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**SOCIO-ECONOMIC BASELINE STUDY FOR DETERMINING
THE IMPACT OF ROAD MAINTENANCE AND IMPROVEMENTS:**

**FARIDPUR—RANGPUR—SYLHET
(AN USAID SPONSORED PROJECT)**

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SEPTEMBER 1986
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Preface

This report aims at ascertaining and determining the impact of rural road maintenance and improvements over the deltaic topography of Bangladesh. The work sponsored by the US Agency for International Development (AID) in Bangladesh included socio-economic base line studies in ten selected geographic regions within the districts of greater Faridpur, Rangpur and Sylhet. Field works designed emphatically to study socio-economic conditions in the Road Improvement Regions took place from July 1985 through March 1986.

During the course of the survey, it has been observed that rural road activities under study are providing increased access from farms to villages, villages to rural markets or hats, growth centres and small townships in the rural surroundings. The newly constructed roads are also initiating marked improvements in aspects of agricultural production, off-farming activities, income, employment and overall economic and cultural environmental situation. However, the present Baseline Study indicates that in no way rural road development is an independent sector of the rural economy in Bangladesh. The factors contributing towards the development of rural roads are

in fact interrelated and mutually dependent on each other. Building up local institutions in different areas of the economy, making necessary investment in creating physical facilities and infrastructure and essential for rural road development. But, once roads as network appear, they tend to promote the process of further economic growth within the traditionally least mobile and isolated rural communities.

I am thankful to the USAID for selecting our team for undertaking the present research. The long process of selection though starting in early 1983, could only be finalised in July 1985. However, the eight-months research efforts will be considered meaningful, only if it succeeds in up-dating the baseline information on AID's programme of road development activities in the rural areas of Bangladesh.

Many individuals, organizations and institutions have assisted in conducting the field research. I am indebted to all of them. Most gratefully I acknowledge the noble co-operation of the village people; this study would have been inordinately difficult and much less worthwhile but for their absolute and unqualified support. It is also a pleasure to acknowledge the

excellent services of our young graduates from different disciplines of the Faculties of Sciences, Social Sciences and Humanities at this University who have worked in the Project as Field Investigators, Research Assistants and Tabulators, and without whom it would not have been possible to successfully complete this study. Finally, I wish to record my gratitude to Professor M. Aminul Islam of the Geography Department of Dhaka University and Dr. M. Kabir of the Department of Statistics at Jahangirnagar University who provided us with valuable help and the benefit of their mature thoughts on the study plan at the initial stage of the research.

But for the views expressed or for any error and facts of omissions in the report, the authors alone are responsible.

Professor A F M Kamaluddin
Study Director

CONTENTS

List of Tables		
List of Figures		
Chapter-I	Objectives and Methodology of the study	1
	1. Introduction	1
	1.1. Objectives of the study	2
	1.2. Methodology of the study	6
	1.2.1 Selection of study areas	6
	1.2.2 Questionnaire	11
	1.2.3 Selection of samples and collection of data	13
	1.2.4 Processing and Analysis of data	20
	1.3 Organization of the Report	21
Chapter-II	Road Transport Improvement Regions	23
	Transportation Network and the Project Roads	23
	2.1 Transportation Network	23
	2.2 Selected Project Roads	34
	2.3 Socio-Economic Conditions of Project Area 51(a)	51(a)
Chapter-III	Some Demographic and Social characteristics of the study areas	52
	3.1 Density of Population	52
	3.2 Average size of Households, sex-ratio and Age Distribution	54
	3.3 Literacy rate	57
	3.4 Labour force participation	60
	3.5 Occupational structure	64
	3.6 Migration into the project localities	66
	3.7 Status of Women in poor households	71

<u>Chapter-IV</u>	Agriculture	74
	4.1 Distribution of Landownership	74
	4.2 Operational holdings: Average size and size structure	77
	4.3 Tenurial pattern	81
	4.4 Land utilization: Cultivation Intensity and cropping intensity	83
	4.5 Cropping pattern	87
	4.6 Use of Modern Inputs	91
	4.7 Recent crop situation	96
	4.8 Marketed surplus	102
	4.9 Difference in prices	107
	4.10 Concluding Remarks	124
Chapter-V	Employment and Income	125
	5.1 Employment and Income: Farm Households	126
	5.2 Employment and Income: Labour supplying Households	145
	5.3 Employment and Income: Traders and Businessmen	163
	5.4 Employment and Income: Pure Transport Workers	165
	5.5 Concluding Remarks	170
Chapter-VI	Pattern of Traffic and Movement	171
	6.1 Introduction	171
	6.2 Inventory of selected roads	172
	6.3 Volume and composition of goods entering into the selected markets/growth centres	174
	6.4 The nature and volume	180
	6.5 Transport charges by Different Modes	194
	6.6 Estimated user costs savings	207
	6.7 Distribution of Transport Cost savings	216

Chapter-VII	Growth centre/Markets in the Road Transport Improvement Regions	223
7.1	Location of the growth centres/markets	224
7.2	The size of the growth centres/markets	233
7.3	The pattern/kind of use of land	236
7.4	The socio-economic infrastructure of the growth centres/markets	239
7.5	Land values in and around the growth centres/markets	244
Chapter-VIII	: Summary and conclusion	264
Appendices -		

List of Tables

Table 1.1	Selection of Project Roads and Road Transport Improvement Regions	10
Table 2.1	Transportation Inventory	25
2.2	Road Mileages in the R.T.I.Regions	30
2.3	Inventory of General conditions of selected ZRMIP Roads	34(a)
2.4	Occupational structure of population by Regions	51(b)
2.5	Distribution of land man ratio and use of modern technology in agriculture	51(c)
2.6	Population per educational institutions by Regions	51(e)
2.7	Population per health centre, physicians, family planning centres etc. by Regions	51(f)
2.8	Proportion of electrified village and population per post office, bank branch, hat etc. by Regions	51(g)
Table 3.1	Density of population in the selected Road Transport Improvement Regions	53
3.2	Average size of Household, Sex-ratio and Age Distribution in the study area	55
3.3	Literacy rates in the study area	58
3.4A	Refined Activity Rates for rural areas of Bangladesh	61
3.4B	Refined Activity Rates for the study Regions	63

Table 3.5	Distribution of Household Heads according to primary occupation	65
3.6A	Permanent migration into sample villages, 1985	67
3.6B	Permanent migration of transport workers into project localities	69
3.6C	Seasonal migration of labourers into the project localities	72
3.7	Self-employment of women by major activities and sources of financial support	73a
3.8	Persons/Institutions giving the idea of setting the activities by districts	73c
3.9	Participation in decision making by women by districts	73e
Table 4.1	Pattern of distribution of land-ownership	76
4.2A	Average size of farm holdings (operational) in acres	78
4.2B	Distribution of operational holdings	80

Table : 4.3	Tenurial Pattern in the study Areas	82
4.4 A	Pattern of Land Use	85
4.4 B	Cultivation Intensity and cropping Intensity	86
4.5	Cropping Pattern by Regions	88
4.6	Use of Irrigation and chemical Fertilizers in Regions of various Districts	92
4.7	Procurement Price of Fertilizer in the villages by Accessibility and Distance: All Districts	95
4.8	Gross value of production per acre and yield of Major Crops in Districts - Rangpur	97
4.9	Gross value of production per acre and yield of Major crops in District - Faridpur	98
4.10	Gross value of production per acre and yield of Major crops in District - Sylhet	99
4.11	Marketed Surplus of Paddy by size of farm, RANGPUR	103
4.12	Marketed surplus of paddy by size of farm, FARIDPUR	104
4.13	Marketed surplus of paddy by size of farm, SYLHET	105
4.14	Farm level prices for paddy, Rangpur	109
4.15	Farm level prices for paddy, Faridpur	110
4.16	Farm level prices for paddy, Sylhet	111
4.16(A)	State of Food Self-Sufficiency by Regions	111(a)

4.17	Differences in Product and input prices by Accessibility of Markets.	113
4.18	Price of Agricultural Commodities in selected markets : Rangpur	115
4.19	Price of Agricultural commodities in selected markets : Faridpur	116
4.20	Price of Agricultural commodities in selected markets : Sylhet	117
4.21	Prices of vegetables, fruits, fish and chicken in Rangpur	118
4.22	Prices of vegetables, fruits, fish and chicken in Faridpur	119
4.23	Prices of vegetables, fruits, fish and chicken in Sylhet	120
4.24	Price of Firewood, fertilizer and Housebuilding materials in Rangpur	121
4.25	Price of Firewood, fertilizer and Housebuilding materials in Faridpur	122
4.26	Price of Firewood, fertilizer and housebuilding materials in Sylhet	123

Table 5.1	Average size of family by farm size: Rangpur	127
5.2	Average size of family by farm size: Faridpur	128
5.3	Average size of family by farm size: Sylhet	129
5.4	Type of labour used per farm in crop production by farm size, Rangpur	131
5.5	Type of labour used per farm in crop production by farm size, Faridpur	132
5.6	Type of labour used per farm in crop production by farm size, Sylhet	133
5.7	Types of labour used in percentages by farm size and Districts	136
5.8	Average number of days employed on own farm and on wage labour per adult male worker by farm size and Districts.	138
5.9	Composition of Household Income by sources by farm size	141
5.10	Composition of Household Income by sources by farm size	142
5.11	Composition of the Household Income by sources by farm sizes.	143
5.12	Size of the labour supplying Households by Districts	146
5.13	Extent of participation in wage and self-employment per adult of the labour supplying Households by Districts.	148

5.14	Average number of days employed per adult of the labour supplying households by districts	151
5.15	No. of days employed by activity, Rangpur.	153
5.16	No. of days employed by activity, Faridpur.	154
5.17	No. of days employed by activity, Sylhet.	155
5.18	Self employment of the members of the landless/ labour supplying households.	159
5.19	Percentage distribution of workers by sex and place of work by district.	160
5.20	Average Annual Income from wage and self-employment per adult and wage rates of the labour supplying households by districts.	162
5.21	Number of days employed and income of the traders by district.	164
5.22	Annual Income, Employment and wage rates of the pure transport workers by different Modes of Transport in Districts.	167
Table 6.1	Inventory of selected roads in Road Regions of Rangpur, Faridpur and Sylhet Districts.	173
6.2	Estimated volume of Goods entering into markets by distance	176
6.3	Percentage Distribution of Volume of Goods entering in Markets by Type of Goods.	178

6.4	Estimated weekly volume of traffic in selected Roads in Rangpur.	182
6.5	Estimated weekly volume of traffic in selected Road in Faridpur.	183
6.6	Estimated weekly volume of traffic in selected Roads in Sylhet.	184
6.7	Estimated weekly volume of traffic in districts by season.	185
6.8	Distribution of volume of traffic by modes and seasons in the Districts.	187
6.9	Estimated weekly volume of traffic by type of commodity.	189
6.10	Estimated weekly volume of traffic by type of commodity.	190
6.11	Estimated weekly volume of traffic by type of commodity Sylhet.	191
6.12	Estimated Annual Volume of Traffic per Road mile by mode of Transport (All Districts).	195
6.13	Average distance covered on the selected road by mode of transport, Rangpur.	196
6.14	Average distance covered on the selected road by mode of transport, Faridpur.	197
6.15	Average distance covered on the selected roads by mode of transport, Sylhet.	198
6.16	Transport charges by mode of transport, Rangpur.	200

6.17	Transport charges by mode of transport, Faridpur	201
6.18	Transport charges by mode of transport, Sylhet	202
6.19	Difference in transport charge and distance covered between accessible and interior markets for Bullock cart/Horse cart.	203
6.20	Differences in transport charge and distance covered between accessible and interior markets for pedal rickshaw.	204
6.21	Capacity utilization of Different Mode of transport on selected Roads in Districts.	206
6.22	Estimated benefits from Road Improvement at the level of traffic. Nabigonj - Baniyachung Road.	209
6.23	Estimated Benefits from Road Improvement at the level of traffic. Jaldhaka - Mirganj Road.	210
6.24	Estimated Benefits from Road Improvement at the level of traffic. Bamandhanga - Sunderganj Road.	211
6.25	Estimated Benefits from Road Improvement at the level of Traffic Badarpur - Saltha Road	212
6.26	Types of Transport operator by modes of Transport.	217

6.27	Distribution of landownership of transport operators by mode of transport.	219
6.28	Landownership by nature of transport operator.	221
Table 7.1	Location and Economic threshold of the selected markets, Rangpur.	228
7.2	Location and economic threshold of the market, Faridpur.	229
7.3	Location and Economic threshold of the market, Sylhet.	230
7.4	Average size and average number of various types of shops and facilities by regions: All districts.	234
7.5	Distribution of permanent temporary shop by types in the selected growth centres. All Districts.	237
7.6	Pattern/ kind of use of land in the growth centres/ markets in the districts.	238
7.7	Educational Infrastructure of the growth centres.	240
7.8	Social Infrastructure of the growth centres.	241
7.9	Economic Infrasfructure in the growth centres.	242
7.10	Land price situation by types (price in '000' Tk. per acre) within and around the centres by zones.	245

List of figures

1.1	Road Transport Improvement Regions	9
2.1	Selected ZRIMP Roads : Rangpur	35
2.2	Selected ZRIMP Roads : Faridpur	36
2.3	Selected ZRIMP Roads : Sylhet	37
7.1	Location of Growth Centres/Markets:Rangpur	225
7.2	Location of Growth Centres/Markets:Faridpur	226
7.3	Location of Growth Centres/Markets:Sylhet	227

List of Abbreviations

BBS	Bangladesh Bureau of Statistics
BSS	Bittabin Samabaya Samity
HBB	Herring Bone Brick
MSS	Mahila Samabaya Samity
RTIR	Road Transport Improvement Region
ZRIMP	Zila Road Improvement and Maintenance Project

Chapter - I

Objectives and Methodology of the Study

Introduction

The importance of rural roads in Bangladesh can hardly be overemphasised. Ninety two per cent of the population in this country live in rural areas most of which are criss-crossed with innumerable rivers and channels and are flooded every year during the rainy season. Many of the villages are somewhat marooned during monsoon season. Though rivers and channels are a major means of transport in many areas, in most parts of the country water transport can be used only for a part of the year. Hence, roads as a mode of communication are of paramount importance in the movement of passenger and commodities within rural areas as well/^{as}to the rest of the country. Indeed, an adequate and efficient rural road network may be said to constitute an important precondition for rural development in particular and national development in general.

The importance of the Zilla Roads stems from the fact that these have been the major links providing rural access

to various market centres in their vicinity and administrative centres as well as to the rest of the country in most seasons of the year. But the general conditions of these roads are not always upto the desirable standards. Hence arises the necessity for the maintenance and improvement of these roads.

1.1: Objectives of the Study

The objectives of the study as included in the terms of reference are as follows:

"The primary objective of the study is to collect baseline data for areas in which road maintenance and improvement activities are taking place under the Zilla Roads Maintenance and Improvement Project (ZRMIP). The information will provide, in the future, a basis for determining the impact of rural road maintenance and

improvement in certain areas. The project areas are the former districts of Faridpur, Rangpur and Sylhet."

With the above mentioned objective in view, the study aims at generating the following baseline information:

- a. An inventory of physical infrastructures which have been built or going to be built under this project.
- b.
 - i) Price situation of food grains and other farm products in growth centres and selected village markets of project localities (selected sample, because of time constraint).
 - ii) Price situation of other agricultural products, like vegetables, fruits, fish and chicken in the same localities.
- c.
 - i) Modes of public transports in project localities and extent of transport flow from growth centres (selected to Upazilla and districts headquarters).
 - ii) Extent of use of non-power vehicles (Rickshaws), Rickshawvans, for example) from village (selected to growth centres and upazilla headquarters or even from upazilla (selected) to Zilla headquarters).

- d. Recent crop situation with regards to (i) rice, wheat, fibre-crop like jute/cotton; (ii) other agricultural products, seasonal vegetables, and fruits.
- e. Recent price situation of fire wood, timber and other indigenous house building materials (includes coconut also).
- f. Extent of availability of farm inputs by small and marginal farmers, also landless farm labourers who do farm operations on mortgage of land from large farmers/landowners (inputs for the purpose of this study may be limited to water, fertilizer and cash credit).
- g. Price situation of cultivable lands and homestead lands (This will include information of recent sale of farm lands by small and poor farmers).
- h. Pattern/kind of use of land by landowner farmers, other land owners, small and poor farmers, and landless farm labourers (who have only homestead).
- i. Pattern/kind of use of land in the growth centre markets which has been connected by ZRMIP Roads/Bridge/Culverts.

- j. Extent of growth of socio-economic infrastructure in the project localities through Government, private and joint collaborations.
- k. Kind/pattern of employment provided by ZRMIP for the (i) rural poor (including women), (ii) poor artisans, like Masons.
- l. Kind/pattern of employments available through other trades/economic activities.
- m. Level of income of rural labour force in the project localities.
- n. Kind of entrepreneur existing/growth in the project localities, particularly in agriculture sector (includes poultry and cattle raising, fishponds or use of other surface water source for fisheries development).
- o. Status of women in small farmers families, landless families and trade/artisan families with regard to self-employment and decision making in the family.
- p. Extent of labour migration (if any) from other region to project localities.

- q. Negative environmental effects caused by increased erosive activities of the weathering agents, decreasing soil fertility, deforestation, decrease in the agricultural productivity and deteriorating health and sanitary conditions.

1.2: Methodology of the Study

1.2.1 - Selection of Study Areas

The maps of each of the former districts of Faridpur, Rangpur and Sylhet were consulted for finding the location of all the project roads and defining in broad terms a Road Transport Improvement Region (RTIR) as one or more upazillas through which a project road runs, several such regions in each of these districts were identified. These regions have been divided into ten geographical clusters, the number of clusters in Faridpur, Rangpur and Sylhet being 3,4 and 3 respectively. Then from among the project roads in each of these clusters one or two roads have been selected for study. It may be noted that the number of selected project roads is thirteen out of a total number of twenty six.

The selection of the project roads was made on the basis of the following considerations:-

- a. importance of the road for the socio-economic development of the region;
- b. general conditions of the road;
- c. accessibility and means of transport to the areas served by the road;
- d. the degree and nature of cooperation that could be expected from local people as well as from government officials serving in the locality.

For gathering necessary information on the matters noted above a reconnaissance survey of the regions was carried out in early September of 1985 by the members of the research team. As a part of this survey, upazilla offices were visited and the available documentary sources were consulted. Project roads were visited and many knowledgeable persons of the locality were talked to. Mainly on the basis of this survey - and to a small extent on that of the impressionistic views of the members of the

research team formed during these visits - project roads were selected.

The upazillas through which the selected project roads run constitute, in broad terms, the selected RTI regions for the study (Figure 1.1). The results of the whole procedure discussed above is summarised in Table I.

The study area in each region, meaning the geographical areas in which field work in connection with various surveys for the study has been carried out, is, however, smaller than the region itself. This is due to the fact that sample villages and growth/market centres - the only two space related sampling units apart from the project roads in the whole study, the other sampling units being located in any one of these - have been selected from only those villages through which the selected project roads run and those growth/market centres which are located on the road.

TABLE - 1

Selection of Project Roads and Road Transport Improvement Regions

Old Districts	Names of the Project Roads	Road Transport Improvement (RTI) Regions	Geographical Clusters	Selected Projects Roads	Selected Road Transport Improvement Regions
Faridpur	1. Talma-Nagarkanda	Nagarkanda	I	Talma - Hatkrishnapur	I-Nagarkanda & Sadarpur
	2. Talma-Hatkrishnapur	Nagarkanda & Sadarpur			
	3. Hatkrishnapur-Piajkhali	Sadarpur			
	4. Dignagar-Muksudpur	Muksudpur			
Rangpur	5. Badarpur-Saltha	Faridpur Kotwali & Nagarkanda	II	Badarpur-Saltha	II-Faridpur Kotwali & Nagarkanda
	6. Rajbari-Baliakandi	Rajbari & Baliakandi	III	Rajbari-Baliakandi	III-Rajbari & Baliakandi
	7. Madhukhali-Baliakandi	Baliakandi			
	8. Mirganj-Jaldhaka	Jaldhaka	I	Mirganj-Jaldhaka	I- Jaldhaka
	9. Rangpur-Mahiganj	Rangpur Kotwali	II	Rangpur-Badarganj	II-Rangpur Kotwali & Badarganj
	10. Rangpur-Badarganj	Rangpur Kotwali & Badarganj			
	11. Rajarhat-Ullaghata	Rajarhat & Lalmonirhat	III	Rajarhat-Ullaghata	III-Rajarhat & Lalmonirhat
Sylhet	12. Gaibandha-Kamarjani	Gaibandha Sadar	IV	Damandanga-Sundarganj & Gaibandha-Saghatta	Gaibandha Sadar, Saghatta & Sundarganj
	13. Gaibandha-Naldanga	Gaibandha Sadar Sadullapur & Sundarganj			
	14. Bamandanga-Sundarganj	Sundarganj			
	15. Gaibandha-Saghatta	Gaibandha Sadar & Saghatta			
	16. Chatra-Khalashpir-Bhendabari	Pirganj			
	17. Kamdia-Ghoraghat	Gobindaganj			
	18. Sylhet-Kamalbazar	Sylhet Sadar & Biswanath			
19. Badarghat-Bariberbazar	Sylhet Sadar	II	Dhakadhukeshin - Beanibazar	II- Golapganj & Beanibazar	
20. Tajpur-Goalbazar-Syedpur	Balaganj				
21. Dhaka Dukshin-Beanibazar	Golapganj & Beanibazar				
22. Fenchuganj-Chilachera	Fenchuganj	III	Nabiganj & Baniachung	III-Nabiganj, Baniachung & Bahubal	
23. Atgram-Zakiganj	Zakiganj				
Sylhet	24. Nabiganj-Baniachung	Nabiganj & Baniachung	III	Nabiganj & Baniachung	III-Nabiganj, Baniachung & Bahubal
	25. Bahubal-Putijuri-Bijnaghat	Bahubal & Nabiganj			
	26. Shabbonbar-Shamserganj	Maulavibazar			

Total No. 13

Though convenience regarding field work has been one of the factors for consideration, the principal assumptions working behind this choice of study area have been (a) that major influence of a project road pertains to the villages and markets in its vicinity and (b) that the situation prevailing in these villages and markets may reasonably be expected to be reflective of the situation existing in the region.

1.2.2: Questionnaire

Most of the data used in this study have been collected through field surveys by administering a number of structured questionnaires. Secondary data have been used only for the Road Transport Improvement Regions (RTIR) Survey. Sources of such data are upazilla offices, published reports and informed individuals of the project localities.

Initially, nine sets of questions corresponding to the various surveys were drafted. The draft questionnaires, except the one related to the Road Inventory Survey, were pre-tested in the study areas and also in a few places near the Jahangirnagar University. The nature of responses to various questions, time taken to complete one full questionnaire, difficulties of communication with the potential respondents etc. were carefully scrutinised. The draft questionnaires were accordingly modified and finalised.

It was earlier thought that a list of households of the sampled villages, necessary for drawing samples of the households, would perhaps be available from official sources, but it was not available and accordingly a questionnaire for household census was included.

In the course of the field work, three additional questionnaires had to be included. These are aimed at collecting information regarding price levels of various

commodities, status of women in marginal agricultural families and labour migration into the project localities. Thus altogether thirteen questionnaires have been administered for the study.

1.2.3: Selection of samples and collection of data

The following field surveys were conducted for the study during the period from October, 1985 to January, 1986:

(i) Road Inventory Survey

All selected project roads were visited by the Investigators and the state of the road i.e. length, maximum, minimum and average width, the number of road-gaps and how these are bridged, villages and markets served by the road etc. was recorded. This was done in order to generate information related to the objective of the study (section 1.1a).

(ii) Growth Centre/Market Survey

From the complete list of all the growth centre/ markets in the study areas, which were obtained during the Reconnaissance Survey and later on

verified while conducting the Road Inventory Survey, two growth centres/markets were selected at random for each region. Two questionnaires were administered for the survey. The first one was aimed at gathering information regarding the physical and economic characteristics of the markets. The data were collected mainly by participant observation and to a lesser extent by interviewing some informed persons of the markets. The other one was conducted to know the socio-economic background and the field of operations of traders using these markets and also to have their opinion on the impact of roads. This was administered to a randomly selected number of traders, the number being six for each market. This relates to objectives b(i), b(ii), c(i), (e), (h) and (i).

(iii) Traffic and Mode of Transportation Survey

Two questionnaires were administered for the survey.

(a) Traffic Counts

Traffic counts were made by posting enumerators at two points on both sides of the

selected markets along the project roads. Two rounds of counting were done, one for a hatday and other for a non-hatday. Hundred per cent counting was made. Traffic were classified by the mode of the transport and the nature of commodity transported.

(b) Traffic Survey

This survey was conducted to know the capacity of the transport, nature of the commodity and actual amount transported, point of origin of the particular traffic movement, distance covered on the specific road, transport charges etc. by type of transport. For this purpose, 5 - 10 per cent of the total traffic were chosen randomly for interview.

The above surveys relate to the objective C(i) and C(ii).

(iv) Survey of Transport Workers

The objective of conducting this survey was to gather data on socio-economic and demographic characteristics of the transport workers including data on

their incomes and employment. Fifteen transport workers from each region were selected at random for interview. This relates to objectives (k) and (m).

