given to these meetings by farmers. Kanna meetings, have apparently not helped farmers to any significant degree, in scheduling their cultivation activities or ensuring reliable supplies of water.

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**Erratum** : Pages 113 and 114 are not filled due to an error in pagination.