(v) Survey of Shopkeepers (Permanent and Temporary Shopkeepers including Peddlers)

Twenty shopkeepers were selected at random for each region. The questionnaire administered to them sought information regarding the nature and amount of their business undertaken in the selected markets and type of transport used by them for their business. It also sought their opinion regarding the present transport situation in the locality. This relates to objectives (b), (m) and (n) set out in the study.

(vi) Farm Household Survey

Three villages from each region were selected randomly for this survey. A census was conducted in each of the villages to obtain information on land holding, number of family members, occupations of the household head and tenancy pattern. These households were stratified into five groups according to the size of operational holding. Then proportionate random

samples were drawn from each of these groups to make a total of twelve households from each village. Thus 360 sample households were interviewed and detailed information about them was obtained. The purpose of this survey was to achieve objectives b(i), b(ii), (d), (e), (f), (g), (h), (m) and (p).

(vii) BSS/MSS Survey

In order to carry out the survey of the members of the BSS/MSS, lists of all the BSS and MSS were collected from the Upazilla Headquarters of the region. The members were selected randomly from each of the selected BSS/MSS. In some regions, where BSS/MSS were not available or could not be traced out, an equal number of landless labour supplying households were selected randomly from the selected villages so as to keep the sample size the same. The number of samples for each region was fourteen. The purpose of carrying out the survey was to generate data so as to achieve objectives (n), (o) and (p).

Apart from the above surveys one supplementary questionnaire was administered to some informed personalities of the selected villages to collect information regarding the price of various commodities prevailing during the period of interview. There was also a

supplementary questionnaire regarding the status of women in marginal agricultural families of the regions with regard to self-employment and decision making in the family. This was administered to the wife or the elder daughter in the sample family. The questionnaire seeking information on the extent of labour migration from other region to project localities was administered to an informed person of the sample villages.

Before actually conducting the field work, investigators selected for the study were given about two weeks' intensive training which began with introducing them to the objective, scope of, and approach to this study. The details of the questionnaires were explained and the methods of, and problem involved in, administering questionnaires including possible reaction of the respondent were discussed in depth. This training enabled the investigators, all of whom had good academic records but little experience in field surveys and primary data collection, to make good for their lack of experience. This was testified by their performance in the fields which was up to the expectations.

It may be worthwhile to point out the limitations that the data collected for a study of this nature are usually subjected to. One such limitation pertains to the data collected by participant observation. For example, actual measurements are necessary to find out the exact landuse pattern in the market centres. But these were not possible and so visual impressions had to be used to estimate the pattern. Another limitation - more important one - arises from the fact that interview method rather than accounting method has been used to collect data even for matters where it is theoretically possible and desirable to follow the latter method. The principal reason for doing so was time constraints. The limitations of the interview method are well-known. Wilful hiding of facts concerning some matters on the one hand and exaggerated statement about some phenomena on the other are not that uncommon. Besides, there may be genuine failure of memory. The respondents of our surveys are not typically the people who usually keep records and hence their replies to many of the questions were based on

memories. Memory failures may, however, introduce biases in data in both directions and it is expected that biases tend to cancel each other on the average.

1.2.4. Processing and Analysis of Data

The filled in questionnaires were brought to the research office at the Jahangirnagar University from time to time and edited by the members of the research team. If any of these was found to have any inconsistencies or if some information was found to be lacking, the questionnaire was sent back to the investigators who collected the required information once again.

The tabulation work was done by a team of tabulators using hand processes under the constant guidance and supervision of the members of the research team. The latter in their turn analysed and interpreted the data. In analysing the data simple statistical tools like percentages, rates and ratios have been used. The draft

report was written by the members of the research team under the constant guidance of the Study Director who finally edited and checked it.

1.3: Organisation of the Report

This draft report contains eight chapters. Chapter I describes the Objective and Methodology of the Study. Chapter II on the Road Transport Improvement Regions has two sections. The first section gives a brief description of the physical and environmental features of the regions, as well as a descriptions, of a very general nature, of the transportation network in the regions. In the second section, an inventory and a general description of the selected project roads have been provided. Some selected social and demographic characteristics of the study areas are described in Chapter III. Chapter IV describes the information regarding land ownership, operational holding, land utilization, tenurial pattern, cropping pattern and

yields and the marketed surplus in the selected road regions. The information regarding employment and income of the farm households, labour supplying households, traders and the transport workers have been provided in Chapter V. Chapter VI investigates the pattern of traffic and movement on the selected project roads along with transport charges by modes, the user cost savings and the distribution of the transport costs savings. Chapter VII summarises the information regarding location, size and land use pattern of the growth centres/market along with the socio-economic infrastructures and land values around the growth centres/market. Finally Chapter VIII contains a brief summary and some concluding remarks on indicator variables for improvement and maintenance of rural roads in Bangladesh.

Chapter - II

Road Transport Improvement Regions :

Transportation Network and the Project Roads

This chapter contains two sections. Section 1 will provide a description, of a very general nature, of the present transportation network (which includes railways, waterways and roads) in the study regions. As this description is based on officially published statistics and as the lowest administrative unit for which these statistics are available is the upazilla, a region is defined in the present context as one or more upazillas through which a project road runs. Section 2 is devoted to the description of the selected project roads with respect to the locations, connectivity and general conditions. This part of the report is based on a Reconnaissance Survey and the Road Inventory Survey of the present study.

2.1: Transportation Network

Quantification of the extent of service provided by a means of communication or of its relative importance in

the transportation network is beyond the scope of this study. Only an indication of its presence or otherwise is provided and, where data permit, substantiated in the paragraphs that follow.

Railways

In the old Faridpur district all the regions are more or less served by the railways. In the old Rangpur district all the regions except the one that includes Jaldhaka upazilla (which now belongs to the Nilphamari district) have some railway stations. But the picture is different for Sylhet. There are some railway stations in Sylhet I region only. The other two regions, which include the upazillas Beanibazar and Golapganj, now belonging to the Sylhet district, and Nabiganj, Baniachang and Bahubal in the Habiganj district, have no railway communication at all. This can be seen from column (3) of Table 2.1.

Waterways

The number of Steamer or launch stations in a region may be viewed as an approximate indicator of regular water

Table 2.1

* Transportation Inventory (Old Faridpur district)

Region	Upazilla	No. of Railway Stations	No. of Launch/ Steamer Stations	Other water transport within upazilla	Road (Length in miles)				Mode of Transport to new district Headquarters	Mode of Transport to old district Headquarters
					Meta- lled	Semi- meta- lled	Unmeta- lled	Total		
(1)	(2)	(3)	(4)							
Faridpur I	Nagarkanda	2	3	Boat in rainy season	8	5	68	81	Bus Launch	Bus Launch
	Sadarpur	0	2	Boats in flood season	2	2	180	184	Road & Bus	Road & Bus
	Total	2	5		10	7	248	265		
Faridpur II	Kotwali	5	2	Minor	38	10	241	289	Not applicable	Not applicable
	Nagarkanda	2	3	Boats in rainy season	8	5	68	81	Bus Launch	Bus Launch
	Total	7	5		46	15	309	370		
Faridpur III	Rajbari	4	0	Boat in flood season	0	6	120	126	Not applicable	Bus Train
	Baliakandi	4	0	Along Garai river	0	0	225	225	Train	Train Bus
	Total	8	0		0	6	345	351		

Source : * District Statistics, 1983, published by Bangladesh Bureau of Statistics
(Date related to the year 1982).

- Rural Roads Study by Louis Berger International Inc. & Rahman & Associates Ltd., 1978.

Continued Table 2.1

Region	Upazilla	No. of Launch/ Steamer Stations	No. of	Other water Transport within upazilla	Road (Length in miles)			Mode of transport new district Headquarters	Mode of transport to old district Headquarters	
					Meta- lled	Semi- meta- lled	unmeta- lled			Total
(1)	(2)	(3)	(4)							
Dhaka District	I Jaldhaka	0	0		10	10	300	320	Bus	Bus
	II Kotwali	1	0		70	7	320	397	Not applicable	Not applicable
	Baderganj	3	0		4	4	537	545	Train Rickshaw	Train Rickshaw
	Total	4	0		74	11	857	942		
Dhaka District	III Rajarhat	0	0		N.A.	N.A.	N.A.			
	Lalmonirhat	2	0		42	8	205	255	Not applicable	Train
	Total	2	0		42	8	205	255		
Dhaka District	IV Gaibandha	4	2		19	2	325	346	Not applicable	Train Bus
	Saghata	5	1		5	7	87	99	Train	Train
	Sunderganj	1	0		7	0	160	167	Train & Rickshaw	Train & Rickshaw
	Total	10	3		31	9	572	612		

Continued Table 2.1

* Transportation Inventory (Old Sylhet district)

Region	Upazilla	No. of Railway Stations	No. of Launch/ Steamer stations	Other water transport within H upazilla	Road (Length in miles)			Mode of ^H transport to new district Headquarters	Mode of transport to old district Headquarters	
					Meta- lled	Semi- meta- lled	unmeta- lled			Total
(1)	(2)	(3)	(4)							
Sylhet I	Kotwali	2	1		62	15	350	427	Not applicable	Not applicable
	Biswanath	2	0		13	0	55	68	Bus rickshaw	Bus rickshaw
	Total	4	1		75	15	405	495		
Sylhet II	Beanibazar	0	10		22	0	130	152	Bus	Bus
	Golapganj	0	8		23	0	172	195	Bus rickshaw	Bus rickshaw
	Total	0	18		45	0	302	347		
Sylhet III	Nabiganj	0	2		14	0	140	154		Bus
	Baniachang	0	0		0	1	65	66		Bus-Train
	Bahubal	0	0		15	0	49	64		Bus-Train
	Total	0	2		29	01	254	284		

transport services available for movement of people and goods, both internally and externally.

Judged by this criterion, it is seen from column (4) of Table 2.1 that Faridpur Regions I & II have regular water transport services. Though Region III does not have any steamer or launch station, it has an important local waterway along the Garai river. There are other rivers in the regions which are always passable during the monsoon season, but during the dry season some of these rivers are navigable for only shallow draft country boats. Besides, in most of the areas country boats are used during rainy/flood season for movement within the regions. Since Faridpur is a riverine district, it is quite natural that the waterways are important mode of transport.

Water transportation is not, however, very important in Rangpur. There is no steamer or launch station except in Rangpur IV, now belonging to the Gaibandha district, which is bordered in the east by the Brahmaputra river.

Sylhet Region I, through which the river Surma passes, has only one steamer/launch station, while Region II,

wherethrough pass both the Surma and the Kushiara rivers, is quite extensively served by the waterways. In the Region III, which is now in the Habiganj district, only Nabiganj upazilla has two steamer/launch stations along the Kushiara river. The other two upazillas of the region, Baniachang and Bahubal, have no such stations. Remembering that this region does not have any railway station, it can be said that in this region, particularly in Baniachang and Bahubal upazillas, railway and waterway communication network are virtually absent. However, local water transport, particularly in the wet season, is quite widely used.

Roads

The road mileage per square mile (total length in mile of metalled, semi-metalled and unmetalled roads divided by total area in square miles excluding river area) in the three regions of the old Faridpur district is found to be 1.1, 1.3 and 1.7 respectively. These figures are not only below the national average of 2.3.-

(Table 2.2)

Table 2.2 : Road mileage in the R.T.I. Regions

Region	Total area excluding river area	Total Road mileage (1)	Total mileage per square mile	Total metalled & semi-metalled road mileage	Metalled & semi-metalled road mileage per square mile
Faridpur I	240	265	1.1	17	.07
Faridpur II	288	370	1.3	61	.21
Faridpur III	209	351	1.7	06	.03
Old Faridpur district	2428	4448	1.8	319	.13
Rangpur I	121	320	2.6	20	.16
Rangpur II	239	942	4.0	85	.36
Rangpur III	130	255	2.0	50	.38
Rangpur IV	336	612	1.8	40	.12
Old Rangpur district	3512	13565	3.9	548	.16
Sylhet I	278	495	1.8	90	.32
Sylhet II	175	347	2.0	45	.26
Sylhet III	411	284	0.7	30	.07
Old Sylhet district	4324	3944	0.9	599	.14
Bangladesh	45001	98522	2.3	11382	.25

Source : District Statistics and Upazilla Statistics published by the B.B.S.

Note.(1) Total Road Mileage refer to total road mileage of entire road net work of the region including feeder roads of any type.

which is quite low by the standards of the developed countries -, but also are lower than the average figure for the old Faridpur district (1.8). These reflect the very low level of road development in all the study regions of the Faridpur district. This conclusion is slightly modified if only the metalled and semi-metalled roads are taken into account. The average figure for Bangladesh turns out to be .25, while that for the Faridpur district is .13. Regions I and III have figures (.07 and .03 respectively) even much below the district average, while that for the Region II (.21) is much higher than the district average but is below the national average. All these point to the fact that although there is considerable variation within the district, road development in the district is at a poor level even by the Bangladeshi standard.

The situation is much better in the Rangpur district though there is wide variation within it. Not only all the regions of this district have road mileage per square mile higher than those of Faridpur regions, the district

average figure (3.9) is also above the national average. The latter however, is not true when only the metalled and semi-metalled roads are considered. The district average (.16) is much below the national average, but in two regions of the district (Regions II & III) the metalled and semi-metalled mileage per square mile is much higher than the national average.

That among the three districts under study Rangpur is in the best position so far as road development is concerned can be seen when the situation in the Sylhet district is also considered.

The road mileage per square mile for the district as a whole is only 0.9. This is low even in comparison with the situation in Faridpur. But in the regions I and II, the level of road development is much higher and this can be compared favourably even with some regions of the Rangpur district. But in region III, the situation is really bad and the relevant figure (0.7) is the lowest among those for all regions included in the study. When only the metalled and semi-metalled roads are taken into

consideration, the district average is little higher than that of Faridpur, little lower than that of Rangpur but is much below the national average. Regions I and II have higher mileages of metalled and semi-metalled roads per square mile than Bangladesh as a whole. Region III has, however, a very poor figure (.07).

By way of conclusion, it may be said that the level of road development - as measured by the paved road mileage per square mile - is low in all the district when the district as a whole is considered, even by Bangladesh standard. Inter-district variation with respect to this phenomenon is very small. There are, however, some regions in Rangpur and Sylhet for which the index is considerably higher than that for Bangladesh. It is interesting to note that these are the regions (Rangpur II and III and Sylhet I) which include, quite expectedly, the Kotwali/Sadar upazillas/^{of} either the old or the newly created districts. The only other region with an index slightly higher than the national one (Sylhet II) is a region located near the district headquarters.

2.2: Selected Project Roads

This section gives a brief description of the Zilla Road Improvement and Maintenance Project (ZRIMP) roads. The selected roads from old Rangpur, Faridpur and Sylhet districts have been shown in Figures 2.1, 2.2 and 2.3 respectively. Table 2.3 presents an inventory of the general conditions of the selected roads.

Faridpur I

TALMA - HATKRISHNAPUR ROAD

Location : The four-miles metalled road is in Nagarkanda and Sadarpur upazillas of Faridpur district. This road connects one of the important market centres of the region Hatkrishnapur to the Faridpur - Barisal highway. It originates from the highway near Talma and extends northeast through the unions of Dargi, Sadarpur, Ramnagar and Hatkrishnapur. The road is further extended upto Piajkhalihat through Sadarpur upazilla headquarters, herring-bone brick work of which has already been completed.

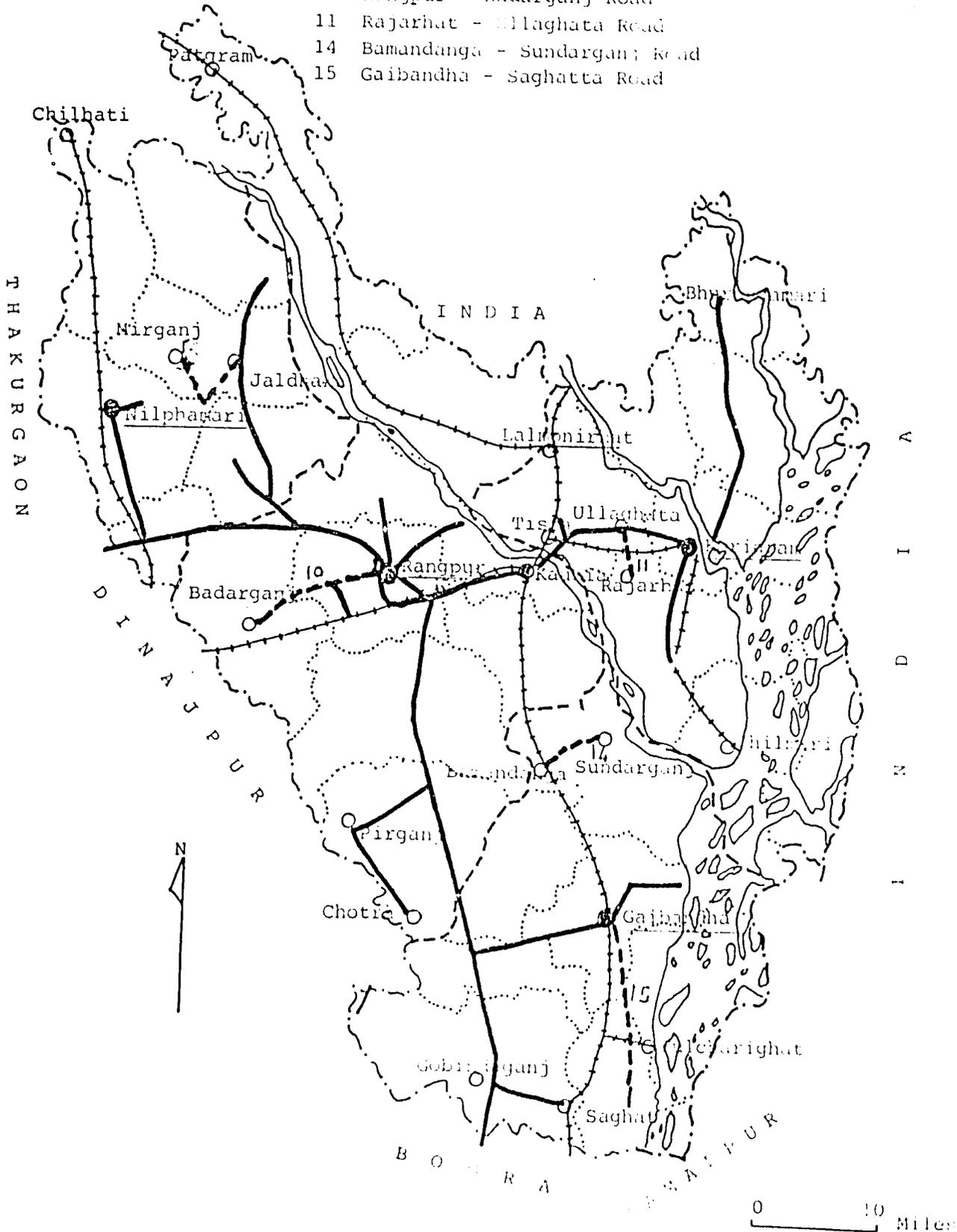
Table 2.3 Inventory of General Conditions of the Selected ZRMIP Roads by regions.

Region	Name of the road	Total length (in miles)	Average width		Major type of construction	Minimum height above flood level (in ft.)	No. of road gaps	No. of bridges/ culverts		% of road gaps bridged
			(in ft)	-with two sides (in ft)				concrete/ steel	Bamboo/ wooden	
Faridpur I	Talma-Hatkrishnapur	4	12	22	Concrete	3.5	4	4	-	100.00
Faridpur II	Badarpur-Saltha	10	10	16	Concrete, Earth	1.5	26	17	5	84.62
Faridpur III	Rajbari-Baliakandi	14	12	30	Concrete, HBB	3.0	17	15	-	94.12
Rangpur I	Jaldhaka-Mirganj	11	12	22	Concrete, HBB, Earth	3.0	17	16	-	90.91
Rangpur II	Rangpur-Badarganj	14	12	30	Concrete, Earth	2.5	11	10	-	85.71
Rangpur III	Rajarhat-Jagabandhuhat	5	14	30	Earth, HBB	1.5	7	2	4	100.00
Rangpur IV	a. Gaibandha-Saghatta	19	12	30	Concrete, Earth, HBB	3.0	13	12	1	100.00
	b. Bamandanga-Sunderganj	6	10	17	Concrete	3.0	9	9	-	100.00
Sylhet I	a. Sylhet-Kamalbazar	4	12	27	Concrete	1.5	3	3	-	100.00
	b. Badhaghat-Shiberbazar	5	12	28	Earth	0.5	8	4	1	62.50
Sylhet II	Dhaka Dakhin-Beanibazar	10	14	18	Concrete, Earth	0.5	9	9	5	73.68
Sylhet III	a. Nabiganj-Baniyachung	10	14	27.5	Earth	1.0	24	10	5	62.50
	b. Bijnaghat-Putijuri-Bahubal	16	12	25	Earth, concrete	1.5	42	41	-	97.62

Note: HBB = Herring-Bone-Brick

- District ●
- Major road and railway station ○
- District boundary - - - - -
- Upazila boundary
- Road network — — — — —
- Railway + + + + +
- River ~~~~~
- Selected ZRIM roads 5

- 8 Mirganj - Jaldhaka Road
- 10 Rangpur - Badarganj Road
- 11 Rajarhat - Ullaghata Road
- 14 Bamandanga - Sundarganj Road
- 15 Gaibandha - Saghatta Road



FARIDPUR
SELECTED ZRIMP ROADS

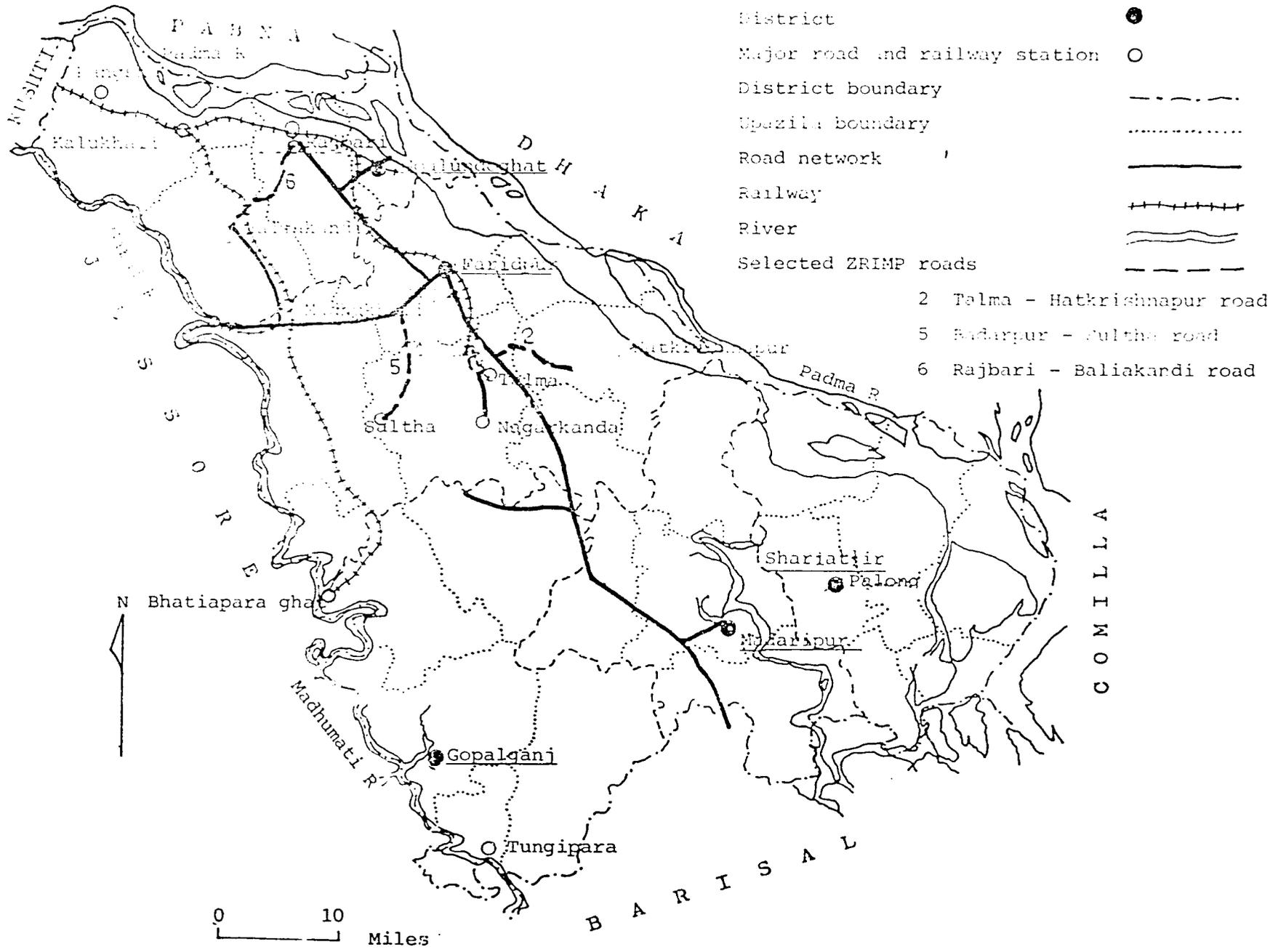


Figure 2.2 SELECTED ZRIMP ROADS

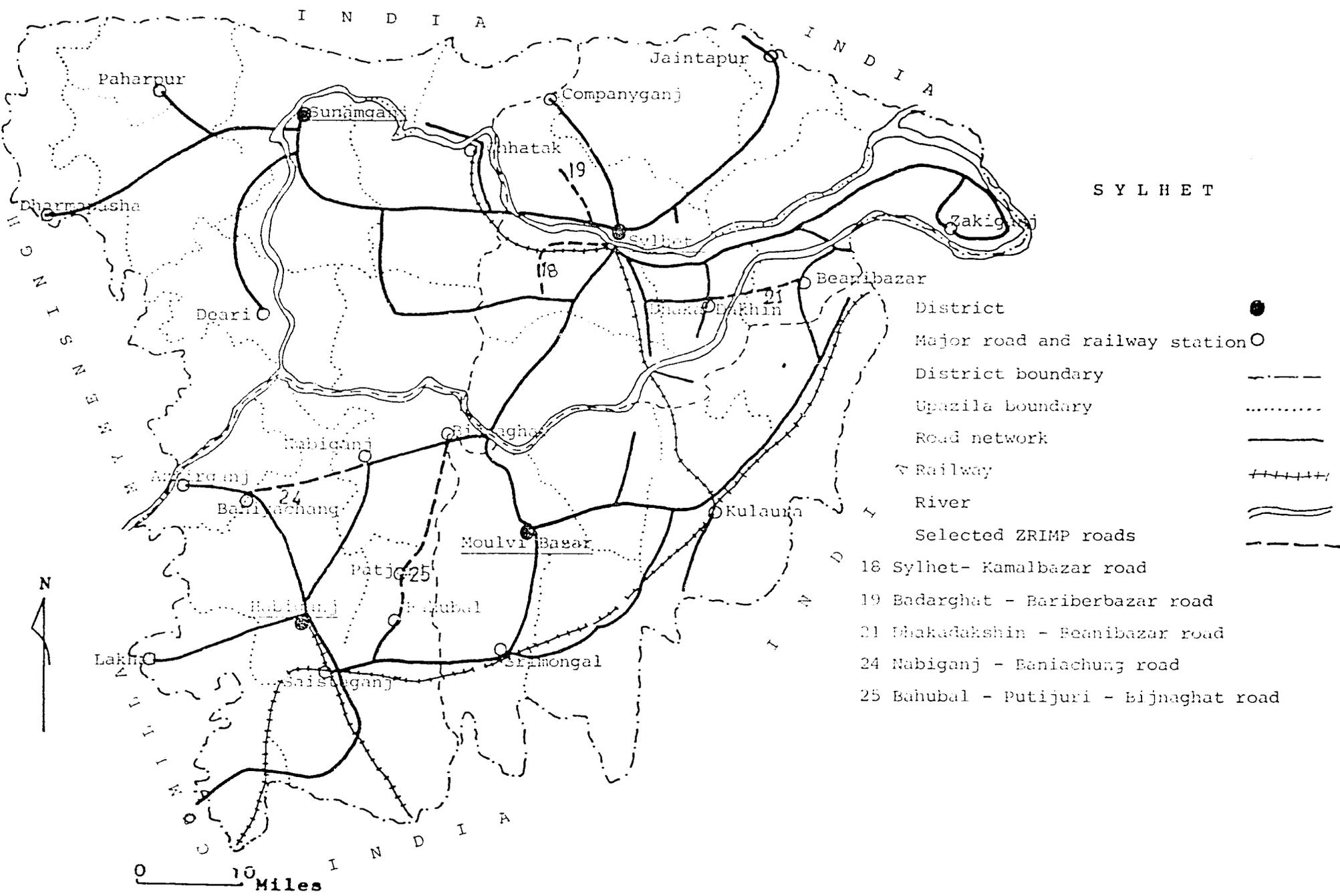


Figure 2.3 SELECTED ZRIMP ROADS

General condition: The entire four mile metalled surface has an average width of 12 feet and with two sides, the average width is about 22 feet. The minimum height of the road above highest flood level is about $3\frac{1}{2}$ feet. There are four concrete bridges/culverts constructed on the road and hundred percent of the road gaps have been bridged. This road is motorable year round and provides easy access to the Faridpur - Barisal highway.

Faridpur II

BADARPUR - SALTHA ROAD

Location : This 10 miles (16 km) long road is located in the upazillas of Faridpur Sadar and Nagarkanda. It connects Saltha, the important market centre of the region to the district headquarters. The road originates from the Faridpur - Jessore highway near Badarpur and extends towards Thenthania hat in the south and then towards southwest to reach Saltha. It passes through the unions of Kaijuri, Kanaipur, Gathi and Saltha.

General condition : The major part of existing road surface is earth except for a 3 mile section from Badarpur to Tambulkhana hat which is metalled. This paved segment of the road is motorable all the year round, but is primarily utilized by non-power vehicles. The 7 mile segment from Tambulkhana hat to Saltha is not serviceable at anytime of the year due to the presence of numerous road gaps not yet bridged, but during the dry season rickshaws or horse carts can only be used locally upto the bridge under construction at Gathi through Tenthenia hat. From Gathi bridge to Saltha the road is presently nothing more than a footpath because the crest of the road is uneven and narrower. About 84.62 percent of the total road gaps have so far been bridged by concrete and bamboo structures.

Faridpur III

RAJBARI - BALIAKANDI ROAD

Location : This fourteen miles long road connects Baliakandi upazilla with the newly created district

headquarters at Rajbari. The road originates at the district headquarters of Rajbari, from where it proceeds towards southwest passing through Matipara, Baniabazar and Baharpur markets. The road crosses the unions of Ramkantapur, Banibazar, Islampur, Baharpur and Baliakandi unions and is terminated at the eastern bank of the Chandana river, in the western bank of which is located the upazilla headquarters of Baliakandi.

General condition : The major part of the road surface is concrete and about five miles of the road surface is herring bone brick. The average width of the road is 12 feet and with two sides it is about 30 feet. The minimum height of the road above highest flood level is about 3 feet and the road is a all weather motorable road.

Rangpur I

JALDIKA - MIRGANJ ROAD

Location : This eleven mile long road established links

between upazilla headquarters and one of the large market centres of the region and is located entirely in the Jaldhaka upazilla. The road originating at Amrul Bari near Jaldhaka town, on the Rangpur - Paglapir - Dalia road has been divided into two directions at Tengormarihat, one running upto the newly created district headquarters at Nilphamari in the west and the other towards Mirganjhat in the north.

General condition : This road may be divided into two segments. The first segment is a 5 mile long all weather metalled road originating from Rangpur - Paglapir - Dalia road and ends at Tengormarihat. The second segment starting from Tengormarihat runs northward to reach Mirganjhat. The surface of this segment is principally earth and about one mile of the road surface is HBB at the Tengormarihat end. The average width of the road for the concrete and HBB portion is about 12 feet and the Kutcha portion is about 22 feet. The minimum height of the entire road above the highest flood

level is about 3 feet. There are 17 road gaps along the entire distance of which 16 have so far been bridged by concrete structures and one bridge is under construction which will cover the remaining road gap. Public vehicular traffic has not yet started to ply regularly on this road excepting some non-power vehicles like Rickshaws, cart and motorcycles. On the hatdays, trucks occasionally ply on this road to carry purchased jute, food grains and fertilizer.

Rangpur II

RANGPUR - BADARGANJ ROAD

Location: This 14 mile long road is located in the upazillas of Rangpur Sadar and Badarganj. This road has established connection between district and upazilla headquarters originating at the Check Post of Rangpur Cantonment and proceeding towards Badarganj in the west. The road runs through Razendrapur, Satgara, Chandanpat, Mominpur and Modhupur unions and crosses 7 hats/market centres of the regions.

General condition : The surface of the road for the entire distance is mainly concrete. It extends westward to reach Nahirirhat where it is divided into three directions, one going towards Shyampur in the south, another upto Paglapir in the north. The third one runs westward terminating at the Kheyaghat near Badarganj town. This part of the road has a rough and damaged concrete surface caused by improper maintenance. The average width of concrete surface of the road is about 12 feet and with two sides i.e. the embankment is about 30 feet wide. There are eleven road gaps along the total distance, of which ten have so far been covered by concrete structures.

Rangpur III

RAJARHAT - ULLAGHATA (JAGABANDHUHAT) ROAD

Location : This is a 5 mile long road located in the Lalmonirhat and Rajarhat upazillas. It begins at

Jagabandhuhat along the Rangpur - Kurigram road (RK Road) and extends southward to reach the upazilla headquarters at Rajarhat. This road passes through Barbari, Chhinai and Rajarhat unions of Lalmonirhat and Rajarhat upazillas.

General condition : Except for about one mile which is herring bone brick, the entire road surface is earth. The average width of the road is about 14 feet and minimum height of the road above highest flood level is about 1.5 feet. There are 7 road gaps of which 6 have so far been bridged by concrete and bamboo structures.

Though the road is not motorable, it carries significant amount of traffic especially on the local hatdays.

Rickshaws, Bullock carts, Headloads and shoulder loads are very common traffic. Finally, this road has given the upazilla headquarters of Rajarhat access to the Rangpur - Kurigram road.

Rangpur IVGAIBANDHA - SAGHATTA ROAD

Location : This is a 19 mile long road located in the Gaibandha Sadar and Saghatta upazillas. This has established road communication between the district headquarters at Gaibandha and upazilla headquarters of Saghatta. It originates at the Gaibandha District Headquarters and extends towards Saghatta in the south. It runs parallel to the railway line and passes through six unions. There are six markets/hats along the entire distance.

General condition : Major portion of the road surface is concrete (12 mile). The rest of the road is mainly earth. The average width of the road is about 12 feet and with two sides about 30 feet. The minimum height of the road above flood level is about 3 feet and there are 13 road gaps all of which have so far been bridged by concrete and wooden structures. Various types of traffic

usually ply on this road. Headload, shoulder load, bicycle, rickshaw, truck and rickshaw vans are very common. This road has the potentiality to create modal competition with railway.

BAMANDANGA - SUNDERGANJ ROAD

Location : The Bamandanga - Sunderganj road is a 6 mile long road located entirely in the Sunderganj upazilla. It begins at Bamandanga railway station and runs north eastward to reach Sunderganj upazilla headquarters. It passes through 3 unions and 2 hats.

General condition : The entire road has concrete surface, but the general condition of the surface is very bad. The average width of the road is about 10 feet and the minimum height of the road above flood level is about 3 feet. There are 9 road gaps, all of which are bridged by concrete structures. The road is connected with numerous Kutchha feeder paths, and has given access to the railway line.

Sylhet ISYLHET - KAMALBAZAR - BISWANATH ROAD

Location : This is a 4 mile long metalled road located in the upazillas of Sylhet Sadar and Biswanath. The road originates at Sylhet old railway station and proceeds westward through Baraikandi and Mollargaon unions. It terminates at the kheyaghat on the bank of the river Bashia, on the other side of which Kamalbazarhat is situated. The road is further extended upto Biswanath upazilla headquarters in the south.

General condition : The first section of the road ending at kheyaghat is paved and has an average width of about 12 feet (average width of the embankment is about 27 feet). The minimum height of the road above the flood level is 1.5 feet and there are three concrete structures to bridge the three road gaps along the first section.

BADHAGHAT - BARIBERBAZAR (SHAHJALALBAZAR) ROAD

Location : This five mile road is located entirely in the Sylhet Sadar upazilla. This road starts at Badhaghat

and proceeds towards Shahjalal bazar in the north. This road crosses Hatkhola and Jalallabad unions and is intersected by nine feeder paths.

General condition : Except for the three mile metalled road from Amberkhana of Sylhet town to Badhaghat, the entire five mile road surface is primarily earth. The average width of the road is about 12 feet. The embankment of the first segment of the road to Shiberbazar is little above the highest flood level but the second segment from Shiberbazar to Shahjalal bazar is subject to annual flooding. There are eight road gaps along the total distance and 62.50 per cent of the road gaps are covered by concrete and bamboo made bridges and culverts.

Sylhet II

BEANIBAZAR - DHAKA DAKSHIN ROAD

Location : This road is located in the upazillas of Beanibazar and Golapganj of Sylhet district. This is a 10 mile long road originating at Beanibazar upazilla

headquarters and proceeds westward to Dhaka Dakshin, an important growth centre of Golapganj upazilla. It passes through Mathiura, Lalbahar, Tilpara and Chandanpur hats and crosses 5 unions of the two upazillas. This road finally meets the Dhaka Dakshin - Golapganj - Sylhet road and has shortened the distance of about 10 miles to reach Sylhet from Beanibazar upazilla headquarters.

General condition : The major part of the road surface is earth and there are three segments. The first segment of the road from Beanibazar to Mathiura hat, is a rough concrete and earth surface and vehicular traffic are found to ply on this segment. The second segment of the road starting from Mathiura extends westward terminating at the Kheyaghat of the river Kushiara. The road surface in this segment is earth and the crest in some cases narrower and uneven so that no vehicular traffic is possible. The third segment of the road starting from the other side of the Kushiara river, to Dhaka Dakshin is metalled and all weather motorable. The average width

of the road is about 10 feet and excepting the third segment, the road is subject to annual flooding. There are numerous road gaps along the total distance of which 71.68 per cent have so far been bridged by concrete and wooden structures.

Sylhet III

NABIGANJ - BANİYACHUNG ROAD

Location : This 10 mile long road is located in the Nabiganj and Baniyachung upazillas. It starts at the Nabiganj upazilla headquarters and extends westward through the haor area to reach Baniyachung. This road crosses the unions of Baniganj, Kagabasha, Baraisi and Baniyachung. This road provides the people of Baniyachung with excess to the Sylhet - Dhaka highway by shortening about fifty per cent road distance through Nabiganj via Sherpur.

General condition : The surface of the road is earth and has an average width of 10 feet. The minimum height

of the road above the flood level is one foot but the road is subject to the inundation of highest floods. There are numerous road gaps and about 62.50 per cent of the road gaps are covered by concrete and bamboo bridges/culverts.

FIJNAGHAT - PUTIJURI - BAHUBAL ROAD

Location : Located in the upazillas of Nabiganj and Bahubal, this is a 16 mile long road. The road originates at Sherpur - Nabiganj road near Aushkandi, proceeds southward to reach Bahubal upazilla headquarters.

General condition : The major type of construction of the road is earth and concrete. The road has an average width of 25 feet and the paved section 12 feet. The minimum height of the road above highest flood level is 1.5 feet and about 99.0 per cent of the total road gaps are bridged by concrete structures.

2.3 Socio-economic conditions of the regions

Various socio-economic indicators of the regions have been compiled from the upazila statistics and are presented here along with Bangladesh figures for comparison.

Table 2.4 shows the occupational structure of population by regions. As is seen from the table there is a significant inter and intra-regional variation in the occupational structure.

Table 2.5 presents the distribution of land/man ratio and the use of modern inputs by regions. As is seen from the table, the per capita availability of land ranges from 0.24 acre in Faridpur II and Sylhet I to about 0.36 acre in Rangpur III. Irrigated land as per centage of net cropped area ranges from 5.6 in Faridpur III to about 30.2 in Sylhet I - the corresponding Bangladesh figure being 20.0 per cent. The Table also shows the distribution of improved seeds and chemical fertilizers by regions. It appears that there is a considerable inter-regional variation of the amount of seeds and fertilizers. The cropping intensity also varies significantly among the regions.

Table : 2.4 Occupational structure of population by regions

Study regions	Occupational classification (10 years and above)					Total
	Agricultural		Non-agricultural		Others	
	Cropping	Non-cropping	Manufacturing	Business		
<u>Faridpur</u>						
Region I	77.27	1.94	0.84	8.31	11.64	100.00
Region II	49.88	1.53	1.85	15.15	31.59	100.00
Region III	68.34	1.80	2.00	11.34	16.52	100.00
<u>Rangpur</u>						
Region I	80.71	0.26	0.25	4.00	14.78	100.00
Region II	49.10	1.44	3.53	12.18	33.75	100.00
Region III	70.99	0.80	0.91	7.59	19.71	100.00
Region IV	74.72	1.40	0.85	7.11	15.92	100.00
<u>Sylhet</u>						
Region I	48.03	3.23	5.18	13.23	30.30	100.00
Region II	53.82	4.87	3.53	9.97	27.81	100.00
Region III	67.22	5.18	2.54	7.27	17.79	100.00
Bangladesh	60.09	1.87	4.28	11.09	22.67	100%

Source : Compiled from upazila statistics, 1983. B.B.S.

Table : 2.5 Distribution of land man ratio and use of modern technology in agriculture.

Regions	Per capita availability of cultivable land (in acre)	Irrigated land as % of NCA	Improved seeds (in mds) per '000' acres (N.C.A.)	Chemical fertilizer (in tons) per '000' acres (N.C.A.)	Cropping intensity
<u>Faridpur</u>					
Region I	0.28	6.4	16.30	1.54	144
Region II	0.24	8.4	48.72	6.95	154
Region III	0.30	5.6	28.12	14.45	150
<u>Rangpur</u>					
Region I	0.30	28.0	30.65	4.60	175
Region II	0.25	20.6	91.47	109.48	182
Region III	0.36	10.0	46.01	30.03	178
Region IV	0.25	20.0	44.93	39.52	185
<u>Sylhet</u>					
Region I	0.24	30.2	12.40	27.16	149
Region II	0.26	25.5	2.81	4.33	145
Region III	0.33	20.2	2.39	5.80	145
Bangladesh	0.24	20.0	20.35	36.98	154

Source : Compiled from upazila statistics, 1983, B.B.S. Vol. I & II.

Note : N.C.A. = Net Cropped Area

The social infrastructure by regions i.e. education, health and other social institutions are presented in Tables 2.6, 2.7 and 2.8, respectively.

Table 2.6 shows the population per educational institutions of various types by regions. As is seen from the table, there are substantial inter and intra-regional differences in the educational facilities serving the population. Also, as is seen from the data, the literacy rate ranges from about 13.5 per cent in Rangpur I to about 26.5 per cent in Faridpur II. The figures for Bangladesh may be seen from the table.

Table 2.7 shows the distribution of population per health centres, physicians and family planning centres, etc. by regions. One will notice from the table that there is a significant variation in the health facilities enjoyed by the population among the regions. Population per health centre ranges from 24 thousand in Faridpur III to 56 thousand in Faridpur II, which lie far above the Bangladesh figure of about 13 thousand. The population per MBBS doctor ranges from about 1550 in Rangpur II to about 84000 in Faridpur I, the corresponding figure for Bangladesh is about 13,000.

Table 2.8 shows other infrastructural build-up by regions. As is seen from the Table, electrified village

: 51(e) :

Table 2.6 : Population per educational institutions by regions

Regions	Population (82/3)	Population per			Literacy rate
		College	High School (including junior)	Primary School	
<u>Faridpur</u>					
Region I	634006	211335	12431	2225	19.7
Region II	278892	55778	9617	2817	26.5
Region III	390888	130296	9090	2659	22.7
<u>Rangpur</u>					
Region I	199226	199226	9961	2264	13.5
Region II	557963	46497	8205	2832	25.3
Region III	325154	162577	12043	3423	19.5
Region IV	1528946	138995	7386	2135	16.8
<u>Sylhet</u>					
Region I	785644	157129	11386	1814	26.3
Region II	579337	193112	11360	1501	25.4
Region III	741376	370688	14537	1445	19.6
Bangladesh	130615	12329	39690	2304	23.8

Source : Compiled from upazila statistics 1983, BBS.

Table : 2.7 Population per health centre, physicians, family planning centres etc. by Regions./

Regions	Population per			
	Health centres (1)	Physicians all kinds (2)	Physicians MBBS	Family planning centres (3)
<u>Faridpur</u>				
Region I	39625	28068	84204	22454
Region II	55778	9296	23241	25354
Region III	24431	11497	39089	18614
<u>Rangpur</u>				
Region I	39845	3377	39845	24903
Region II	27898	1134	1546	27898
Region III	54192	8557	36128	27096
Region IV	29979	6677	37291	23522
<u>Sylhet</u>				
Region I	43647	3741	7412	56117
Region II	38622	5038	19977	28967
Region III	41188	4361	32234	32234
Bangladesh	13105	7079	13002	26186

Source : Compiled from upazila statistics, BBS.

- (1) Health centres = Thana health complex
Charitable dispensary
Missionary health centre
Other health centre
- (2) Physicians all kinds = M.B.B.S
L.M.F.
National
Homeopath
- (3) Family planning centre = Sterilization centre
Mobile centre
Injection centre
M.R. centre
Family welfare centre(functioning)

:51(g) :

Table 2.8 : Proportion of electrified village and population per post office, bank branch, hat etc. by regions/

Regions	Electrified village as % of total village	Population per			
		Post office	Bank branch	Hat	Bazar
<u>Faridpur</u>					
Region I	2.4	13489	35223	14409	24385
Region II	12.5	17431	13281	13281	46482
Region III	11.5	10565	16287	15034	24431
<u>Rangpur</u>					
Region I	10.4	33204	24903	10486	66409
Region II	22.9	17999	13285	9789	139491
Region III	2.0	27096	25012	8788	40644
Region IV	3.5	19602	25914	15289	28314
<u>Sylhet</u>					
Region I	12.0	10337	8184	7482	71422
Region II	6.9	9196	12874	7524	48278
Region III	5.4	9041	13988	9267	39020
Bangladesh	10.54	12802	19494	10985	28350

Source : Upazila statistics, BBS, Vol.1, January 1985.

: 51(h) :

as percentage of the total number of villages ranges from about 2.0 per cent in Rangpur II to about 22.9 per cent in Rangpur III while the corresponding figure for Bangladesh is about 10.54 per cent.

The population by regions per post office, bank branch, hat and bazar also vary significantly among the regions. All these show the differential level of development and the facilities enjoyed by local people.

Chapter - III

Some Demographic and Social Characteristics of the Study Areas

In this chapter some selected demographic and social characteristics of the study areas are discussed.

3.1. Density of Population

Bangladesh is well known as a thickly populated country, its density of population per square mile being 1567 (Census, 1981). This national density is reflected, in some cases even in a higher scale, within the regions under study. It can be seen from Table 3.1 that although there is considerable variation among the regions, all the regions except two (Faridpur I and Sylhet III) have population densities higher than the national average. The only region having a density much lower than that of Bangladesh is Sylhet III.

Table 3.1 : Density of Population in the Selected
Road Transport Improvement Regions

Region	Density of Population per square mile
Faridpur - I	1539
" - II	1724
" - III	1684
Old Faridpur District	1785
Rangpur - I	1569
" - II	2335
" - III	1578
" - IV	2062
Old Rangpur District	1758
Sylhet - I	2038
" - II	1735
" - III	1216
Old Sylhet District	1182
Bangladesh	1567

Source: Upazilla Statistics, Bangladesh Bureau of
Statistics, January, 1985 (Based on Population
Census of 1981).

3.2. Average Size of Household, Sex-Ratio and Age Distribution

The survey data give average household size at 5.9, 5.3 and 5.8 persons in the old Faridpur, Rangpur and Sylhet districts respectively. These figures are very close to those found by the Population Census of 1981, as can be seen from column (1) of Table 3.2. The variation among the regions, however, is quite wide and so is the variation within each district.

Sex-ratios, defined as the number of male persons per 100 female persons, are provided in column (2) of Table 3.2. The ratios estimated from the survey for each of the three districts are slightly higher than those provided by the Population Census of 1981. The relative positions of the three districts with respect to this variable, however, are same in both the cases, Faridpur having the lowest ratio and the other two districts having more or less equal ratio. There is variation within each district, but the extent of this variation differs among the districts.

Table 3.2 : Average Size of Household, Sex-Ratio and Age Distribution in the study area.

Region	Average size of household	Sex-Ratio	Percentage of population in different age-groups							
			0 - 4	5 - 9	Below 10 years	10 - 14	Below 15 years	15 - 59	60 and above	
	(1)	(2)	(3)	(4)	(5)=(3)+(4)	(6)	(7)=(5)+(6)	(8)	(9)	
Faridpur	I	6.5	101.9	12.1	15.6	27.7	13.0	40.7	56.4	2.6
	II	5.2	103.6	12.8	16.6	29.4	14.0	43.4	53.4	3.2
	III	6.1	104.0	10.9	15.6	26.5	14.6	41.1	55.2	3.7
Old Faridpur district	5.9	103.2	11.9	15.9	27.8	13.9	41.7	55.1	3.2	
*Old Faridpur district	5.6	102.0	17.1	16.2	33.3	13.8	47.1			
Rangpur	I	5.9	104.8	17.1	17.3	34.4	11.9	46.3	52.9	0.8
	II	4.8	105.2	9.1	18.6	27.7	16.0	43.7	55.4	0.9
	III	5.2	103.0	17.0	12.3	29.3	11.4	40.7	56.9	2.4
	IV	5.2	114.5	15.2	16.4	31.6	9.7	41.3	57.2	1.5
Old Rangpur district	5.3	106.2	14.6	16.2	30.8	12.2	43.0	55.6	1.4	
*Old Rangpur district	5.5	105.0	18.1	16.9	35.0	12.5	47.5			
Sylhet	I	6.2	109.2	16.4	17.2	33.6	10.8	44.4	52.9	2.7
	II	6.2	104.0	11.2	11.9	23.1	18.0	41.1	55.4	3.6
	III	5.1	108.0	12.8	15.4	28.2	11.9	40.1	56.4	3.6
Old Sylhet district	5.8	107.0	13.5	14.8	28.3	13.6	41.9	54.8	3.3	
*Old Sylhet district	6.1	105.1	16.5	15.9	32.4	13.2	45.6			
*Bangladesh	5.8	106.0	17.0	16.3	33.3	13.4	46.7			

Source : Farm Household, BSS/MSS and Transport Workers Surveys of the Study.
(Total number of sample households is 66 for each region)

* Bangladesh Bureau of Statistics (Population Census of 1981).

In countries with high rates of natural population growth in the recent times, the percentage of 'young' population (i.e. population below 15 years of age) is usually found to be around 45 to 50. The Population Census of 1981 found this percentage for Bangladesh to be 46.7, while those for Faridpur, Rangpur and Sylhet were 47.1, 47.5 and 45.6 respectively. The corresponding percentages estimated from our Survey data are lower, ranging from 41.6 (for Faridpur) to 43.1 (for Rangpur). The same is true of the percentage of population below 10 years of age. The two sets of results can be seen in columns (7) and (8) of Table 3.2 respectively. Whether the lower percentages given by the survey data are the results of declining birth rates resulting from increased family planning practices in recent times or whether these are the outcomes of misreporting of age or of any other flaws in the conduct of the surveys are difficult to tell. No explanation of the phenomenon is, however, attempted here.

3.3. Literacy Rate

Literacy rate is defined as the ratio of literate persons of age-group 5 years and above to the total population of the same age-group multiplied by 100.

Table 3.3 contains the results of our surveys regarding literacy as well as some relevant data from the Population Census of 1981.

According to the Census, the literacy rates of both sexes (alternatively termed as 'total literacy rate') in all the three districts were lower than that of Bangladesh as a whole, which is itself very low in comparison with developed countries. In all the districts, female literacy rates were found to be much lower than the male literacy rates, the former being almost half of the latter.

The results of our surveys also indicate the low level of (total) literacy and even lower level of female literacy in the study areas.

Table 3.3 : Literacy Rates in the Study Areas .

Region	Literacy Rate			Literacy Rates for BSS/MSS households		
	Both Sex	Male	Female	Both Sex	Male	Female
Faridpur - I	30.2	36.3	23.9	00	00	00
Faridpur - II	25.3	32.9	17.2	7.1	3.6	10.3
Faridpur -III	20.8	31.4	9.7	6.3	9.1	1.3
Old Faridpur District	25.5	33.6	17.1	3.9	4.0	3.5
*Old Faridpur District	21.3	28.4	13.9	n.a	n.a	n.a
Rangpur - I	22.1	33.5	8.8	12.5	26.3	00
Rangpur - II	29.8	41.9	17.0	00	00	00
Rangpur -III	24.0	35.7	12.1	00	00	00
Rangpur - IV	24.9	35.4	12.2	00	00	00
Old Rangpur District	25.1	36.5	12.5	2.8	5.7	00
*Old Rangpur District	18.1	25.6	10.2	n.a	n.a	n.a
Sylhet - I	26.1	39.8	10.6	26.0	34.6	16.7
Sylhet - II	25.1	37.0	12.4	4.0	7.3	00
Sylhet -III	25.9	39.4	10.8	22.0	30.8	12.5
Old Sylhet District	25.7	38.7	11.3	15.4	21.5	8.5
*Old Sylhet District	19.9	26.4	13.1	n.a	n.a	n.a
* Bangladesh	23.8	31.0	16.0	n.a	n.a	n.a

Source : Farm household, BSS/MSS households and Transport Workers Surveys.

* Population Census of 1981 , Bangladesh Bureau of Statistics.

It may, however, be noted that the rates computed from the survey data are consistently higher than those provided by the Population Census of 1981. This is true of both the sexes as well as of all the regions. It is likely that this phenomenon is a consequence mainly of definitional differences rather than of increased literacy in recent times. According to the Population Census, a literate person is a person who can read and write in any language, whereas the definition used in our survey has mainly been whether a person had ever been enrolled in a school of any type.¹ Some of the persons reported in the survey to have read in classes I - IV may not have learnt how to read and write before leaving the school and consequently would not be called literate in the Census sense. If the Census definition was used to measure literacy, the rates found in the survey would probably have been lower, perhaps closer to the Census rates.

The last three columns of Table 3.3 provide literacy rates for the BSS/MSS households of the survey areas.

1. Formal education was found to be more indicative of literacy in the study regions in contrast to census definition which includes both formal and informal

It is found that total, male and female literacy rates are all lower for these poor households as compared to those for all the surveyed households. This is true of all the districts as well as of all the regions under study. In fact in 4 out of 10 regions total literacy rate for the BSS/MSS households is found to be zero, while in 6 regions female literacy rate is zero for these households. All these corroborate the findings of other studies that the literacy rate is lower for the poorer sections of the rural community.

As the BSS/MSS households are not the only poor households (many of the farm and transport workers households would fall in the poor category) and as the sample size of these households for each region is only 15, the conclusions drawn above are only suggestive and not comprehensive.

3.4. Labour Force Participation

The extent of labour force participation is indicated by what the Bangladesh Bureau of Statistics terms as

'Refined Activity Rate.' This rate is defined as the ratio of economically active population of age 10 years and above to the total population of same ages multiplied by 100.

Three sets of relevant statistics for the rural areas of Bangladesh are presented below in Table 3.4.A. for comparison of the survey results with those officially published.

Table 3.4.A : Refined Activity Rates for Rural Areas of Bangladesh

Source	Refined Activity Rate		
	Both Sex	Male	Female
Population Census of 1981	42.7	79.0	5.0
Labour Force Survey of 1982-83 conducted by the B.B.S.	44.8	81.1	7.4
Farm household, BSS/MSS, and Transport Workers Household Surveys of the present study	48.1	78.3	11.6

All these data point out high rates of labour force participation by male persons, but very low rates of participation in economic activity by female persons. The results are not surprising in view of the fact that women engaged in household work are not treated as economically active even though they, especially those belonging to the poorer classes, remain busy throughout the day an important part of their daily work involving agricultural activities particularly in peak seasons.

Table 3.4.B provides refined activity rates for the study regions. There is inter-district as well as inter-regional variation in respect of labour force participation. Nevertheless, the conclusion drawn above for the rural areas of Bangladesh as a whole that the participation rate for male labour force is high and that for female labour force is very low holds good for all the study regions as well.

Table 3.4.B : Refined Activity Rates for the Study Regions

Region		Refined Activity Rate		
		Both Sex	Male	Female
Faridpur	- I	41.6	80.1	2.9
Faridpur	- II	47.7	81.9	2.9
Faridpur	-III	50.8	87.6	7.4
Old Faridpur District		46.7	83.2	4.4
Rangpur	- I	57.5	79.3	32.8
Rangpur	- II	45.2	71.9	11.8
Rangpur	-III	55.0	90.0	17.4
Rangpur	- IV	48.1	78.8	7.9
Old Rangpur District		51.5	80.0	17.5
Sylhet	- I	47.6	73.9	6.6
Sylhet	- II	41.9	65.3	11.5
Sylhet	-III	48.8	79.0	16.9
Old Sylhet District		46.1	72.7	11.7
Bangladesh		48.1	78.3	11.6

Source : Survey data .

3.5: Occupational Structure

Table 3.5 gives the distribution of household heads according to their primary occupations. This is computed from the household census data of the sampled villages of our study. As the data pertain only to the household heads and not to the entire labour force involved, this table provides only a general indication of the occupational structure in the study regions.

As expected, the overwhelming majority of the household heads are primarily engaged in agriculture (including fishery) in all the three districts. The relevant percentages are 78.8, 83.5 and 85.6 for Faridpur, Rangpur and Sylhet respectively. Approximately one-fourth to one-third of them are primarily agricultural wage labourers. Fishery is an important primary occupation in only one region, namely, Sylhet III. The only other region where fishery may be mentioned to be of some significance as a primary occupation is Faridpur III.

Table 3.5 : Distribution of Household Heads According to Primary Occupation .

Primary Occupation	Region	(In percentage)													
		Farid pur-I	Farid pur-II	Farid pur-III	Old Farid pur Dist.	Rang pur-I	Rang pur-II	Rang pur-III	Rang pur-IV	Old Rang pur Dist.	Syl het-I	Syl het-II	Syl het-III	Old Syl-het Dist.	Bangla-desh.
Agriculture (including Fishery)	Total	79.8	63.3	91.5	78.8	81.7	85.1	95.7	74.7	83.5	94.2	64.0	95.1	85.6	82.7
	a)Cultivation	47.1	37.1	66.5	50.3	39.4	49.4	86.5	40.2	49.9	72.4	43.7	39.5	46.1	49.5
	b)Wage labour	32.6	26.2	18.0	26.4	42.3	33.9	8.2	34.4	33.1	21.8	20.3	27.7	24.5	30.6
	c)Fishing	0.1	00	7.0	2.1	00	1.8	1.0	0.1	0.6	00	00	27.9	15.0	2.6
Non-Agriculture	Total	20.2	36.7	8.5	21.2	18.3	14.9	4.3	25.3	16.5	5.8	36.0	4.9	14.4	17.3
	a)Trade and business	10.5	15.4	3.4	9.4	7.8	6.4	0.7	10.0	6.7	3.8	9.4	1.5	4.3	7.0
	b)Transport	4.2	9.0	2.1	4.9	1.7	0.2	0.1	3.4	1.4	0.6	00	00	0.1	2.0
	c)Salaried Service(Govt. jobs, teaching)	3.8	8.6	2.3	4.7	4.0	6.9	3.4	9.6	5.6	0.6	24.5	1.7	8.3	5.7
	d)Crafts/cottage Industry.	0.5	2.0	0.5	0.9	3.2	0.9	0.0	0.3	1.6	0.6	1.0	00	0.4	1.3
	e)Others	2.2	1.7	0.2	1.5	1.6	0.5	0.1	2.0	1.2	0.2	1.1	1.7	1.3	1.3
Sample size		780	501	561	1842	2276	1152	938	1016	5382	156	286	517	959	8183

Source : Household Census of the Sampled villages of the present study.

In the non-agricultural occupations category, trade & business and salaried service (government jobs, teaching etc.) seem to be significant in all the three districts. Transport as a primary occupation is somewhat important in Faridpur district only.

There is considerable inter-district variation as well as inter-regional variation within each district with respect to the occupational structure.

3.6: Migration into the Project Localities

(A) Permanent Migration

It can be seen from Table 3.6.A. that though there is some permanent migration into villages in all the project localities, its extent is not that significant. The percentages of the migrant households in Faridpur, Rangpur and Sylhet districts are 0.4, 0.4 and 1.8 respectively. In six out of the ten regions, the extent of permanent migration is very small. It may be noted that the regions having relatively more permanent

Table 3.6.A : Permanent migration into sample villages, 1985.

Region	Number of households	Number of migrant households	From where migrated		
			Other villages & unions of the same upazilla	Other upazillas of the district	Other districts
Faridpur-I	780	6	-	6	-
Faridpur-II	501	1	-	-	1
Faridpur-III	561	1	-	-	1
Old Faridpur district	1842	8(0.4%)	-	6	2
Rangpur-I	2276	2	1	1	-
Rangpur-II	1152	12	4	6	2
Rangpur-III	938	1	1	-	-
Rangpur-IV	1016	7	1	6	-
Old Rangpur district	5382	22(0.4%)	7	13	2
Sylhet-I	156	12	-	5	7
Sylhet-II	286	3	2	-	1
Sylhet-III	517	2	-	-	2
Old Sylhet district	959	17(1.8%)	2	5	10

Source : Computed from Household Census of the sample villages and migration survey of the present study.

migration are those which are located near the old or newly-created district headquarters, though the converse is not necessarily true. The majority of the migrant families in different regions of Faridpur district have come from other upazillas of the district. The same is true of Rangpur, but in Sylhet district the majority have come from other districts.

As transport workers constitute one of the important sections of the population most directly affected by road development, we have separately looked into the issue of permanent migration of these workers into the project localities. It is seen from Table 3.6.B that the percentages of transport workers who are permanent migrants to the project localities in Faridpur, Rangpur and Sylhet are 22, 5 and 38 respectively. Thus the incidence of transport workers' permanent migration into the project areas is quite high in Faridpur and Sylhet. In Faridpur, 50 per cent of the migrant workers have come from other districts and 40 per cent of the migration routed from inter-upazilla movement. In Rangpur district, only three transport

Table : 3.6.B : Permanent Migration of Transport Workers
into project localities

Region	Number of Transport workers surveyed	Number of Transport Workers who have permanently migrated into the region			
		Total	From within the upazilla	From outside the upazilla	From other districts
Faridpur-I	15	4	1	1	2
Faridpur-II	15	1	-	1	-
Faridpur-III	15	5	-	2	3
Old Faridpur district	45	10(22%)	1	4(40%)	5 (50%)
Rangpur-I	15	0	-	-	-
Rangpur-II	15	3	1	-	2
Rangpur-III	15	0	-	-	-
Rangpur-IV	15	0	-	-	-
Old Rangpur district	60	3(5%)	1	-	2(66.7%)
Sylhet-I	15	4	3	1	-
Sylhet-II	15	10	3	1	6
Sylhet-III	15	3	3	-	-
Old Sylhet district	45	17(38%)	9(52.9%)	2	6(35.3%)

Source : Transport workers survey of the present study.

workers out of a sample of sixty were found to be permanently migrant, two of whom came from other districts. In Sylhet district, the percentage of migrant workers coming from other districts was 35.3, while 52.9 per cent of them came from within the upazillas.

(B) Seasonal Migration

There is seasonal migration of agricultural labourers in all the study regions. Major part of this migration occurs in the harvesting periods of different crops, particularly Aus, Aman & Boro paddy, thus indicating relatively high demands for (and perhaps shortage of local supply of) agricultural labour in harvesting periods. There is also some migrant labour in some Faridpur and Rangpur regions for doing weeding work in the Aus Season. In all the regions, except Sylhet I, migrant agricultural labourers come from other localities of the same district. In Sylhet I,

they mainly come from Mymensingh district. Details of the phenomenon of seasonal migration may be seen in the Table 3.6.C.

Apart from agricultural labourers, there are also other types of labourers who come seasonally into different regions of Rangpur and Sylhet districts and find employment provision in earthwork, bamboo craft work, sawing work etc. In Rangpur, these workers come from within the district, while most of such workers in Sylhet migrate temporarily from the adjacent Comilla district.

3.7 : Status of Women in poor households

With a view to examining the role and status of women in the poor households of the study areas, the present study took into consideration the extent and nature of their self-employment as well as participation in the decision making process of their families.

Table : 3.6.C Seasonal Migration of Labourers into the Project Localities.

Region	Type of Work	Season	Average period of stay during the last year.	Approximate number of labourers who come during the last year.	Wherefrom they come
Faridpur I	Paddy & jute weeding	Aus	2.3 weeks		Different unions and upazillas of the district.
	paddy & jute Harvesting	Aus	2.3 weeks	40-45	
	Paddy Harves-ting.	Amon	2 weeks		
Faridpur II	Paddy Harvesting	Aus & Amon	3-4 weeks	50 in Aus seasons & 100 in Amon season	Do
Faridpur III	Paddy Harvesting	Aus & Amon	2-3 weeks in Aus season & 2-3 weeks in Amon season	30 in Aus season & 50 in Amon season	Do
Rangpur I	Paddy weeding & Harvesting Paddy Harvesting Earthwork	Aus, Amon & Boro agricul- tural season	2-3 weeks 2 weeks 2-3 weeks	20-25 in each season	
Rangpur II	Do	Do	Do	60-70 in each season	Do
Rangpur III	Paddy weeding & Harvesting Paddy harvesting agr. Earthwork & Bamboocruft work	Aus, Amon & Boro of season	Do	25-30 in each season	Do
Rangpur IV	Do	Do	Do	40-45 in each season	Do
Sylhet I	Paddy harves-ting	Aus, Amon & Boro	2-3 weeks in Aus season 4-5 weeks in Amon season & 3-4 weeks in Boro season	50-60 in each season	Mainly from Mymensingh district.
	Earthwork	off agr. season	3-4 weeks	-	Mainly from Comilla district. Do
	Saving work	off agr. season	3-4 weeks	-	
Sylhet II	Do	Do	Do	60-70 in each season	From other district as well as from within the district.
Sylhet III	Paddy harves-ting	Boro	3-4 weeks	80	From within the district.

Source : Migration survey of the present study.

It attempted to collect information on (a) various types of commercial activities undertaken by women on self-employment basis to supplement their family income, (b) persons/institutions giving them the idea of setting these activities and (c) source of financial support - private and institutional - for these activities. Information on the extent to which women in the families are consulted by the household heads for various types of decision making was also collected.

Table 3.7 shows self employment of women by major activities and sources of financial support. As is seen from the table poultry raising accounts for about 64 per cent of the self employment of women followed by kitchen gardening (21.1%), cow and goat fattening (19.1%) and rice husking (14.2%) in the total sample. However, there is a significant difference in the composition of self employment of women by activities in different districts. In Sylhet kitchen gardening

: 73a :

Table 3.7 : Self-Employment of Women by Major Activities and Sources of Financial support.

Districts/ Regions	No. of Respon- dents	Major Activities (Percentages)				Sources of Financial Support				
		Poultry Raising	Cow/Goat Fattening	Kitchen Garden- ing	Rice Husking	Self	Husband	Father	BSS/MSS	Gramin Bank
Faridpur	91	58.2	29.7	-	6.6	18.4	41.8	7.7	-	-
Rangpur	111	83.8	14.4	15.3	7.2	11.7	59.5	2.7	-	9.9
Sylhet	101	48.5	14.9	52.5	28.7	16.8	66.3	4.0	-	-
All	303	64.4	19.1	23.1	14.2	24.4	56.4	4.6	-	3.6

Note : Figures are percentages of row Totals. As the activities and sources of finance are not mutually exclusive, the total may exceed 100.

: 73b :

accounts for about 53 $\frac{1}{2}$ per cent of self employment whereas in poultry raising accounts for about 84 per cent in Rangpur and 58 per cent in Faridpur. Also it can be seen from the table that sources of finance varies significantly amongst the districts and financial support mostly came from the husbands (56.4 when all regions are considered). Self financing and support from the father accounts for 24.4 per cent and 4.6 per cent respectively. Gramin Bank seems to be the source of financial support only in Rangpur district where it accounted for about 10 per cent of the women's activities.

Table 3.8 shows the persons/institutions giving the idea of setting the activities by districts. In all the districts considered together, the husbands accounted for about 45 per cent of the ideas for setting the activities while own ideas were responsible for about 26 per cent of the activities and BSS/MSS, Gramin Bank, Social Worker together accounted for a negligible 5.9 per cent.

: 73c :

Table 3.8 : Persons/Institutions giving the idea of setting the activities by districts

Districts/ Regions	No. of Respon- dents	Persons/institutions giving ideas of setting activities					
		Self	Husband	Father	BSS/MSS	Gramin Bank	Social worker
Faridpur	91	34.1	45.1	12.1	1.1	-	-
Rangpur	111	36.9	30.6	1.0	-	9.9	5.4
Sylhet	101	5.9	59.4	5.0	-	-	-
All	303	25.7	44.6	5.6	0.3	3.6	2.0

Table 3.9 shows the participation (in percentages) in various socio-economic decision making by women. As is seen from the table there is not much variation in any particular type of decision making amongst the districts. But in certain aspects of decision making viz., purchase and sale of household products, marriage of children, family planning and voting, the women have a greater participation compared to activities related to nature of work of the (husband and other members of the family) litigation, children's education. In these later cases decision by male members is traditionally predominant. The data presented here are merely suggestive since the figures are quantification of some qualitative answers.

Table 3.9 : Participation in Decision Making by Women by Districts

Decisions	(in percentages)			
	Faridpur	Rangpur	Sylhet	Total
1. Sale/Purchase of household products	65.9	64.0	78.2	69.3
2. Sale/Purchase of household assets	70.3	73.0	79.2	74.3
3. Nature of husbands work	52.7	47.7	54.5	51.5
4. Nature of work of other members	38.5	60.4	53.5	51.5
5. Choice of crops grown	28.6	32.4	31.7	31.0
6. Borrowing	60.4	37.8	63.4	53.1
7. Education of children	34.1	45.0	34.7	38.3
8. Marriage of children	70.3	61.3	55.4	62.0
9. Litigation	35.2	28.8	19.8	27.7
10. Family planning	47.3	66.7	35.6	50.5
11. Voting in local elections	90.1	98.2	68.3	85.8
Number of Respondents	91	111	101	303

Note : Figures are column total percentages and may exceed 100, as the decision making regarding various aspects are not mutually exclusive.

74

Chapter - IV

AGRICULTURE

In this chapter, main features of the agricultural sector of the study areas will be discussed. These include distribution of landownership, distribution of operational farms, tenurial pattern, land use pattern, cropping pattern, crop yields, extent of use of modern inputs, product prices etc.

4.1. Distribution of Landownership

The distribution of landownership is a matter of great importance since the distribution of benefits from agricultural activities largely depends on it.

It is, however, difficult to get precise information on the pattern of distribution of landownership because a high degree of under reporting by large land owners. Nevertheless, most studies on this subject indicate an unusually growing concentration of land ownership amongst the rich group of farmers. Our survey results corroborate the general findings of other studies.

The pattern of distribution of land ownership in the study areas is presented in Table 4.1.

The percentages of households who reported to have no land at all are 9.28, 31.73 and 25.65 for Faridpur, Rangpur and Sylhet districts respectively. Households having reported to own less than 1 acre of land may be considered as functionally landless or near landless, since most of their owned lands are likely to be homesteads. These two groups added together provide the extent of landlessness and near landlessness. Thus the percentages of households who are landless or near landless in the three districts are 50.05, 62.78 and 56.10 respectively. The percentages of total land owned by these households are 5.23, 9.16 and 2.80 respectively. When these figures are considered against the percentages of land owned by the households belonging to the uppermost size-group, the presence

Table 4.1 : Pattern of Distribution of Landownership

Region		Faridpur	Faridpur	Faridpur	Faridpur	Rangpur	Rangpur	Rangpur	Rangpur	Rangpur	Sylhet	Sylhet	Sylhet	Sylhet
Landownership size (in acres)		I	II	III	regions	I	II	III	IV	regions	I	II	III	regions
No land	P.C.of households	5.26	7.78	16.22	9.28	47.36	11.28	11.51	38.58	31.73	17.95	45.45	17.02	25.65
	P.C.of land owned	00	00	00	00	00	00	00	00	00	00	00	00	00
0.01 to less than 1 acre	P.C.of households	40.64	45.51	36.72	40.77	20.52	39.77	50.75	26.58	31.05	35.26	4.20	43.52	30.45
	P.C.of land owned	3.43	7.68	7.04	5.23	8.16	5.68	15.53	9.32	9.16	6.87	1.30	2.33	2.80
1 acre to less than 2.50 acres	P.C.of households	23.85	22.16	24.96	23.73	17.62	23.00	19.94	17.91	19.23	19.87	27.62	19.34	21.90
	P.C.of Land owned	11.53	18.56	20.62	15.30	22.52	24.18	20.66	17.55	21.53	16.94	24.00	4.53	11.47
2.50 acres to less than 5 acres	P.C.of households	14.23	15.57	12.83	14.16	9.49	16.14	10.87	9.84	11.22	15.38	11.19	10.06	11.26
	P.C.of Land owned	15.56	27.21	22.88	19.86	24.36	3.08	24.24	19.96	18.47	28.54	24.54	16.16	20.28
5 acres to less than 7.50 acres	P.C.of households	7.69	4.59	3.92	5.71	2.33	3.82	2.35	3.05	2.79	9.62	5.60	4.06	5.42
	P.C.of land owned	14.06	13.52	11.88	13.40	10.15	13.42	8.61	11.05	10.81	30.98	19.46	10.76	16.24
7.50 acres and above	P.C.of households	8.33	4.39	5.35	6.35	2.68	5.99	4.58	4.04	3.98	1.92	5.94	6.00	5.32
	P.C.of Land owned	55.42	33.03	37.58	46.21	34.81	53.64	30.96	42.12	40.03	16.67	30.70	66.22	49.21

Source: Village Census of the present study.
P.C. indicates percentages.

of inequality in the distribution becomes obvious. In Faridpur, 12.06 per cent of the households own 5 acres or more, but own 59.61 per cent of the total land. In Rangpur, the percentage of the households in this size-group is 6.77, but they own 50.84 per cent of the total land. Similarly in Sylhet 10.74 per cent of the households belong to the size-group of 5 acres and above owning 65.45 per cent of total land. The pattern of land distribution is thus fairly unequal in all the three districts, though the extent of inequality obviously varies from district to district. From the table, similar conclusions can be drawn about the different regions.

4.2. Operational holdings, Average Size and Size Structure

In Bangladesh, most of the agricultural activities is carried out on small-scale basis. The survey data of the present study give the average operational size of farms in Faridpur, Rangpur and Sylhet regions at 2.52, 2.42 and 2.60 acres respectively, as can be seen in Table 4.2.A. These average figures, however, conceal a more important

Table 4.2.A: Average size of farm holdings (operational)
in acres.

Region Size of operational holding	Faridpur Regions	Rangpur Regions	Sylhet Regions
.01 to less than 1 acre	0.33	0.44	0.14
1 acre to less than 2.50 acre	1.60	1.74	1.56
2.50 acres to less than 5 acres	3.45	3.51	3.47
5 acres to less than 7.50 acres	5.73	5.99	5.83
7.50 acres & above	18.23	14.70	20.83
All sizes	2.52	2.42	2.60

Source : Census of sample villages of the present study.

feature of agricultural operations, namely that the overwhelming majority of the farms have sizes of less than 2.50 acres. Table 4.2.B shows that 65.4 per cent of farms in Faridpur, 72.4 per cent in Rangpur and 69.9 per cent in Sylhet fall in this category. Out of this 41% in Faridpur, 43.4% in Rangpur and 42.1% in Sylhet have farm sizes of less than 1 acre, the average size being 0.33 acres, 0.44 acres and 0.14 acres respectively. The average farm size in the size category of one acre to less than 2.50 acres in the three districts are 1.60 acres, 1.74 acres and 1.56 acres respectively. Thus it is clear that the majority of farms in these districts operate at a small scale. If we consider the farms operating 7.50 acres and above to be large ones by the standards of this country, we see that only 6.3 per cent of farms in Faridpur having an average size of 13.23 acres, 5.7 per cent in Rangpur with an average size of 14.70 acres and 5.1 per cent in Sylhet with an average size of 20.87 acres fall in this category.

The distribution of operational holdings, as shown

Table 4.2.B : Distribution of Operational Holdings.

Region	Size of Operational Holding(in acres)									
	.01 to less than 1 acre		1 acre to less than 2.50 acres		2.50 acres to less than 5 acres		5 acres to less than 7.50 acres		7.50 acres and above	
	P.C. of holdings	P.C. of Land operated	P.C. of holdings	P.C. of Land operated	P.C. of holdings	P.C. of Land operated	P.C. of holdings	P.C. of Land operated	P.C. of holdings	P.C. of Land operated
Faridpur I	38.2	3.6	22.9	12.4	20.1	24.7	11.4	22.9	7.4	36.4
Faridpur II	49.4	8.7	22.3	19.0	20.3	35.7	4.1	12.3	3.9	24.3
Faridpur III	37.0	6.0	29.0	18.1	19.8	26.4	7.3	16.2	6.9	33.3
Faridpur Regions	41.0	5.4	24.4	15.5	20.1	27.5	8.2	18.7	6.3	32.9
Rangpur I	34.3	7.4	36.4	25.3	20.0	27.1	4.2	10.0	5.1	30.2
Rangpur II	42.9	4.2	25.3	17.6	20.3	28.4	4.7	10.8	6.8	39.0
Rangpur III	57.2	14.3	22.8	21.7	12.3	24.9	2.8	9.1	4.9	30.0
Rangpur IV	43.3	9.3	29.2	17.6	16.0	20.0	5.0	11.1	6.5	42.1
Rangpur Regions	43.4	7.9	29.0	20.9	17.7	25.7	4.2	10.3	5.7	35.2
Sylhet I	38.0	5.9	27.3	20.9	23.1	35.7	9.1	25.3	2.5	12.1
Sylhet II	5.2	1.0	33.0	31.8	29.9	39.8	11.2	25.0	0.7	2.4
Sylhet III	56.2	1.7	19.2	10.7	11.9	15.6	5.2	10.9	7.5	61.1
Sylhet Regions	42.1	2.3	27.8	16.6	17.8	23.7	7.2	16.1	5.1	41.3

Source : Census of sample villages of the present study.
P.C. indicates percentage.

in Table 4.2.B. is fairly unequal. It, however, varies among the districts as well as among the regions.

4.3. Tenurial Pattern

The tenurial pattern may be described in two alternative ways. One way is to classify all farm holdings into three types - (a) Owner holding, (b) Owner-cum-tenant holding and (c) Tenant holding. Farm households operating their own land only (they may lease out some of their own land, but do not lease in any land) are owner-holdings. Farm households who operate their own land as well as land leased in from others fall under the category of owner-cum-tenant holdings. Tenant holdings are those which do not own any cultivable land but operate from others' leased in cultivable land. Viewed in this way, the tenurial pattern in the ten study regions is described in the first part of the Table 4.3.

It may be seen from the table that the owner-holding is the most important type of holding in all the regions though its relative importance varies among regions. No where it is, however, less than 50% of the total holdings -

Table 4.3 : Tenurial pattern in the study areas.

Category of operation	Percentage of farm holding in different categories			Percentage of cultivated area			
	Owner holdings	Owner-cum-Tenant holdings	Tenant holdings	Operated by the owner	Share-cropped	Rented on cash basis	Mortgaged
Regions							
Faridpur I	71.4	22.9	5.7	82.91	17.09	00	00
II	72.2	22.2	5.6	88.17	62.76	00	19.07
III	55.6	44.4	00	90.87	8.44	00	0 .69
Faridpur Districts	66.4	29.9	3.7	87.3	9.8	00	2.9
Rangpur I	94.4	5.6	00	99.54	0.46	00	00
II	88.9	2.8	8.3	96.96	3.04	00	00
III	80.6	19.4	00	90.86	8.12	00	1.02
IV	58.3	41.7	00	84.04	6.56	0.45	8.95
Rangpur Districts	80.6	17.4	2.1	92.9	4.2	00	2.8
Sylhet I	80.6	11.1	8.3	89.35	8.65	1.00	1.00
II	50.0	30.6	19.4	71.26	26.36	2.38	00
III	63.9	16.7	19.4	91.47	2.16	00	6.37
Sylhet District	64.8	19.4	15.7	81.6	15.1	1.4	1.9

Source : Farm house hold survey of the present study.

the figure is highest for Rangpur I (94.4%). Another important feature to be noted is that tenant holdings are absent in four regions and insignificantly present in other regions except Sylhet II and Sylhet III.

Another way of looking at the tenurial pattern is to calculate the percentage of total cultivated area operated by the owners, the rest being operated by others on the basis of share-cropping, cash renting, mortgage etc. The relevant data may be seen in the second part of the Table 4.3. It is clear from the table that most of the cultivated land is operated by the owner in all the regions. The ^{of}percentage of land under different tenancy types varies from seven in Rangpur to eighteen in Sylhet. Among the tenancy types, the most prevalent one is share-cropping. Cash-renting system is absent in seven out of ten regions and negligible in others.

4.4. Land Utilisation-Cultivation Intensity and Cropping Intensity.

The distribution of land according to various uses

(Table 4.4.A.) shows that nearly 72 per cent of all land in the study areas was cropped and another 12.6 per cent was kept as current fallow. About 9 per cent of all land was used for homesteads, and about 7 per-cent of the total land area was under orchards and ponds/waterbodies. The **percentage** of cropped land was almost equal in all the three districts. With respect to other uses, there is some inter-district variation, though not to any significant extent. The variation in the pattern of land use among regions within a district as well as among all the study regions, however, appears to be quite high.

Cultivation intensity, defined as the ratio of net cropped area to total cultivable area multiplied by 100, is found to be quite high in all the study regions (Table 4.4.B.), the lowest figure being 76.9 for Rangpur I and the highest being 98.4 for Rangpur II. Cropping intensity, measured by the ratio of gross cropped area to total cultivable area multiplied by 100, is found to be highest for Rangpur regions (231.0). The corresponding figures for Faridpur and Sylhet regions are found to be 180.2 and 123.8 respectively.

Table 4.4.A : Pattern of Land Use

(Figures in columns (2)-(6) are percentages)

Regions		Total land under hold- ings (1)	Cropped (2)	Current Fallow (3)	Homestead (4)	Orchards (5)	Ponds/ Water-bodies (6)
Raridpur	I	124.56	64.0	11.1	9.2	2.3	13.5
	II	87.71	70.8	18.9	7.0	2.2	1.1
	III	107.77	80.9	7.5	5.6	2.8	3.2
Faridpur Regions		320.04	71.5	12.0	7.4	2.4	6.6
Rangpur	I	120.59	68.8	20.7	9.6	0.3	0.6
	II	76.39	86.5	1.4	5.5	4.1	2.5
	III	79.81	68.1	11.2	18.0	1.3	1.4
	IV	113.82	66.8	17.1	6.0	5.1	5.0
Rangpur Regions		390.61	71.5	13.9	9.5	2.6	2.4
Sylhet	I	93.48	75.3	10.1	8.9	2.9	2.8
	II	156.59	70.0	10.7	10.1	00	9.4
	III	82.54	70.4	15.0	10.3	2.2	2.2
Sylhet Regions		332.61	71.6	11.6	9.8	1.4	5.6
All Regions		1043.26	71.6	12.6	8.9	2.2	4.7

Source : Farm Household Survey of the Present Study.

Table 4.4.B : Cultivation Intensity and Cropping Intensity.

Region		Net Cropped area (in acres)	Current Fallow (in acres)	Gross cropped area (in acres)	Cultivation Intensity $(4 = \frac{(1)}{(1)+(2)} \times 100$	Cropping Intensity $\frac{(3)}{(1)+(2)} \times 100$
		(1)	(2)	(3)		
Faridpur	I	79.66	13.81	192.94	82.5	206.4
	II	62.11	16.59	123.28	78.9	156.6
	III	87.17	8.13	165.72	91.5	173.9
Faridpur Regions		228.94	38.53	481.94	85.6	180.2
Rangpur	I	82.99	24.90	267.31	76.9	247.8
	II	66.08	1.05	164.16	98.4	244.5
	III	54.33	8.95	149.33	85.9	236.0
	IV	75.97	19.52	190.35	79.6	199.3
Rangpur Regions		279.37	54.42	771.15	83.7	231.0
Sylhet	I	70.43	9.43	126.20	88.2	158.0
	II	109.65	16.71	147.43	86.8	126.4
	III	58.10	12.37	69.04	82.4	98.0
Sylhet Regions		238.18	38.51	342.67	86.1	123.8

Source : Household survey of the present study.

4.5. Cropping Pattern

Table 4.5 gives the cropping patterns of the study regions for all the districts. As can be seen from the table, all paddy taken together accounts for more than half the gross cropped area in all the regions except for Faridpur II, where it is only about 38 per cent of the total gross cropped area. In Rangpur, the land area devoted to paddy varies from about 56 per cent in Rangpur -I to about 79 per cent in Rangpur IV. In Faridpur, between 38 and 72 per cent of the total gross cropped area are accounted for paddy respectively in Faridpur I and Faridpur III. Amount of land devoted to paddy is significantly higher in all the regions of Sylhet. It ranges from about 91 per cent in Sylhet-I to about 98 per cent in Sylhet-III.

One will also notice that of the three varieties of paddy, Aus is grown in all the regions. Amount of land devoted to Aus varies between 16.81 and 32.04 per cent in Rangpur, between 13.93 and 27.63 per cent in Faridpur and between 8.11 and 47.92 per cent in Sylhet. The inter-regional

Table 4.5: Cropping Pattern by regions

(in percentages of the total cropped area)

Regions	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	Total
	Aus Paddy	Amon Paddy	Boro Paddy	Jute	Wheat	Potato	Tobacco	Ringia	Pulses	Vegetables	Sugar cane	Oil seeds	Others	
Rangpur I	29.14	26.44	- (55.58)	7.74	-	-	27.57	8.81	-	0.30	-	-	-	100.00
Rangpur II	32.04	36.59	- (68.63)	6.38	-	3.22	19.71	-	0.09	1.45	-	0.12	0.40	100.00
Rangpur III	21.30	29.89	14.32 (65.52)	18.88	2.68	3.19	-	-	-	2.06	-	-	7.67	100.00
Rangpur IV	16.81	28.41	34.17 (79.39)	10.42	2.10	0.73	-	-	1.24	0.35	4.20	0.95	0.62	100.00
Faridpur I	13.93	20.14	3.82 (37.89)	25.74	3.64	0.02	-	-	26.10	0.03	6.09	0.49	-	100.00
Faridpur II	23.27	29.16	6.00 (58.43)	14.48	11.62	-	-	-	14.51	0.06	0.90	-	-	100.00
Faridpur III	27.53	29.26	14.92 (71.81)	12.14	6.73	-	-	-	8.21	0.33	0.30	-	0.48	100.00
Sylhet I	47.92	42.61	- (90.53)	-	-	8.49	-	-	-	0.12	-	0.86	-	100.00
Sylhet II	15.82	44.96	33.75 (94.53)	-	-	1.59	-	-	-	1.19	-	-	2.69	100.00
Sylhet III	8.11	25.23	64.63 (97.97)	0.48	-	-	-	-	0.87	0.68	-	-	-	100.00

Figures in parentheses are paddy totals.

variation in the amount of land devoted to Aman is much smaller. It varies between 26.44 and 36.59 per cent in Rangpur, between 20.14 and 29.26 percent in Faridpur and between 25.23 and 44.96 per cent in Sylhet. Boro is grown in all the regions except Rangpur I and II and Sylhet . Boro accounts for about 14.33 and 34.17 per cent of total gross cropped area respectively in Rangpur III and IV .The amount of land devoted to Boro in Faridpur I,II and III respectively are about 3.82, 6.00 and 14.92 per cent. The amount of land devoted to Boro is the highest (64.63 per cent) in Sylhet III followed by Sylhet II(33.75 per cent).

As can be seen from the Table, jute and pulses are the next important crops after paddy in all the regions of Faridpur. Jute account for about about 25.74, 14.48 and 12.14 per-cent gross cropped area respectively in Faridpur I,II and III while correspondings figures for pulses are 26.10, 14.51 and 8.21 respectively. Jute also accounts for about 18.88 and 10.42 per cent of the gross cropped area in Rangpur III and IV respectively.

Tobacco is grown in Rangpur I and II only. The amount of land devoted to this crop are 27.57 and 19.71 per cent of the cropped area respectively in Rangpur I and II.

Wheat is grown in all the regions of Faridpur and in Rangpur III and IV. The amount of land under wheat ranges from 2.11 per cent in Rangpur IV to 11.62 per cent in Faridpur II.

Sugarcane is grown in Rangpur IV and in all the regions of Faridpur. Land under this crop are only 4.20 and 6.09 per cent in Rangpur I and Faridpur I respectively. Land under oil seeds is insignificant. Potato accounts for 8.49 per cent of gross cropped area in Sylhet I and between 0.02 and 3.22 per cent, in other regions.

With respect to cropping pattern, it appears from the data that, there are considerable inter-district variations and substantial interregional variations within each district. Soil type, soil fertility, topography, flood condition, the cultivation practices, accessibility and extension services, etc., may account for these variations.

4.6. Use of Modern Inputs

It may be noted that water control, i.e. irrigation and drainage is the most important determinant of the use of modern agricultural inputs such as chemical fertilizer and higher yielding variety of seeds. These in turn, are the most important factors for increasing the productivity of land. Table 4.6. reports the information regarding land with modern irrigation facilities and the extent of use of chemical fertilizer in all the study regions of the three districts obtained from the household survey.

As is seen from the Table, region I and II of Faridpur and region I in Sylhet have very little land under irrigation (8.20, 4.75 and 8.14 per cent respectively). In all the regions considered together, the percentage of land under irrigation stands at 27.60. Region III in Sylhet district have the highest amount of land under irrigation

Table 4.6 : Use of Irrigation and Chemical Fertilizers in regions of various districts.

District/ Regions	% of land with modern irrigation facilities	Use of Chemical Fertilizer per acre of land (Seer)
Rangpur		
Region I	28.09	73.91
Region II	32.83	88.96
Region III	28.12	56.14
Region IV	41.56	60.21
Faridpur		
Region I	8.20	34.21
Region II	4.75	59.44
Region III	26.86	92.40
Sylhet		
Region I	8.14	214.72
Region II	11.76	4.83
Region III	63.51	21.49
All	27.60	71.44

(63.51 per cent) followed by about 41.56 per cent in region IV and 32.83 per cent in region II in Rangpur district .

The use of chemical fertilizer per acre of land also varies substantially among the regions within the same district. There is also a substantial inter-district variation in the use of fertilizer. The highest rate of application of fertilizer have been found to be in region I of Sylhet (214.72 seers per acre) followed by 92.40 seers per acre in region III of Faridpur and 88.76 seers per acre in region II in Rangpur. Very little fertilizer (about 4.83 seers per acre) is used in region II of Sylhet district, where there is little scope to increase the productivity of land by application of fertilizers as the area grows mostly the traditional deep water aman paddy.

In order to see whether there is any price differences of the fertilizer procured from different distances for the accessible and interior villages, the amount of fertilizer and the associated price have been arranged

according to distances and accessibility and reported in Table 4.7.

It will be noticed from the table that there is substantial difference in the procurement price of fertilizers obtained from a given distances between accessible and interior villages in all the districts. The price difference of fertilizer between accessible and interior villages procured from a distance of less than one mile is about Tk. 15 per maund in Rangpur, about Tk. 4.7 in Faridpur and about Tk. 14 in Sylhet. Similar price difference exist for the fertilizers procured from other distances. It appears that the price difference between accessible and interior villages decreases as the procurement distance increases in most of the districts, There is also a substantial inter-district variation of fertilizer prices.

The difference in prices of fertilizers between accessible and interior village seems to be the result of the transportation difficulties and the prices paid by farmers which are related to the degree of quality of roads and the

Table 4.7 : Procurement Price of Fertilizer in the
villages by accessibility and distance: All districts

Price in Taka/ Quantity in Maunds								
Districts/ Accessi- bility	Amount of fertilizer procured from distance							
	Less than 1 mile		1-2 miles		2-3 miles		3 miles and over	
	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
<u>1. Rangpur</u>								
Accessible	188.5	179.97	156.5	177.79	-	-	138.6	175.73
Moderately accessible	149.4	184.29	54.8	180.73	110.4	179.10	58.6	176.21
Interior	156.0	194.83	26.3	192.05	50.8	190.00	54.9	180.38
<u>2. Faridpur</u>								
Accessible	15.3	193.25	218.9	190.54	44.6	208.63	-	-
Moderately accessible	-	-	42.5	195.94	-	-	-	-
Interior	49.63	196.49	43.4	196.24	86.6	226.37	-	-
<u>3. Sylhet</u>								
Accessible	269.5	192.28	3.95	188.64	-	-	-	-
Moderately accessible	-	-	-	-	9.5	200.00	-	-
Interior	53.26	206.71	156.93	209.48	14.5	200.00	61.96	197.88

level of network.

4.7. Recent Crop Situation

The recent crop situation may be seen from Tables 4.8, 4.9 and 4.10 which reports the estimated crop yield and the gross value of production per acre for Rangpur, Faridpur and Sylhet, respectively.

One will notice from the Tables that yield per acre of paddy is substantially higher in Rangpur compared to Faridpur or Sylhet. The per acre yields of HYV paddy and local together in Rangpur, Faridpur and Sylhet are 34.27, 21.93 and 19.83 maunds respectively. The difference is due to cultivation of HYV paddy during the winter season in a substantially larger proportion compared to those of Faridpur and Sylhet which becomes possible because of the higher incidence of modern irrigation facility in Rangpur compared to Faridpur or Sylhet. However, there is not much difference in yield rates of local paddy among these districts.

Table 4.8 : Gross value of production per acre and yield of Major crops in Districts - Rangpur.

Villages/ Region	Per acre yield (Maunds)											Gross Value of production per acre(Tk)
	Paddy	Jute	Wheat	Potato	Tobacco	Pulses	Oil seeds	Suger cane	Vege tables	Ginger	Others	
<u>Region I</u>	32.73	25.60	-	-	25.81	-	-	-	56.25	130.02	-	9124.89
I Mirganj	33.42	23.33	-	-	25.28	-	-	-	80	132.70	-	9048.51
M Baculagari	33.35	26.67	-	-	26.87	-	-	-	50	133.33	-	9193.04
A Khatamara	31.73	26.50	-	-	25.62	-	-	-	57.78	127.11	-	8262.63
<u>Region II</u>	28.18	19.87	-	50.00	26.45	50.00	20.00	-	35.29	-	60.61	5619.49
A Shahbajpur	30.94	25.53	-	70.29	29.52	50	25	-	44.44	-	125	6245.89
M Gopinathpur	24.81	11.65	-	44	23.36	-	16.67	-	32	-	40	4373.89
A Rajrampur	30.64	25.00	-	42.65	28.08	-	-	-	32	-	40	5618.26
<u>Region III</u>	34.71	25.26	46.40	89.52	-	-	-	-	65.26	-	65.76	5330.55
I Chharajit	40.28	23.39	45.5	100	-	-	-	-	100	-	59.30	5396.13
I Acharjya	40.39	26.35	50	93.93	-	-	-	-	64.76	-	76.62	5322.85
M Mirerbari	33.47	27.12	-	56.06	-	-	-	-	43.10	-	57.02	4996.58
<u>Region IV</u>	40.02	19.10	19.75	75.54	-	14.47	13.89	500.00	36.36	-	45.34	5770.92
M Bhungamari	37.37	19.97	16.94	54.79	-	-	16.13	-	39.47	-	-	5428.38
M Sonarai	41.02	21.60	20.00	-	-	10.00	-	500.00	33.33	-	46.39	5818.12
M Peerapur	39.66	18.75	21.19	98.48	-	16.07	12.71	-	30.00	-	42.80	6117.29
All	34.27	23.39	34.50	69.58	26.00	16.60	14.50	500.00	51.16	130.02	63.69	5800.50

Table 4.9 : Gross value of Production per acre and Yield of major crops in
Districts, FARIDPUR .

Regions / Locations	Per acre Yield (Maunds)										Gross Value of products per acre(Tk)
	Paddy	Jute	Wheat	Potato	Tobacco	Oil seeds	Pulses	Vege tables	Suger cane	Other agr. Products	
<u>Region</u> I	21.51	12.19	14.10	33.33	-	4.07	6.43	100	938.35	-	4235.01
Madhanagar	30.53	11.56	11.11	33.33	-	2.38	6.59	-	1923.08	-	3685.59
Chobindhapur	16.62	11.71	14.80	-	-	4.81	6.42	-	724.61	-	4256.92
Madarbera	19.67	12.86	16.10	-	-	3.95	7.33	100	1072.74	-	4275.76
<u>Region</u> II	18.42	17.92	20.22	-	-	-	7.42	138.46	443.44	-	3617.25
Domrakandi	19.34	18.65	32.55	-	-	-	8.53	-	-	-	3614.05
Maneshpur	16.82	15.47	15.29	-	-	-	5.10	-	443.44	-	3561.36
Matpasher	19.45	19.21	17.18	-	-	-	6.67	138.46	-	-	3666.50
<u>Region</u> III	24.29	17.15	15.61	-	-	-	9.64	40.00	400.00	15.62	3446.40
Matipara	28.49	18.86	16.08	-	-	-	9.20	40.00	-	-	4953.98
Malail	17.26	14.52	12.94	-	-	-	8.88	40.00	400.00	-	2906.37
Matulia	26.90	20.51	22.96	-	-	-	16.53	-	-	15.62	4658.38
All	21.93	16.04	17.31	33.33	-	4.07	7.18	54.81	877.29	15.62	3767.82

Table 4.10 : Gross value of production per acre and yield of Major Crops
in Districts, SYLHET.

Villages/ Regions	Per acre yield (maunds)										Gross value of products per acre (Tk)
	Paddy	Jute	Wheat	Potato	Tobacco	Oil seeds	Pulses	Vegeta- bles	Sugarcane	Other agr. products	
<u>Region I</u>	30.84	-	-	206.02	-	10.19	-	13.33	-	-	8302.88
A Rajnagar	29.78	-	-	220.23	-	10.71	-	-	-	-	9077.77
I Talibpur	30.67	-	-	194.30	-	8	-	-	-	-	10379.36
I Raultar- gao	29.66	-	-	207.39	-	13.33	-	13.33	-	-	12309.41
<u>Region II</u>	7.28	-	-	37.39	-	-	-	70.17	-	6.69	1511.05
I Nasira- bad	4.39	-	-	-	-	-	-	-	-	-	891.75
I Lalbahar	7.10	-	-	34.78	-	-	-	66.56	-	24.79	1584.50
I Tilpara	10.32	-	-	15.75	-	-	-	125	-	3.61	1968.17
<u>Region III</u>	27.27	6.06	-	-	-	-	41.67	21.28	-	-	6652.80
A Kanaipur	30.52	-	-	-	-	-	-	-	-	-	4643.65
I Holipur	18.64	-	-	-	-	-	41.66	-	-	-	5026.05
I Guzakhari	25.09	6.06	-	-	-	-	-	21.28	-	-	7921.68
All	19.83	6.06	-	175.78	-	10.19	41.67	56.93	-	6.69	5039.14

One will also notice that the yield rates of wheat are considerably higher in Rangpur compared to those in Faridpur and Sylhet. The yield of wheat in Rangpur is higher because of the irrigation of wheat land in Rabi season, though the per acre yield of local variety of wheat in Rangpur and Faridpur are similar. However, Rangpur farmers produce a much higher amount of wheat than their counterparts in Faridpur, because of the use of high yielding varieties of crop.

The yield rate of potato, as seen from the table, in Region I and II of Sylhet is nearly thrice the yield rate of the same in Regions II, III and IV in Rangpur district.

The yield rates of pulses in Sylhet III, and Rangpur II and IV are substantially higher than that in Faridpur.

As can be seen from the data, the yield rates of oil seeds are higher in Rangpur and Sylhet compared to that in Faridpur. However, the yield rate of sugarcane in

all the regions of Faridpur is higher than that in Rangpur IV.

The gross value of production per acre of land for all the crops taken together, are about Tk. 6861, Tk. 3768 and Tk. 5039 respectively for Rangpur, Faridpur and Sylhet districts. The gross value of production per acre in Rangpur is about 36 per-cent higher than that in Sylhet or about 82 per cent higher compared to Faridpur. Gross value of production per acre is the highest in Region I in Rangpur(Tk.9124) followed by Tk. 8303 and Tk. 6653 in Region I and II in Sylhet district respectively.

It appears from the data that the farmers in Rangpur produce more of HYV crops and have higher production compared to Faridpur farmers. In Faridpur, farmers seem to maximize their gain from land by increasing the cropping intensity. They mostly grow a less productive Rabi crop (and less labour intensive) on most of the land after harvesting paddy. They even produce three crops-paddy followed by oilseeds or pulses and then wheat. The gross value of production per unit of land in Faridpur is still lower despite

high cropping intensity than those of Rangpur or Sylhet as the productivity of Rabi crops are very low.

4.8. Marketed Surplus

Road use is determined by volume of traffic—both passenger and goods. The volume of goods traffic depends on the volume of transaction which in turn depends on (i) the level of local production of commodities in relation to its local demand (ii) the degree of specialization in agriculture. The degree of specialization, i.e. production of one or two commodities in an area increases volume of transaction as this commodity is traded to procure other consumption goods. The volume of marketed surplus, as such indicates the extent to which road would be used in an area.

The estimated marketed surplus of paddy by size of farms for all the regions of Rangpur, Faridpur and Sylhet districts are reported in Table 4.11, 4.12 and 4.13 respectively.

Table 4.11 : Marketed surplus of Paddy by size of farm, RANGPUR

(amounts in maunds)

Region/ Size of farm	Amount produced	Amount Sold	Marketing ratio	Amount sold within 2 weeks	% of sold within two weeks
<u>Region - I</u>					
Small farmer (upto 2.50 acres)	1388.5	358	.26	20	5.58
Medium farmer (2.50-5.00 acres)	899.5	315	.35	-	-
Large farmer (5.00+)	2432	620	.25	-	-
<u>Region-II</u>					
Small farmer (upto 2.50 acres)	2089	669	.32	223	33.33
Medium farmer (2.50-5.00 acres)	507	313	.61	100	31.94
Large farmer (5.00+)	1128	420	.37	100	32.80
<u>Region-III</u>					
Small farmer (upto 2.50 acres)	1465	678	.46	284	41.88
Medium farmer (2.50-5.00 acres)	555	370	.66	100	27.02
Large farmer (5.00+)	1685	960	.56	290	30.20
<u>Region-IV</u>					
Small farmer (upto 2.50 acres)	1836	1054	.57	299	28.36
Medium farmer (2.50-5.00 acres)	1543	1225	.79	110	8.97
Large farmer (5.00 +)	2706	1725	.66	70	4.05
All	18234	8707	.48	1596	18.33
Small	6778.5	2759	.40	826	29.93
Medium	3504.5	2223	.63	310	13.94
Large	7951.0	3725	.47	460	12.34

Table 4.12 : Marketed surplus of paddy by size of farm, FARIDPUR

(amounts in maunds)					
Region/ Size of farms	Amount produced	Amount sold	Marketing ratio	Amount sol within two weeks	% sold within two weeks
<u>Region-I</u>					
Small farmer (upto 2.50 acres)	946.5	31.5	.07	13	41.27
Medium farmer (2.50-5.00 acres)	344	89	.26	40	44.94
Large farmer (5.00 +)	673	164	.24	69	42.07
<u>Region-II</u>					
Small farmer (upto 2.50 acres)	429	-	-	-	-
Medium farmer (2.50-5.00 acres)	558	25	.04	10	40.00
Large farmer (5.00 +)	308	50	.16	3	6.00
<u>Region-III</u>					
Small farmer (upto 2.50 acres)	713	121	.17	74	61.16
Medium farmer (2.50-5.00 acres)	793	192	.24	132	68.75
Large farmer (5.00 +)	1431	575	.40	375	65.22
All	5711.5	1247.5	.22	716	57.39
Small	1604.5	152.5	.095	87	57.05
Medium	1695	306	.18	182	59.48
Large	2412	789	.33	447	56.65

Table 4.13 : Marketed surplus of paddy by size of farm -Sylhet.

(amounts in maunds)					
Region/ Size of farm	Amount produced	Amount sold	Marketing ratio	Amount sold within two weeks	% sold within two weeks
<u>Region-I</u>					
Small farmer (upto 2.50 acres)	946.5	14	.014	-	-
Medium farmer (2.50-5.00 acres)	1040	89	.085	14.5	16.29
Large farmer (5.00 +)	1502	540	.35	50	9.26
<u>Region-II</u>					
Small farmer (upto 2.500 acres)	292.5	111	.38	72	64.86
Medium farmer (2.50-5.00 acres)	412.5	87	.21	45	51.72
Large farmer (5.00 +)	195	42	.22	15	35.71
<u>Region-III</u>					
Small farmer (upto 2.50 acres)	594	182	.31	37	20.33
Medium farmer (2.50-5.00 acres)	435	200	.56	-	-
Large farmer (5.00 +)	895	570	.64	-	-
All	6312.5	1835	.29	233.5	12.72
Small	1833	307	.17	109	35.50
Medium	1887.5	376	.20	59.5	15.82
Large	2592	1152	.44	65	5.64

As will be seen from the Tables, the marketing ratios, defined as the proportion of amount sold to amount produced, are 0.48, 0.22 and 0.29 respectively for Rangpur, Faridpur and Sylhet when all the farms are considered together. The marketing ratio of the small farms of Rangpur, Faridpur and Sylhet are about 0.40, 0.10 and 0.17 respectively. The corresponding figures for medium farms are 0.63, 0.18 and 0.20 respectively. For the large farms, the corresponding ratios are higher. They stand at 0.47, 0.33 and 0.44 respectively for Rangpur, Faridpur and Sylhet.

From the available data one will notice that the marketing ratio has a tendency to rise with rise in the size of farms. This obtains in almost all the regions in these districts. One will also notice that there are substantial interregional variation of the marketing ratios. For example, in some regions such as Rangpur III and IV, marketing ratios for all the size categories of farms are ^{higher} relatively than that of Rangpur I or II. Similarly, the marketing ratios of all size group of farms in Sylhet III are

higher than that of Sylhet I or II. It will be noted here that Regions III and IV of Rangpur specializes in the production of HYV Aman and Boro paddy while Region III of Sylhet district specializes in Boro paddy . Furthermore, the marketing ratio of two regions may also differ because of the difference in level of accessibility.

The Tables also give the per centage of produce sold within two weeks of the harvest. The amount of paddy marketed within two weeks of harvest depends on the level of farm prices of paddy after harvest. This estimated ratio has a systematic tendency to decline with the rise in size of farms. The detail figures may be seen from the last column of Tables 4.11, 4.12 and 4.13 respectively, for Rangpur, Faridpur and Sylhet .

4.9. Differences in prices

Information on prices prevailing in the selected villages of all the study regions was collected three times through the surveys. The information was collected within a

short span of time in order to take care of the effects of time on prices. The average prices for these three periods are presented in Table 4.14, 4.15 and 4.16 respectively, for Rangpur, Faridpur and Sylhet.

It will be noticed from the Tables that there is a substantial inter-district variation in the farm level paddy prices. Also, there is a inter-regional variation in the paddy prices within each district though this variation is not quite substantial. One will find from the Tables that the farm-level paddy prices are, in general, much lower in Rangpur compared to those in Faridpur or Sylhet. Farm-level prices for paddy are the highest in Faridpur followed by Sylhet.

(A),

As is seen from Table 4.16/the regions of Faridpur under study are deficit areas in good grain. Therefore, paddy is transported from the markets to interiors of the villages. As such, prices of paddy are higher in the interior villages compared to those of markets. On the other hand, Rangpur is a surplus area in food grain and hence paddy is transported from the interior of the villages to the markets/upazillas and as a result the

Table: 4.14: Farm Level Prices For Paddy, RANGPUR

(Tk. Per maund)

Regions/ Villages	For sales within 2 weeks after harvest.	For sales within one month after harvest.	For sales in Later periods	Weighted average prices
<u>Region I</u>				
Mirganj	130	132	145	136
Khutamara	-	120	128	124
Bugulagari	-	130	130	130
<u>Region II</u>				
Rajrampur	110	110	110	107
Shabajpur	100	100	100	100
Gopinathpur	100	100	100	100
<u>Region III</u>				
Chatrajit	125	125	130	127
Mirarbari	125	125	140	130
Acharjya	130	130	140	133
<u>Region IV</u>				
Bhangamore	140	150	150	147
Sonarai	120	120	125	122
Pearapur	150	150	160	153

Table 4.15 : Farm level Prices For Paddy, FARIDPUR.

(Price in Tk. per maund)

Regions / Villages	For sales within 2 weeks after harvest	For sales within one month after harvest.	For sales in Later periods	Neighted average price.
<u>Region I</u>				
Sadar Bera	170	160	185	172
Bil Gobindapur	170	167	185	174
Radhanagar	170	-	160	165
<u>Region II</u>				
Putpushar	165	-	-	165
Shameehpur	150	165	-	158
Domrakardi	-	-	-	-
<u>Region III</u>				
Tetulia	160	165	175	167
Hulail	160	180	150	163
Malipara	170	170	170	170

Table 4.16 : Farm level Prices For Paddy, SYLHET .

Regions / Villages	(Tk., Per maund)			
	For sales within 2 weeks after harvest	For sales within one month after harvest	For sales in Later periods	Neighted average price
<u>Region I</u>				
Rajnagar	160	170	200	177
Tolibpur	130	140	150	140
Rootorgaon	170	-	200	180
<u>Region II</u>				
Tilpara	155	165	190	170
NalBahar	140	149	180	156
Bajgram	150	160	170	160
<u>Region III</u>				
Kanipur	150	155	170	158
Gogakhator	145	150	180	158
Halipur	140	155	165	153

Table : 4.16(A) State of Food-Self-Sufficiency (Production and requirements) by regions

Districts/Regions	Net availability of Food-grains (1) in '000' tons	Requirements of food-grains (2) in '000' tons	Surplus (+) Deficit (-) (in percentages)
<u>Faridpur</u>	<u>135.8</u>	<u>205.9</u>	<u>-34.0</u>
Region I	64.5	100.1	-35.6
Region II	28.4	44.0	-35.5
Region III	42.9	61.8	-30.6
<u>Rangpur</u>	<u>480.2</u>	<u>391.2</u>	<u>+22.8</u>
Region I	34.8	31.4	+10.8
Region II	91.1	88.0	+ 3.5
Region III(3)	43.5	30.4	+43.1
Region IV	310.8	241.4	+28.8
<u>Sylhet</u>	<u>365.8</u>	<u>332.5</u>	<u>+10.0</u>
Region I	121.4	124.0	- 2.1
Region II	83.6	91.5	- 8.6
Region III	160.8	117.0	+37.4

Source : Compiled from upazila statistics, 1979/80-82+83, BBS, January 1985.

Note (1) Net available for consumption after deduction of 10% from total production for seed and wastage, etc.

(2) Requirement of food-grains at the rate of 15.5 Ounce per head per day.

(3) Due to non-availability data for regions III does not include production and consumption figures of Rajarhat.

farm-level prices of paddy prevailing in the villages are , in general, lower compared to market prices.

Although regions under study of Sylhet district is a surplus area in an overall consideration, price level in Sylhet is, in general ,higher compared to other districts as the income level of the people is higher, but farm level prices are lower compared to those of market prices.

In order to estimate the differences in product and input prices by accessibility of the markets/growth centres, the price data prevailing in various markets have been classified according to the accessibility. The prices of various exportables and importables are shown in Table 4.17.

As will be seen from the table that, in general, prices of exportables are lower in interior markets compared to that in accessible markets. The reverse is the case for importables. As will be seen from the table, in case of paddy rice, wheat and jute in Rangpur the major exportables, the difference in prices between accessible and interior markets ranges from 1.25 per cent in case of paddy to about 4.29

Table 4.17: Differences in product and Input prices
by accessibility of markets.

(In Tk. per maunds)

Commodities	Rangpur			Faridpur			Sylhet		
	Accessi- ble markets Tk/md.	Interior markets Tk/md.	% difference	Accessi- ble markets Tk./md.	Interior markets Tk/md	% difference	Accessi- ble markets Tk/md.	Interior markets Tk.md.	% difference
<u>Exportables:</u>									
Paddy	141.77	140.00	1.25	176.00	155.00	11.93	174.67	167.5	4.10
Rice	264.23	258.33	2.23	280.00	276.67	1.19	335.00	328.33	1.99
Wheat	184.50	180.83	1.99	194.44	140.00	28.00	280.00	250.00	10.71
Jute	170.91	163.57	4.29	217.00	208.33	4.00	201.67	186.67	7.44
<u>Importables:</u>									
Urea	183.29	190.66	4.02	193.60	200.00	3.31	196.00	218.00	11.22
TSP	181.29	190.66	5.17	193.60	200.00	3.31	196.00	218.00	11.22
MP	144.10	150.00	4.09	154.00	160.00	3.90	180.00	213.33	18.52
DAP	-	-	-	-	-	-	-	-	-
Kerosine	376.00	386.67	2.84	356.00	400.00	12.36	375.00	400.00	6.67
Pulses	581.33	592.27	1.88	609.40	584.00	4.17	582.86	582.22	0.11
Potato	168.00	170.00	1.19	206.00	200.00	2.91	220.00	215.00	2.27

per cent in case of jute. The price difference is much higher in case of importables. The percentage difference in prices for both exportables and importables are higher in Faridpur and Sylhet. It appears that the differences in product and input prices tend to fall with the increase in degree of road network.

The average prices of major agricultural commodities in the selected growth centres/markets for the districts of Rangpur, Faridpur are reported in Tables 4.18, 4.19 and 4.20 respectively. One will notice that, there are significant inter-district as well as inter-regional variation of the various agricultural commodities.

The average prices of vegetables, fruits, fish and chicken for the regions of Rangpur, Faridpur and Sylhet are reported in Tables 4.21, 4.22 and 4.23 respectively. Similar inter-district and inter-regional variation in prices are noted as in the case of agricultural products.

The average prices of firewood, fertilizer and house-building materials for Rangpur, Faridpur and Sylhet are reported in Tables 4.24, 4.25 and 4.26 respectively .

Table 4.18 : Price of Agricultural commodities in selected markets : Rangpur.

Agricultural commodities	(Price per maund in Tk.)			
	Region : I	Region-II	Region: III	Region: IV
<u>1. Rice</u>				
(i) Fine	280	260	280	289
(ii) Medium	240	245	263	260
(iii) Coarse	220	-	240	250
<u>2. Paddy</u>				
(i) Fine	140	127	158	160
(ii) Medium	130	122	150	150
(iii) Coarse	110	-	133	138
<u>3. Wheat</u>				
(i) Local	200	152.5	168	173
(ii) HYV	250	195	198	193
<u>4. Cash crops</u>				
(i) Jute(all)	154	112	140	166
(ii) Tobacco				
a. Local	575	575	-	80
b. Virginia	725	650	-	-
<u>5. Oil seeds</u>				
i) Mustard	400	450	345	350
ii) Soyabean	-	-	-	-
iii) Til	-	-	480	480
iv) Tishi	-	-	-	-
v) Badam	-	560	880	840
<u>6. Pulses</u>				
i) Moshuri	640	680	720	680
ii) Mung	720	855	800	840
iii) Khali	480	-	320	360
iv) Chhola(gram)	640	640	720	720
<u>7. Spices</u>				
i) Onion	295	260	240	240
ii) Garlic	1175	250	1200	1280
iii) Ginger	220	215	520	560
iv) Chilli(green)	280	240	160	200
v) Turmeri	800	1110	800	1280
<u>8. Potato</u>	190	180	160	160

Table 4.19 : Price of Agricultural commodities
in selected markets : FARIDPUR
(Tk. per maund)

Agricultural commodities	Region - I	Region- II	Region - III
<u>1. Rice</u>			
i) Fine	280	315	320
ii) Medium	260	280	280
iii) Coarse	264	255	265
<u>2. Paddy</u>			
i) Fine	190	177.5	182.5
ii) Medium	182.5	155	175
iii) Coarse	175	145	170
<u>3. Wheat</u>			
i) Local	170	145	200
ii) HYV	190	-	240
<u>4. Cash crops</u>			
i) Jute (all)	220	222	205
ii) Tobacco			
a. Local	1800	-	-
b. Virginia	-	-	-
<u>5. Oil seeds</u>			
i) Mustard	350	-	360
ii) Soyabean	-	-	-
iii) Til	-	1600	400
iv) Tishi	-	-	-
v) Badam	-	-	-
<u>6. Pulses</u>			
i) Moshuri	840	660	800
ii) Mung	720	760	800
iii) Khali	490	600	600
iv) Chola	497.5	760	480
<u>7. Spices</u>			
i) Onion	210	240	160
ii) Garlic	1540	1140	1280
iii) Ginger	600	620	400
iv) Chilli (green)	250	440	220
v) Termeri	1860	1800	820
<u>8. Potato</u>			
	195	220	200

Table 4.20 : Price of agricultural commodities in selected markets : SYLHET

Agricultural Commodities	(Tk. per maund)		
	Region -I	Region-II	Region-III
<u>1. Rice</u>			
i) Fine	345	360	375
ii) Medium	332.5	330	330
iii) Coarse	320	300	290
<u>2. Paddy</u>			
i) Fine	200	180	160
ii) Medium	190	165	150
iii) Coarses	182.5	160	142
<u>3. Wheat</u>			
i) Local	-	240	250
ii) HYV	-	-	290
<u>4. Cash crops</u>			
i) Jute (all)	-	325	189
ii) Tobacco			
a. Local	2000	-	440
b. Virginia	-	-	-
<u>5. Oil seeds</u>			
i) Mustard	465	320	-
ii) Soyabeen	-	-	-
iii) Til	-	-	-
iv) Tishi	-	-	-
v) Badam	-	480	-
<u>6. Pulses</u>			
i) Moshuri	600	720	780
ii) Mung	800	800	740
iii) Khali	-	240	600
iv) Chola	520	240	740
<u>7. Spices</u>			
i) Onion	340	180	320
ii) Garlic	960	640	1520
iii) Ginger	880	480	440
iv) Chilli (Green)	360	320	320
v) Termeri	320	-	1680
<u>8. Potato</u>			
	170	200	280

Table 4.21 : Prices of vegetables, fruits, fish and Chicken in, RANGPUR

Commodities	(In Taka)				
	Region-I	Region-II	Region-III	Region-IV	All
<u>Vegetables/seers</u>					
1. Begun	5.50	5.00	3.75	3.50	4.44
2. Shim	5.00	5.00	4.00	3.75	4.44
3. Mula	4.50	3.00	3.00	4.00	3.63
4. Cofi	6.00	-	5.50	5.00	5.50
5. Motorshuti	-	-	9.00	10.00	9.50
6. Tomato	9.50	5.00	8.00	7.00	7.38
7. Shalgom	-	-	-	4.00	4.00
8. Khira	-	-	-	5.00	5.00
9. Shakh (all)	4.50	5.00	3.00	3.50	4.00
<u>Fruits</u>					
1.(i) Coconut (green) /pices	3.30	4.00	4.00	3.50	3.70
ii) Coconut	7.33	10.00	6.75	6.00	7.52
2. Papiya/seer	7.50	5.00	6.00	5.50	6.00
3. Orange	-	-	-	-	-
4. Lemon/dozen	11.00	6.00	6.00	6.00	7.25
5. Goava/seer	-	6.00	40.00	42.00	29.33
6. Banna/dozen	11.00	15.00	6.00	6.00	9.50
7. Mangoes/dozen	-	30.00	-	-	30.00
8. Pine apple	-	-	-	-	-
9. Bangee	-	-	-	-	-
10. Jack fruit	20.00	15.00	-	-	-
11. Watermelon	-	5.00	-	-	17.50
					5.00
<u>Poultry</u>					
1. Chicken (average) size	32.17	23.33	30.00	35.83	30.33
2. Duck (average size)	25.67	27.50	30.00	34.17	29.34
3. Egg/hen (dozen)	22.00	13.50	16.00	17.00	17.13
4. Egg/duck (dozen)	22.00	18.00	16.00	18.00	18.50
5. i) Meat:Beef/seer	33.50	32.50	28.00	30.00	31.00
ii) Meat:Mutton/ seer	50.00	50.00	40.00	45.00	46.25
6. i) Milk:Cow/ seer	10.00	10.00	7.00	10.00	9.25
ii) Milk:Goat/ seer	-	-	-	-	-
<u>Fish</u>					

Table 4.22 : Prices of vegetables, fruit, fish and
chicken in FARIDPUR

(In Taka)

Commodities	Region- I	Region-II	Region-III	All
<u>Vegetables/Seer</u>				
1. Begur	5.25	5.00	5.00	5.08
2. Shim	4.75	4.25	4.00	4.33
3. Mula	2.63	-	3.75	3.20
4. Cofi	5.50	3.75	6.00	5.08
5. Motorshuty	-	-	-	-
6. Tomato	6.00	6.50	5.75	6.08
7. Shalgoom	4.00	-	-	4.00
8. Khira	-	-	-	-
9. Shakh (all)	-	-	-	-
<u>Fruits</u>				
1.i) Coconut (Green) /pieces	2.75	2.00	3.00	2.58
ii) Coconut/pieces	5.00	3.00	5.00	4.33
2. Papiya/seer	5.25	5.00	5.00	5.08
3. Orange	-	-	-	-
4. Lemon/dozen	6.00	6.00	10.00	7.33
5. Goava/seer	3.50	4.00	7.00	4.83
6. Banana/dozen	9.00	12.00	12.00	11.00
7. Mangoes/dozen	-	-	-	-
8. Pine apple	-	-	-	-
9. Bangee	-	-	-	-
10. Jack fruit	-	-	-	-
11. Watermilon	-	-	-	-
<u>Poultry</u>				
1. Chicken (average size)	17.83	33.50	36.67	29.33
2. Duck (average size)	26.33	29.00	33.17	29.50
3. Egg/hen/dozen	18.00	24.00	18.00	20.00
4. Egg/duck/dozen	18.00	24.00	18.00	20.00
5. Meat/Beef/seer	32.50	35.00	35.00	34.17
6. Meat/Mutton/seer	60.00	55.00	45.00	53.33
7. Milk/cow/seer	7.75	10.00	9.00	8.92
8. Milk/Goat/seer	-	-	-	-

Table 4.23 : Prices of vegetables, fruit, fish and chicken in SYLHET

(In Taka)				
Commodities	Region - I	Region -II	Region-III	All
<u>Vegetables/</u>				
<u>Seer</u>				
1. Begun	6.00	5.00	5.25	5.42
2. Shim	8.50	3.00	4.00	5.17
3. Mula	4.00	4.00	4.00	4.00
4. Cofi	5.00	-	-	5.00
5. Motorshuti	-	-	-	-
6. Tomato	9.00	9.00	8.00	6.87
7. Shalgoon	4.50	-	-	4.50
8. Khira	-	-	-	-
9. Shakh (all)	5.00	-	5.00	5.00
<u>Fruits</u>				
1.1) Coconut(green) /pieces	5.00	4.50	4.00	4.50
ii) Coconut/pieces	6.00	5.50	5.00	5.50
2.Papiya/Seer	15.00	10.00	17.50	14.17
3.Orrange/dozen	30.00	27.00	52.00	36.33
4.Lemon/dozen	15.00	12.00	12.00	13.00
5.Goava/seer	-	6.00	-	6.00
6.Banana/dozen	13.50	12.00	-	12.75
7. Mangoes/dozen	-	60.00	-	60.00
8. Pine apple	120.00	120.00	90.00	110.00
9. Bangee	-	25.00	-	25.00
10. Jack fruit	-	-	-	-
11. Watermilon	-	-	-	-
<u>Poultry</u>				
1. Chicken (average size)	48.33	34.17	31.33	37.94
2. Duck (average size)	31.83	25.00	28.33	28.39
3. Egg:Hen/dozen	18.00	15.00	24.00	19.00
4. Egg:Duck/dozen	15.50	15.00	21.00	17.17
5. Meat:Beef/Seer	40.00	40.00	-	40.00
6. Meat:Mutton/seer	55.00	60.00	-	57.50
7. Milk :cow/seer	12.00	10.00	12.00	11.33
8. Milk :Goat/seer	-	-	-	-

Table 4.24 : Prices of firewood, Fertilizer and Housebuilding materials in RANGPUR.

(Taka per maund)					
Items	Region-I	Region-II	Region-III	Region-IV	All
1. <u>Fuel</u>					
a) Firewood	30	32.50	32.50	37.50	33.13
b) Kerosine Oil	360	400	400	400	390
c) Jute stick	70	80	32.50	45	56.88
2. <u>Fertilizer and Pesticide</u>					
a) TSP	192	167.24	190	190	184.81
b) Urea	192	160.00	190	190	183
c) MP	150	135.29	150	150	146.32
d) DAP	-	-	-	-	-
3. <u>Housebuilding materials</u>					
a) Timber/cft.	-	257.50	-	62.50	160
b) Bamboo/piece	31.67	27.50	32.50	26.25	29.48
c) Cane	-	-	-	-	-
d) Straw	-	-	-	-	-
e) Cement /ton	-	-	-	-	-
f) Rod/ton	-	-	-	-	-
g) Bricks/ thousand	1200	1350	1100	1550	1300.00
h) C.I. Sheet (tin)/Bundle	2550	-	-	-	2550
i) Asbestos Sheet /Bundle	-	-	-	-	-

Table 4.25 : Prices of Firewood, Fertilizer and Housebuilding materials in FARIDPUR

(Tk. per maund)

Item	Region - I	Region - II	Region-III	All
<u>1. Fuel</u>				
a. Firewood	32.50	29	20	27.17
b. Kerosine oil	330	400	360	363.33
c. Jute stick	17.50	40	17.50	25
<u>2. Fertilizer and pesticide</u>				
a. TSP	190	194	200	194.67
b. Urea	190	194	200	194.67
c. MP	155	150	160	155
d. DAP	-	-	-	-
<u>3. Housebuilding materials</u>				
a. Timber/cft.	-	-	-	-
b. Bamboo/piece	22.50	32.50	32.50	29.17
c. Cane/piece	-	-	4	4
d. Straw	32.50	50	47.50	43.33
e. Cement/ton	-	-	-	-
f. Rod/ton	-	-	-	-
g. Bricks/ thousand	-	-	1200	1200
h. C.I.sheet(tin) bundle	-	-	2500	2500
i. Asbestos sheet bundle	-	-	-	-

Table 4.26 : Prices of firewood, fertilizer and
Housebuilding materials in SYLHET

(Tk. Per maund.)

Items	Region - I	Region - II	Region-III	All
<u>1. Fuel</u>				
a. Firewood	45	35	43.75	41.25
b. Kerosine oil	390	360	400	383.33
c. Jute sticks	-	60	-	60
<u>2. Fertilizer and Pesticide</u>				
a. TSP	200	240	192	210.67
b. Urea	200	240	192	210.67
c. MP	160	240	200	200
d. DAP	-	-	-	-
<u>3. Housebuilding materials</u>				
a. Timber/cft.	-	275	-	275
b. Bamboo/piece	52.50	25	15	30.83
c. Cane/piece	6.50	7.50	-	7
d. Straw	-	100	-	100
e. Cement/bag	-	140	-	140
f. Rod/ton	-	22687.50	-	22687.50
g. Bricks/ thousand	-	1000	-	1000
h. C.I.sheet (tin)/bundle	-	2500	-	2500
i. Asbestos sheet /bundle	-	-	-	-

4.10. Concluding Remarks

The findings of the present chapter, indicate that investment programmes for maintenance and improvement of roads may enable the farm households to obtain better prices for the product they sell and to secure lower prices of agricultural inputs they use for increasing productions. These changes in prices will widen the gap between the cost and value of production and as a result the profitability of crop production will increase. If the farmers are responsive to profitability and prices, the production will increase.

Chapter - V

EMPLOYMENT AND INCOME

The present chapter reports findings of the employment and income situations of different types of households in the area under study. As mentioned earlier, the occupational structure as reported in Table 3.5, shows that an overwhelming majority of the household heads are primarily engaged in agriculture in all the three districts. About 33 per cent in Rangpur, 26 per cent in Faridpur and 25 per cent of the households are agricultural labourers. Fishery is an important occupation in Sylhet. Among the non-agricultural occupations, trade and business and salaried service seem to be significant in all the three districts. Transport, as a primary occupation accounts for 4.9 per cent of the households in Faridpur.

With a view to finding the employment and income situations of the farm households, the landless or near landless labour supplying households, traders and

businessmen and the transport workers, data were collected through in-depth surveys. The data includes the size of the households by sex, the extent of participation in wage and self employment, the nature and the extent of employment in terms of number of days worked differentiated by types of activities, the system of wage payment, wage rates and the composition of household income.

5.1: Employment and Income : Farm Households

In order to find the households position of own labour stock, the average size of family of the farm households by farm^{size} have been estimated. These estimates for Rangpur, Faridpur and Sylhet are presented in Tables 5.1, 5.2 and 5.3 respectively. One will notice from the Tables that the average size of family in Rangpur, Faridpur and Sylhet are 5.90, 6.45 and 6.04 respectively. The average number of adult male and female for Rangpur respectively are 2.39 and 1.77, for Faridpur 2.69 and 2.28, and for Sylhet 2.49 and 1.95.

Table. 5.1 : Average Size of Family by Farmsize : Rangpur

Farm size in acres	No. of households	Average size of farm (acres)	Average family size	Average No. of adult members (10 years and above)		Average land per adult male (acres)
				Male	Female	
0.01 - < 2.50	108	1.03	4.95	1.89	1.53	0.54
2.50 - < 5.00	23	3.35	7.06	2.72	1.89	1.23
5.00 +	13	11.12	9.41	4.45	2.82	2.50
ALL	144	2.31	5.90	2.39	1.77	0.97

Table : 5.2 : Average Size of Family by Farmsize : Faridpur.

Farm size in acres	No. of households	Average size of farm (acres)	Average size of family	Average No. of adult member (10 years and above)		Average land per adult male (acres)
				Male	Female	
0.01 - < 2.50	74	0.88	5.8	2.36	1.97	0.37
2.50 - < 5.00	22	3.82	7.14	2.91	2.50	1.31
5.00 +	12	9.31	8.38	3.88	3.31	2.39
ALL	108	2.41	6.45	2.69	2.28	0.90

Table.5.3 : Average Size of Family by Farmsize, Sylhet.

Farm size in acres	No. of households	Average size of farm (acres)	Average size of family	Average No. of adult member (10 years and above)		Average land per adult male (acres)
				Male	Female	
0.01 - < 2.50	68	0.85	5.59	2.20	1.89	0.39
2.50 - < 5.00	30	3.47	6.27	2.79	2.00	1.24
5.00 +	13	8.21	7.83	3.25	2.17	2.53
ALL	111	2.42	6.04	2.49	1.95	0.97

One will also notice the size of family tends to rise with size of the farm in all the districts. Also, the average land area per adult male increases as the size of the farm increases, in all the districts indicating that the average stock position of own labour decreases with the size of farms. For Rangpur, the number of adult males per acre, the reciprocal of the land area per adult male, for small, medium and large farms are 1.85, 0.81 and 0.40 respectively. The corresponding figures are 2.70, 0.70 and 0.42 for Faridpur and 2.56, 0.81 and 0.40 for Sylhet.

In order to find the extent of different types of labour used by different groups of farms, the number of labour days used by type per farm in crop production are reported in Tables 5.4, 5.5 and 5.6 respectively for Rangpur, Faridpur and Sylhet. One will notice from the Tables that the average total number of mandays used per farm for small, medium and large farms are about 145, 368 and 1145 respectively.

Table.5.4. Type of labour used per farm in crop production by farm sizeRANGPUR

Farm size group	No. of farms	Average size of farm (in acres)	Average No. of mandays employed per farm			Average total mandays per farm	Average No. of mandays employed per acre
			Family Labour	Hired Permanent labour	Casual labour		
Small (0.01 - /2.50)	108	1.03 (110.81)	101.74 (10988)	9.95 (1075)	33.07 (3572)	144.77 (15635)	141.11 (15635)
Medium (2.50 - /5.00)	23	3.35 (76.96)	192.83 (4435)	37.09 (853)	137.78 (3169)	367.70 (8457)	109.89 (8457)
Large (5.00 +)	13	11.12 (144.54)	259.38 (3372)	207.08 (2692)	678.92 (8826)	1145.38 (14890)	103.02 (14890)
ALL	144	2.31 (332.31)	130.52 (18795)	32.08 (4620)	108.10 (15567)	270.71 (38972)	117.31 (38972)

Figures in parenthesis are totals.

Table. 5.5 : Type of labour used per farm in crop production by farm size

FARIDPUR

Farm size group	No. of farms	Average size of farm (in acres)	Average number of mandays employed per farm			Average total man-days per farm	Average No. of mandays employed per acre
			Family labour	Hired permanent labour	Casual labour		
Small (0.01 - 2.50)	74	0.88 (65.07)	35.86 (2654)	6.19 (458)	45.33 (3354.50)	87.39 (6466.50)	99.38 (6466.50)
Medium (2.50 - 5.00)	22	3.82 (84.01)	126.91 (2792)	26.32 (579)	180.82 (3978)	334.05 (7349)	87.48 (7349)
Large (5.00 +)	12	9.31 (111.69)	73.08 (877)	109.42 (1313)	541.58 (6499)	724.08 (8689)	77.80 (8689)
ALL	108	2.41 (260.77)	58.55 (6323)	21.76 (2350)	128.07 (13831.5)	208.37 (22504.50)	86.30 (22504.50)

Figures in parenthesis are totals

Table.5.6 : Type of labour used per farm in crop production by farm size.SYLHET

Farm size group	No. of farms	Average size of farm (in acres)	Average number of mandays employed per farm			Average total man-days per farm	Average No. of mandays employed per acre
			Family labour	Hired permanent labour	Casual labour		
Small (0.01 - 2.50)	68	0.85 (58.08)	83.38 (5670)	4.37 (297)	18.93 (1285)	106.65 (7252)	124.86 (7252)
Medium (2.50 - 5.00)	30	3.47 (104.13)	148.57 (4457)	31.20 (936)	97.47 (2924)	277.24 (3317)	79.87 (8317)
Large (5.00 +)	13	8.21 (106.75)	136.46 (1774)	163.00 (2119)	304.77 (3962)	604.23 (7855)	73.58 (7855)
ALL	111	2.42 (268.96)	107.22 (11901)	30.20 (3352)	73.61 (8171)	211.03 (23424)	87.09 (23424)

Figures in parenthesis are totals

The corresponding figures for Faridpur are 87, 334 and 724 mandays and for Sylhet, 107, 277 and 604. Again, the number of mandays employed per acre for small, medium and large farms for Rangpur are about 141, 110 and 103 respectively. The corresponding figures are 99, 87 and 78 for Faridpur and about 125, 80 and 74 for Sylhet. It appears that the number of labour days used per acre for all size group of farms are consistently higher in Rangpur compared to those in Faridpur or Sylhet. The reason for relatively higher per acre labour use in Rangpur for all the size groups of farms are the cultivation of relatively higher proportion of irrigated crops that are highly labour intensive, cultivation of highly labour intensive cash crops like Tobacco and relatively higher cropping intensity of the farms compared to those in Faridpur and Sylhet.

It will also be noticed that farms in each size group use both family and hired labour. The incidence

of permanent hired labour in small farms are the lowest compared to those in medium and large farms in all the districts. Table 5.7 reports the composition of the total number of labourdays used by types of labour for all the size groups of farms in the districts. One will notice that for Rangpur, the family labour, hired permanent labour and hired casual labour as percentages of total labour used are 48.2, 11.9 and 39.9 respectively for all the farms together. The corresponding figures for Faridpur are about 28.1, 10.4 and 61.5, and for Sylhet, 50.8, 14.3 and 34.9. The use of family labour declines systematically as the size of farms increases for all the districts, while the use of hired permanent and casual labour increases with the increase in size of farms. The percentage of family labour used declines from 70.3 for small farms to about 23 in large farms in Rangpur. For Faridpur, it declines from 41 per cent in small farms to about 10 per cent in large farms while in Sylhet, it declines from about 78 per cent to about 23 per cent. The use of hired casual labour as a

Table.5.7 : Types of Labour Used in percentages by Farm Size and Districts

Farm Size group (acres)/Districts	Average Size of Farms	As % of total Labour Used		
		Family labour	Hired permanent labour	Hired casual labour
<u>Rangpur</u>	<u>2.31</u>	<u>48.2</u>	<u>11.9</u>	<u>39.9</u>
Small(0.01/2.50)	1.03	70.3	6.9	22.8
Medium(2.50/5.00)	3.35	52.4	10.1	37.5
Large(5.00 +)	11.12	22.6	18.1	59.3
<u>Faridpur</u>	<u>2.41</u>	<u>28.1</u>	<u>10.4</u>	<u>61.5</u>
Small(0.01/2.50)	0.88	41.0	7.1	51.9
Medium(2.50/5.00)	3.82	38.0	7.9	54.1
Large(5.00 +)	9.31	10.1	15.1	74.8
<u>Sylhet</u>	<u>2.42</u>	<u>50.8</u>	<u>14.3</u>	<u>34.9</u>
Small(0.01/2.50)	0.85	78.2	4.1	17.7
Medium(2.50/5.00)	3.47	53.6	11.3	35.2
Large(5.00 +)	8.21	22.6	27.0	50.4

percentage of the total labour days for small farms for Rangpur, Faridpur and Sylhet are about 23, 52 and 18 respectively. The corresponding figures for medium farms are about 38, 54 and 35 per cent, and for large farms are about 59, 75 and 50 per cent.

Casual labour is used in all the size categories of farms because crop production is a seasonal activity and several tasks such as transplanting, weeding harvesting etc. have to be performed in a short specific periods. During these periods a small farm has to hire in casual labour in order to carry out the task, otherwise production will suffer.

The number of days employed in agriculture by an adult male worker of the farm families of the various farmsize group by districts were estimated and are reported in Table 5.8. An adult male has been defined as an individual who is 10 years or over.

One will notice from the Table that the total number of days employed in wage labour and on own farm together

Table.5.8. Average Number of Days Employed on Own Farm And on Wage Labour Per Adult Male Worker by Farmsize And Districts

<u>Size group of Farms (in acres)/ Districts</u>	<u>Average number of Mandays on own Farm</u>	<u>Average number of Mandays on wage labour</u>	<u>Total number of days employed</u>
<u>Rangpur</u>	<u>54.6</u>	<u>21.7</u>	<u>76.3</u>
Small(0.01/2.50)	53.8	36.6	90.4
Medium(2.50/5.00)	70.9	-	70.9
Large(5.00 +)	58.3	-	58.3
<u>Faridpur</u>	<u>21.8</u>	<u>22.1</u>	<u>43.9</u>
Small(0.01/2.50)	15.2	36.2	51.4
Medium(2.50/5.00)	43.6	1.6	45.2
Large(5.00 +)	18.8	-	18.8
<u>Sylhet</u>	<u>43.1</u>	<u>10.9</u>	<u>54.0</u>
Small(0.01/2.50)	37.9	18.1	56.0
Medium(2.50/5.00)	53.3	3.6	56.9
Large(5.00 +)	42.0	-	42.0

by an adult male worker for all farms together are 76.3, 43.9 and 54 respectively for Rangpur, Faridpur and Sylhet. Only small farms in Rangpur and Sylhet and small as well as medium farms in Faridpur hire out labour on wage basis. The average number of days employed on own farm for medium farms in Rangpur, Faridpur and Sylhet are about 71, 44 and 53 respectively. One will also notice that the number of days employed on own farm are the highest in medium farms in all the districts. One will further note that the total number of days employed in wage labour and on own farms for the small farms are the highest. They are about 90, 51 and 56 respectively for Rangpur, Faridpur and Sylhet. Thus, the number of days employed in wage labour and on own farms together tends to decline as the size of farms increases.

Several reasons account for the smaller number of days employed in agriculture (on own farm and wage labour) by the adult male workers of the larger farms. In general, the over all asset position of the larger farms are

better than the smaller ones and as a result, the alternative gainful employment opportunities are better for individuals of the larger farms compared to those of small farms. Thus the opportunity cost of labour is higher for individuals of larger farms than those of smaller farms.

The opportunity cost of labour for individuals of large farms is higher than the returns to labour in agriculture. For individuals of small farms, however, due to lack of alternative employment opportunity, the opportunity cost of labour is low compared to individuals of large farms. Further, the individuals of large farm groups may not want to hire out labour on wage basis for social reasons such as prestige.

The details of the households income by various sources and farmsize for Rangpur, Faridpur and Sylhet are reported in Tables 5.9, 5.10 and 5.11 respectively. From Table 5.9 one will observe that the average income for Rangpur farms is about Taka Twenty six thousand.

Table: 5.9 : Composition of Household Income by Sources by Farmsize.

RANGPUR

Farmsize group (in acre)	Average size of farm (acre)	Av.No. of mandays on farm	Av.No. of mandays on wage labour	Average income from farming	Average income from wage labour	Average income from lives- stock poultry fishing	Average income from bamboo fire- wood	Average income from Trade/ business	Average income from other service (e.g. salary, remittances etc.	Average income from land- renting share cropped out etc	(In Taka)	
											Average income	Average total income
Small (0.01-2.50)	1.03	101.74	69.21	9637 (72.5)	1682 (12.7)	309 (2.3)	106 (0.8)	962 (7.2)	593 (4.5)	-	13289	
Medium (2.50-5.00)	3.35	192.83	-	35342 (87.1)	-	904 (2.2)	274 (0.7)	839 (2.1)	3217 (7.9)	-	40576	
Large (5.00 +)	11.12	259.38	-	90882 (88.6)	-	1292 (1.2)	135 (0.1)	4485 (4.4)	5223 (5.1)	1231 (1.2)	102548	
ALL	2.31	139.52	51.91	21077 (82.0)	1261 (4.9)	493 (1.9)	135 (0.5)	1260 (4.9)	1367 (5.3)	111 (0.4)	25704	

Figures in parentheses are percentages of the total

Table.5.10: Composition of the Household Income by Sources by Farmsize

FARIDPUR

Farmsize group (in acre)	(In Taka)										
	Average size of farm (acre)	Av.No. of mandays on farm	Average No. of mandays on wage labour	Average income from farming	Average income from wage labour	Average income from lives-stock, poultry, fishing	Average income from Bamboo, fire-wood, etc.	Average income from trade/business	Average income from other service (e.g. salary, allowances)	Average income from land share cropped out, etc.	Average total income
Small (0.01-2.50)	0.88	35.86	85.47	5041 (51.6)	1934 (19.8)	632 (6.5)	178 (1.8)	1405 (14.4)	571 (5.8)	-	9744
Medium (2.50-5.00)	3.82	12.91	4.64	16132 (79.7)	185 (0.9)	466 (2.3)	516 (2.5)	1705 (8.4)	550 (2.7)	682 (3.4)	20236
Large (5.00 +)	9.31	73.08	-	46493 (80.7)	-	375 (0.6)	567 (1.0)	4333 (7.5)	1000 (1.7)	4833 (8.4)	57601
ALL	2.41	58.55	59.51	11906 (69.2)	1363 (7.9)	570 (3.3)	299 (1.5)	1792 (10.4)	614 (3.6)	676 (3.9)	17210

Figures in parentheses are percentages of total

Table: 5.11: Composition of the Household Income by Sources by Farmsize.SYLHET

Farmsize group (in acres)	(In Taka)										
	Average size of farm (acre)	Av.No.of mandays on farm	Av.No. of mandays on wage labour	Average income from farming	Average income from wage labour	Average income from lives- tock, poultry fishing etc.	Average income from Bamboo fire- wood, etc.	Average income from trade/ busi- ness	Average income from other service (e.g. salary remi- ttences	Average income from land renting share cropped out, etc	Average total income
Small (0.01- <u>2.50</u>)	0.85	83.38	39.79	6109 (37.5)	1171 (7.2)	2209 (13.6)	190 (1.2)	4446 (27.3)	2096 (12.9)	66 (0.4)	16287
Medium (2.50- <u>5.00</u>)	3.47	148.57	9.97	9489 (25.0)	397 (1.0)	760 (2.0)	257 (0.7)	7120 (18.8)	19883 (52.4)	67 (0.2)	37973
Large (5.00 +)	8.21	130.46	-	42233 (42.4)	-	4438 (4.5)	615 (0.6)	16308 (16.4)	35385 (35.5)	615 (0.6)	99594
ALL	2.42	107.22	27.07	11253 (35.3)	825 (2.6)	2078 (6.5)	258 (0.8)	6558 (20.6)	10802 (33.2)	131 (0.4)	31205

Figures in parentheses are percentages of total.

The average income for small, medium and large farms are about Taka thirteen, forty one and ten thousand respectively. One will notice that for all the farms considered, farming constitutes the highest (82 per cent) in the farm income followed by service/remittance, trade/business and wages. There is also a variation in the composition of farm incomes among the various size group of farms.

From Table 5.10, similar features are observed in the district of Faridpur where farming accounts for about 69.2 per cent of the total income followed by trade/business (10.4) and wages (7.9) for all the farms considered together. The average income for small, medium and large farms are Tk. 9761, 20236 and 57601 respectively while that of all farms taken together is about Tk. 17210. There is also a considerable variation in the composition of income among the various size groups of farms. For small farms, farming accounts for about 52 per cent followed by income from wage labour (19.8) and trade/business (14.4).

From Table 5.11 for Sylhet, the average income for the small, medium and large farms are about Taka sixteen, thirty eight and one hundred thousand respectively, while that of all farms taken together is Tk. 31905. One will observe that in Sylhet for all farms considered, farming constitutes only about 35.3 per cent of the total income, closely followed by services/remittances (33.9), trade/business (20.6) and livestock/poultry and fishing (6.5). Also, the composition of income varies considerably among the households of various size groups of farms.

Tables also indicate considerable inter-district variation in the composition of income of the households of different size groups of farms.

5.2: Employment and Income: Labour Supplying Households

The size of the labour supplying households which are landless or near landless, by districts, have been presented in Table 5.12. One will notice from the Table

Table : 5.12 : Size of the Labour Supplying
Households by districts

District	No. of families	Average size	Average number of adult	
			Male	Female
Rangpur	60	3.88	1.47	1.23
Faridpur	45	5.35	2.00	2.07
Sylhet	45	4.89	1.64	1.44
All	150	4.62	1.68	1.54

that the average size of these households for Rangpur, Faridpur and Sylhet are 3.88, 5.35 and 4.89 respectively. For all the households taken together, the average size is about 4.62. The average number of adult male and female who are 10 years or over for Rangpur are 1.47 and 1.23 respectively. The corresponding figures for Faridpur are 2.00 and 2.07, and for Sylhet, 1.64 and 1.44. From the above, it appears that the average size of the family for these households in each district is smaller than the corresponding figure for the farm households. It also indicates the size of the stock of labour for these families.

The extent of participation of the adult members of the labour supplying households in wage and self-employment by districts have been shown in Table 5.13. One will notice that, of the total adult male members, about 92, 61 and 69 per cent participate in wage employment respectively in the districts of Rangpur, Faridpur and Sylhet. About 23, 18 and 28 per cent of the total adult male members participate in self-

Table.5.13 : Extent of Participation in Wage And Self-Employment per adult of the Labour Supplying Households by Districts

Districts	% of adult male worker under		% of adult female worker under	
	Wage Employment	Self Employment	Wage Employment	Self Employment
Rangpur	92.1	22.7	56.8	23.0
Faridpur	61.1	18.4	22.6	30.1
Sylhet	68.9	28.4	32.3	46.2
All	74.2	23.0	36.2	32.3

employment in Rangpur, Faridpur and Sylhet respectively. Participation in wage and self-employment by the adult members of the family are not mutually exclusive.

Participation rates in wage and self-employment by the adult female members of these households are much higher than those of the farm households. About 57, 23 and 32 per cent of the adult female workers participate in wage employment respectively in Rangpur, Faridpur and Sylhet.

One will also notice that the participation rates of the female adult members of these households in self-employment are much higher in each district compared to their male counterparts. About 23, 30 and 46 per cent of the adult female members participate in self-employment respectively in Rangpur, Faridpur and Sylhet. Further, participation in wage employment and self-employment by an adult female member is not mutually exclusive.

Table 5.14 reports the average number of days employed in both wage and self employment per adult male and female members of the labour supplying households by districts. One will observe that the average number of days employed on wage basis per adult male for Rangpur, Faridpur and Sylhet are about 185, 150 and 153 respectively. The corresponding figures for female employment are 102, 51 and 70. It will also be noticed that on the average for all the districts female employment is about 45 per cent of male employment in terms of number of days.

The average number of days self-employed per adult male for Rangpur, Faridpur and Sylhet are about 11, 38 and 26 respectively. The corresponding figures for female employment are 17, 72 and 61 which appear to be much higher than the male employment per adult member. For all the districts together, the average number of days self-employed by adult female members is about 205 per cent higher than that of the male members. Thus the average total number days employed

Table.5.14 : Average Number of Days Employed per Adult of the Labour Supplying Households by Districts

Districts	Average number of days employed on wages per adult on		Average number of days self employed per adult on		Total number of days employed per adult	
	Male	Female	Male	Female	Male	Female
Rangpur	184.8	102.4	10.9	16.6	195.7	119.0
Faridpur	150.2	51.4	37.9	72.3	188.1	123.7
Sylhet	152.9	70.4	26.2	61.3	179.1	131.3
All	163.1	73.0	25.1	51.5	188.2	124.5

by adult male members for Rangpur, Faridpur and Sylhet stand at 196, 188 and 179 respectively. The corresponding figures for adult female members are about 119, 123 and 131. It appears that there are substantial inter-district variations of both male and female employment on wage basis as well as self-employment.

In order to see the structure of employment of both male and female employed workers, the average number of days employed by various types activities along with their average wage rates have been reported in Tables 5.15, 5.16 and 5.17 respectively for Rangpur, Faridpur and Sylhet districts.

One will notice from Table 5.15 that in Rangpur, the majority of the workers (54 per cent) are employed as agricultural labour, followed by earth work (19 per cent), pottery (9 per cent) and other non-agricultural labour (7 per cent)(mostly domestic help). Transport accounts for about 6 per cent only in that district. On the other hand, about 36 per cent of the female workers are employed in agriculture. About 36,

Table : 5.15 No. of days employed by activity, RANGPUR

Activity	Male			Female		
	% of worker	No. of days employed	Wage rate	% of worker	No. of days employed	Wage rate
Agricultural Labour	54	236	25.00	36	143	16.67
Earth work	19	138	27.00	12	156	15.00
Brick breaking	-	-	-	-	-	-
Rice husking	-	-	-	16	246	15.00
Cottage/Crafts	-	-	-	-	-	-
Poltery	9	87	25.00	-	-	-
Blacksmith	4	360	30.00	-	-	-
Shopkeeping/Vending/ Trading	1	90	30.00	-	-	-
Transport worker	6	258	30.00	-	-	-
Fishing	-	-	-	-	-	-
Poultry	-	-	-	-	-	-
Vegetable gardening	-	-	-	-	-	-
Cow fattening	-	-	-	-	-	-
Other non-agricultural Labour	7	120	26.00	36	195	10.00
All	100 (81)	201	26.00	100 (42)	180	14.15

Table : 5.16 No. of days employed by activity, FARIDPUR

Activity	Male			Female		
	% of Worker	No. of dayd employed	Wage rate	% of worker	No. of days employed	Wage rate
Agricultural Labour	55	281	24.94	-	-	-
Earth Work	4	48	20.00	19	69	17.50
Brick breaking	2	85	22.00	10	181	21.66
Rice husking	-	-	-	28	205	15.00
Cottage/Crafts	-	-	-	-	-	-
Pottery	-	-	-	-	-	-
Blacksmith	-	-	-	-	-	-
Shopkeeping/Vending/ Trading	9	341	21.67	-	-	-
Transport worker	18	286	27.67	-	-	-
Fishing	10	300	20.00	-	-	-
Poultry	-	-	-	-	-	-
Vegetable gardening	-	-	-	-	-	-
Cow fattering	2	320	21.67	5	360	2.78
Other non -agritural Labour	-	-	-	38	320	22.50
All	100 (49)	276	24.34	100 (21)	228	18.39

Table : 5.17 No. of days employed by activity , SYLHET

Activity	Male			Female		
	% of Worker	No. of days employed	Wage rate	% of Worker	No. of days employed	Wage rate
Agricultural Labour	49	170	21.00	-	-	-
Earth work	-	-	-	-	-	-
Brick breaking	-	-	-	-	-	-
Rice husking	2	360	23.33	33	52	11.50
Cottage/Crafts	-	-	-	33	340	25.00
Pottery	-	-	-	-	-	-
Blacksmith	-	-	-	-	-	-
Shopkeeping/Vending/ Trading	4	232	51.67	-	-	-
Transport Worker	-	-	-	-	-	-
Fishing	41	284	47.78	5	310	30.00
Poultry	4	360	33.33	14	360	33.33
Vegetable gradening	-	-	-	-	-	-
Cow fattering	-	-	-	5	60	-
Other non-agricultural labour -	-	-	-	10	190	-
All	100 (49)	231	33.73	100 (21)	218	18.36

16 and 12 per cent of the female employed workers are employed in non-agricultural work (mostly domestic help), earth work and rice husking respectively. One will also notice that there are substantial wage differences between male and female workers for the same type of activity. For example, wage rates for male and female workers in agriculture are Tk. 25 and Tk. 17 respectively. Also, the average daily wage rate for male workers in earth work is about Tk. 27 compared to about Tk. 15 for the female workers.

Table 5.16 reports the average number of days employed by male and female employed workers in different activities along with their respective wage rates for Faridpur district. It will be noticed that about 55, 18, 10 and 9 per cent of the male workers are employed in agriculture, transport, fishing and shopkeeping/vending respectively. The composition of employment of female workers for Faridpur district is different from that of the male workers.

One will notice from the Table that about 38, 28, 19 and 10 per cent of the female workers are employed respectively in non-agricultural work (mostly as domestic help), rice-husking earth work and brick breaking. The wage rates for female workers are substantially lower than their male counterparts for the same type of activity.

Table 5.17 presents the structure of employment of both male and female workers in Sylhet district. The Table shows that about 49 and 41 per cent of the male workers are employed in agriculture and fishing respectively. On the other hand, about 33, 14, 10 and 33 per cent of the female workers are employed in rice-husking, poultry, cow-fattening and cottage/crafts respectively. There is a substantial wage differentials between male and female workers for the same type of work.

From the above data it appears that female activities are concentrated in few activities and the male workers

are somewhat centred around some other activities. Also, the remuneration for the female workers are very low compared to that of the male workers.

Table 5.18 reports the average number of days in self-employment for both male and female workers by activities for all the districts under study. One will notice that the male workers are concentrated only in cow-fattening activity in all the three districts. However, about 71 and 29 per cent of the female workers are engaged in cow-fattening and rice husking respectively in Rangpur. In Sylhet also, about 63 and 57 per cent of female workers respectively are engaged in cow-fattening and rice-husking.

Table 5.19 shows the percentage distribution of workers by sex and place of work by districts. It will be noticed, that an overwhelming majority of the female workers work within the village. Only about 29 per cent of female workers work in nearby village while about 6 per cent work outside union. None of the female workers

Table : 5.18 Self employment of the members of the landless/labour supplying households.

Type of activity	Rangpur				Faridpur				Sylhet			
	Male		Female		Male		Female		Male		Female	
	% of worker	No. of days employed	% of worker	No. of days employed	% of worker	No. of days employed	% of worker	No. of days employed	% of worker	No. of days employed	% of worker	No. of days employed
Cow fattening	100	48	71	36	100	201	100	208	100	92	63	99
Bee keeping	-	-	-	-	-	-	-	-	-	-	-	-
Livestock	-	-	-	-	-	-	-	-	-	-	-	-
Poultry	-	-	-	-	-	-	-	-	-	-	-	-
Rice husking	-	-	29	159	-	-	-	-	-	-	37	191
All	100 (20)	48	100 (17)	72	100 (17)	201	100 (21)	208	100 (21)	92	100 (30)	133

Table : 5.19 Percentage distribution of workers by sex and place of work by district.

		Within the village	Nearby village	Outside Union	Outside Upazila	Outside District	All (Total Member)
RANGPUR	Male	38.3	39.5	13.6	7.4	1.2	81
	Female	54.8	40.5	4.7	-	-	42
FARIDPUR	Male	45.5	38.2	10.9	3.6	1.8	55
	Female	57.1	28.6	14.3	-	-	21
SYLHET	Male	49.0	29.4	11.8	9.8	-	51
	Female	95.2	4.8	-	-	-	21
ALL	Male	43.3	36.4	12.3	7.0	1.1	187
	Female	64.6	29.3	6.1	-	-	82

work outside upazilla. On the other hand, about 43, 36 and 12 per cent of the male workers respectively work within the village, nearby village and outside union. However, a very small percentage of the male workers work outside the upazilla or district.

Table 5.20 presents the average annual income from wage and self-employment per adult male and female workers and the average wage rates of the labour supplying households by districts. One will notice that the average annual wage income per adult male and female for all the districts, are Tk. 4608 and Tk.1294 respectively. However, the average annual return from self employment per adult for male and female workers are very low compared to the wage incomes. Average annual return per adult for male and female workers are about Tk. 211 and Tk. 269 respectively for all the districts. Wage rates as well as the average daily return for the female workers on the average are considerably lower than those of the male workers.

Table : 5.20 Average annual Income From Wage and Self-Employment per Adult and Wage Rates of the Labour Supplying Households by Districts.

(In Taka)

Districts	Average Annual Wage Income Per Adult.		Average Annual return from self emp. per Adult.		Average Wage rate in Taka		Average daily return from self empl. (Tk.)	
	Male	Female	Male	Female	Male	Female	Male	Female
RANGPUR	4815	1386	171	126	26.06	13.54	15.63	7.60
FARIDPUR	3596	953	187	265	23.94	18.53	4.94	3.67
SYLHET	5593	1677	288	433	36.58	23.82	10.99	7.06
ALL	4608	1294	211	269	28.26	17.73	8.42	5.22

It will also be noticed that there are substantial inter-district variations of both male and female wage incomes as well as the male and female wages. Average wage income per adult and the wage rates for both male and female workers are the highest in Sylhet followed by Rangpur and Faridpur. The average wage rates for male and female worker for all the districts are Tk. 28.26 and Tk. 17.73 respectively.

5.3: Employment and Income : Traders and Businessmen

Information regarding employment and Income of the traders and businessmen were collected through an indepth survey of traders who frequented the selected growth centres/markets in the area under study. Table 5.21 reports the average number of days employed and average annual income of the traders and businessmen by districts.

One will observe from the Table that the average number of days employed for Rangpur, Faridpur and Sylhet are 201, 182 and 250 respectively. The corresponding

Table. 5.21 : Number of days employed and income of the traders by district

District	Number	Average number of days employed in a year	Average income per annum
RANGPUR	48	201	22,775
FARIDPUR	36	182	19,190
SYLHET	36	250	26,488
ALL	120	210	22,813

figures for the average annual income are Tk. 22.8, 19.2 and 26.4 thousand respectively. Thus the average monthly income for these traders are about Tk. 1898, 1599 and 2207 respectively for Rangpur, Faridpur and Sylhet respectively. The average monthly or annual income is the highest in Sylhet, followed by Rangpur and Faridpur.

It may be mentioned here that these traders generally participate in buying and selling of paddy, jute, fertilizer and other agricultural products in the markets and work mostly as middlemen between the consumers and producers.

5.4: Employment and Income : Pure Transport Workers

Information regarding various aspects of transport operators have been reported in the next chapter. In this section, the average number of days employed, the average annual income and the average daily wage rates for 111 pure transport workers of different modes have been

estimated. Table 5.22 reports the employment and income situation of the different types of transport workers by districts.

One will observe from the Table that for all types of transport workers, the average number of days employed are about 214, 236 and 228 respectively for Rangpur, Faridpur and Sylhet. The average annual income for all types of workers are about Tk. 5978, 8311 and 11064 respectively for Rangpur, Faridpur and Sylhet. The average daily wage rate for all stand at Tk. 28.00, 34.69 and 45.90 for Rangpur, Faridpur and Sylhet respectively.

One will also notice that there is considerable variation of the wage rates of different modes of transport within each district. For Rangpur, the average daily wage ranges from Tk. 26.60 for the push cart operators to about Tk. 50 for truck/bus/minibus workers. Similar variation is observed in both Faridpur and Sylhet. The average daily wage ranges from Tk. 26.70

Table. 5.22 : Annual Income, Employment and Wage rates of the pure transport workers by different Modes of Transport in Districts

Mode of Transport	Rangpur				Faridpur				Sylhet				All			
	No.	Av.No of days worked	Av. annual income per worker	Av. daily wage rate	No.	Av.No of days worked	Av. annual income per worker	Av. daily wage rate	No.	Av.No of days worked	Av. annual income per worker	Av. daily wage rate	No.	Av.No of days worked	Av. annual income per worker	Av. daily wage rate
Head/Shoulder load	12	107	3215	30.1	3	100	2770	27.7	3	80	2568	32.1	18	101	3030	30.03
Bullock cart	2	170	5936	34.9	4	180	6408	35.6	-	-	-	-	6	177	6266	35.37
Rickshaw/Van	30	280	7521	26.9	18	256	6835	26.70	3	270	9612	35.60	51	271	7398	27.34
Push cart	6	102	2716	26.6	-	-	-	-	2	70	2044	29.2	8	94	2562	27.25
Truck/Bus/Minibus	1	250	12500	50.0	4	240	12480	52.0	12	260	13130	50.5	17	255	12954	50.82
Auto-Rickshaw	-	-	-	-	6	280	14000	50.0	5	280	15680	56.0	11	280	14756	52.73
	51	214	5978	28.0	35	236	8311	34.69	25	228	11064	45.9	111	224	7860	34.28

for Rickshaw/Van drivers to about Tk. 52.00 for the bus/minibus/truck workers for Faridpur and it ranges from Tk. 29.20 for push cart operators to about Tk. 56.00 for auto-rickshaw drivers.

There are also considerable intra-district and inter-district variations in the average number of days employed by different types of transport workers. One will notice that the average number of days employed ranges from 102 days for push cart to about 280 days for Rickshaw/Van drivers in Rangpur, from 100 days for head/shoulderload operators to about 280 days for auto-rickshaw drivers in Faridpur and from 80 days for head and shoulderload operators to about 280 days for auto-rickshaw drivers in Sylhet.

There are also substantial intra-district and inter-district variations in the average annual income of the transport workers operating different modes of transport. The average annual income of the workers

ranges from Tk. 2716 for push cart operators to about Tk. 12500 for the truck/bus/minibus operators in Rangpur, from about Tk. 2770 for head/shoulderload operators to about Tk. 14000 for auto-rickshaw drivers in Faridpur and from Tk. 2568 for head/shoulderload operators to about Tk. 15680 for the auto-rickshaw operators.

It will also be observed that the average annual income for the transport operators of the same mode differs substantially between districts. For example, the rickshaw/van drivers of Rangpur, Faridpur and Sylhet make about Tk. 7521, 6835 and 9612 respectively. Similar variation in the average annual income is observed among the workers of other modes of transport.

One may also find, from the Table, the average number of days employed, the average annual income and the average daily wage rates for each mode for all the districts considered together.

5.5: Concluding Remarks

The employment and Income situation obtaining the rural cottage industry/craft have not been considered here in this chapter. This does not, however, occupy a significant position, as reported in section 3.5, in the area under study.

CHAPTER-VI

Pattern of Traffic and Movement

6.1. Introduction

Various transport alternatives exist in Bangladesh. At the lowest end, it is human portering and animal back. This type of transport is slow, highly labour intensive and has very limited capacity. It requires very low investment on roads as it requires only a track or a path way. At the same time, transport charge per maund per mile is very high. Next to this is the animal drawn transport system drawn by bullocks and horses with increased speed and capacity but it requires more investment in roads as they require wider tracks free from interruptions and road gaps. Rickshaws, vans, trucks and buses come next with much greater speed and capacity but they require considerable investment on roads since they can only be operated on good dirt or paved roads. Thus there is a close relationship between the quality of road and the type and quality of transport used. All these different types of transport alternatives have been found to be in operation in the project area.

The chapter has been organized as follows :

In section 6.2, an inventory of the selected road in the study regions with their hinterland have been presented with a view to understanding the nature and volume of traffic on this roads. In section 6.3, the estimates of volume of goods entering into different markets in the study regions have

been presented. Section 6.4 deals with the nature and volume of traffic by different modes on the selected roads in the study regions and the composition of goods transported. In section 6.5, estimated transport charges by different modes of transport in the study regions have been presented and capacity utilization of various modes have been estimated. Section 6.6 provides the estimated cost savings per mile of road for different types of road improvement schemes based on the findings on the volume of traffic and transport charges for different modes. Finally in section 6.7, an indication of the distribution of transport cost savings have been provided.

6.2 Inventory of Selected Roads

The information obtained from the road inventory survey have been presented in Table 6.1. The Table presents the length of the road, the number of unions through which the road runs, the number of villages within a distance of one mile and the number of hats alongside the road. One will notice that the length of the road, the number of villages within a distance of one mile and the number of hats vary considerably among the selected roads. The number of nodal points per road mile varies considerably from 0.20 for Badarpur - Saltha road in Faridpur to 1.20 for Bianibazar - Dhaka Dakhin road in Sylhet. The number of feeder roads linked with the selected road ranges from 0.10 per road mile for Nabiganj - Baniachang road in Sylhet

Table : 6.1 Inventory of selected Roads in Road Regions of Rangpur, Faridpur and Sylhet Districts.

Regions	Roads	Total length (in mile)	No. of Unions through which road runs	No. of Villages within one mile	No. of hata along the road.	No. of nodal points per road mile	No. of feeder roads per road mile
Rangpur	I Jaldhaka - Mirgong	11	4	10	5	0.27	2.45
Rangpur	II Rangpur-Bahargong	14	6	11	7	0.21	3.00
Rangpur	III J.Hat-R.hat	05	3	4	4	0.60	3.00
Rangpur	IV a. Ghaibandha-Saghatta	19	6	12	6	0.53	2.47
	b. Bamandanga-Sundergonj	06	3	10	2	0.50	4.00
Faridpur	I Talma-Hat Krisnopol	04	4	5	2	0.50	3.00
Faridpur	II Badarpur-Saltha	10	4	10	3	0.20	2.40
Faridpur	III Baliakandi-Rajbari	14	5	11	5	0.36	4.21
Sylhet	I a. Sylhet-Kamal-bazar	04	2	3	4	1.00	5.00
Sylhet	I b. Badagat-Shiberbazar	05	2	4	2	0.60	1.80
Sylhet	II Baniabazar-Dhaka Dakhin	10	5	13	6	1.20	2.60
Sylhet	III a. Nabigong-Baniachunga	10	4	3	3	0.30	0.10
Sylhet	III b. Bahubal-Putijuri	16	6	4	7	0.31	-

to 4.21 for Baliakandi - Rajbari Road in Faridpur. These indicate the extent of road use in the study regions.

6.3 Volume and Composition of goods entering into the selected markets/growth centres

For the purposes of our analysis, we have selected 14 hats/markets from the study area. The markets have also been divided into two groups: accessible and interior. Accessible markets were defined as the ones which were connected by a paved road. Interior markets on the other hand were those connected by a dirt road inside the study area. Traffic counts were carried on all these markets in order to estimate the volume of goods entering these markets. The volume of goods (V_k) entering into these markets with k -th type of commodity have been estimated by the following :

$$V_k = \sum_j \bar{m}_{jk} N_{jk}$$

where, \bar{m}_{jk} is the average amount by the mode j with k -th commodity and N_{jk} is the number of traffic of the j -th mode of transport with k -th commodity. The average amount transport with k -th commodity. The average amount transported by various modes of transport in tons were estimated from the transport operators survey. The numbers of traffic entering the markets by various modes carrying a particular type of commodity were

obtained from the traffic counts. The total volume of goods entering in a market was obtained as follows :

$$\sum_k V_k = \sum_k \sum_j \bar{m}_{jk} N_{jk}$$

Table 6.2 presents the estimated volume of goods by types of commodities entering into both accessible and interior markets of the road regions of Rangpur, Faridpur and Sylhet. One will notice from the Table that of the estimated total volume of goods for all the markets, crops, vegetables and non-agricultural goods account for about 77.4, 10.5 and 12.1 per cent respectively. The corresponding figures for all accessible markets are 75.0, 10.3 and 14.7 per cent whereas those for the interior markets are 82.6, 11.0 and 6.4 per cent respectively. Thus there is a difference between accessible and interior markets regarding the composition of goods entering into these markets.

Similar features are observed in the markets of Rangpur, Faridpur and Sylhet. In Rangpur, of the estimated total volume of goods that enter into the accessible markets, the shares of crops and vegetables together and that of the non-agricultural products were 85.8 and 14.2 per cent respectively. The corresponding figures for interior markets were however 92.7 and 7.3 respectively. In Faridpur, the shares of crops and

Table : Estimated volume of Goods entering into markets by distance .

		(Ton per week)			
Name of the market/ Growth Centre.	Crops	Vegetables	Non-agricul- tural Products	Total	
RANGPUR <u>Accessible markets</u>					
Nahirirhat	1134 (75.5)	81 (5.4)	287 (19.1)	1502	
Jagabandhuhat	140 (90.9)	11 (7.1)	3 (1.0)	154	
Badiakhali	491 (85.4)	58 (10.1)	26 (4.5)	575	
Total	1765 (79.1)	150 (6.7)	316 (14.2)	2231	
<u>Interior markets</u>					
Mirgonjhat	716 (88.9)	40 (5.0)	49 (6.1)	805	
Baidyerbazar	63 (79.7)	9 (11.4)	7 (8.9)	79	
Chhaitontola	345 (77.0)	62 (13.8)	41 (9.2)	448	
Total	1124 (84.4)	111 (8.3)	97 (7.3)	1332	
FARIDPUR <u>Accessible markets</u>					
Hatkrishnapur	745 (74.7)	107 (10.7)	145 (14.6)	997	
Tambulkhana	25 (35.7)	40 (57.2)	5 (7.1)	70	
Baharpur	207 (73.9)	29 (10.4)	44 (15.7)	280	
Total	977 (72.5)	176 (13.1)	194 (14.4)	1347	
<u>Interior market</u>					
Thentenia	7 (29.2)	16 (66.7)	1 (4.1)	24	
Total	7 (29.2)	16 (66.7)	1 (4.1)	24	
SYLHET <u>Accessible market</u>					
Kamalbazar	48 (34.0)	58 (41.2)	35 (24.8)	141	
Total	48 (34.0)	58 (41.2)	35 (24.8)	141	
<u>Interior market</u>					
Phiberbazar	7 (38.9)	9 (50.0)	2 (11.1)	18	
Mathiura	167 (98.2)	3 (1.8)	-	170	
Guzakhair	74 (59.2)	44 (35.2)	7 (5.6)	125	
Total	248 (79.2)	56 (17.9)	9 (2.9)	313	

vegetables together and the non-agricultural products in the total volume in accessible markets were 85.6 and 14.4 respectively. The corresponding figures for interior markets were 95.9 and 4.1 per cent. In Sylhet, shares of non-agricultural product in accessible and interior markets respectively were 24.8 and 2.9 per cent. Thus it appears that the proportion of non-agricultural product in the total volume of goods entering into the markets have a positive correlation with the degree of accessibility.

The percentage distribution of the volume of goods entering into both accessible and interior markets in all the districts by types of commodities has been presented in Table 6.3.

The above table reveals that accessible markets handle about 69 per cent of the total volume of goods. The percentage shares of crops, vegetables and agricultural products in their respective total volume for the accessible markets are 67, 68 and 84 respectively. Similar features are observed in the accessible markets in all the study regions though there are considerable regional variations in the percentage shares of various types of goods. It appears that the volume of goods that enter into the markets is positively related to the degree

Table. 6.3 : Percentage Distribution of Volume of Goods
Entering in Markets by Type of Goods

Type of market	(in percentages)			Total
	Crops	Vegetables	Non-agrl. products	
<u>Rangpur</u>				
Accessible	61.1	57.5	76.5	62.6
Interior	38.9	42.5	23.5	37.4
<u>Faridpur</u>				
Accessible	97.9	78.6	98.5	94.9
Interior	2.1	21.4	1.5	5.1
<u>Sylhet</u>				
Accessible	36.7	75.7	93.2	57.5
Interior	63.3	24.3	6.8	42.5
<u>All</u>				
Accessible	66.9	67.8	83.6	69.0
Interior	33.3	32.2	16.4	31.0

of accessibility. Further, factors like road connectivity, accessibility, and the level of regional development may account for the regional variations in the shares of various types of goods for the markets.

Although no estimate of the volume of goods that enter into the markets in the wet season has been made, due to drastic fall in the volume of traffic on the roads in the rainy season as revealed in the next section, the volume of goods entering the markets falls dramatically. It also appears that during rainy season the use of roads is relatively higher in the accessible areas compared to that of the interior areas. As revealed in the next section, the fall in the traffic during rainy season is much less in Rangpur compared to that in Faridpur or Sylhet. As a result, the volume of goods entering into accessible markets of Rangpur is relatively higher in the rainy season compared to those in Sylhet and Faridpur. It appears that people in Rangpur road regions take advantage of the higher prices prevailing in the accessible markets relatively more than the people of Faridpur and Sylhet who seem to trade in the nearby interior markets during rainy season compared to the dry season. All these indicate that the seasonal fluctuation of the road traffic may be reduced by investment ^{on improvement} of network and quality of road.

6.4 The nature and volume of Traffic

The average weekly volume of traffic of a particular mode j with k -th type of goods (T_{jk}) in Ton-mile were estimated in the following way :

$$T_{jk} = \bar{m}_{jk} \bar{d}_{jk} N_{jk}$$

where \bar{m}_{jk} is the estimated average amount of goods in tons of type K transported by mode j , \bar{d}_{jk} is the estimated average distance in miles covered by a mode j with K -th type of goods and N_{jk} is the number of traffic of mode j with type of good K . The average amount of goods of type K of mode j (\bar{m}_{jk}) and average distance covered by mode j with K type of goods (\bar{d}_{jk}) were estimated from the data obtained from the transport operator survey. The P volume of traffic by modes (N_{jk}) were obtained from the traffic count carried out on each of the selected roads. The estimated volume of goods by a mode j ($\sum_j T_{jk}$) was obtained in the following way:

$$\sum_k T_{jk} = T_{j.} = \sum_k \bar{m}_{jk} \bar{d}_{jk} N_{jk}$$

The estimated volume of goods of a particular type K ($\sum_j T_{jk}$) has been obtained by the following :

$$\sum_k T_{jk} = T_{.k} = \sum_j \bar{m}_{jk} \bar{d}_{jk} N_{jk}$$

The estimated weekly volume of traffic by different modes for the selected roads of road-regions of Rangpur, Faridpur and Sylhet by seasons have been presented in Tables 6.4, 6.5 and 6.6 respectively. The tables indicate that there is a considerable difference between the dry and wet seasons regarding the weekly volume of traffic. This is true for all the selected roads of all the districts. Also, there is a significant variation in the movement of traffic among the selected roads of Rangpur, Faridpur and Sylhet. This variation may be accounted for by the road network, connectivity and the quality of the roads.

Table 6.7 presents the estimated weekly volume of traffic in the districts by seasons. One will notice from the table that in Rangpur, dry season traffic accounts for about 69.5 per cent of the total volume of traffic. The corresponding figures for Faridpur and Sylhet are 73.2 and 71.1 per cent respectively. One will also notice, the level of traffic is the highest in Rangpur for both dry and wet seasons followed by Faridpur and Sylhet.

Tables 6.4, 6.5 and 6.6 also reveal the extent of use of various modes of transport in the selected roads. In Rangpur, for all the selected roads taken together, human porterage and animal back accounts for about 2.60

Table : 6.4 Estimated Weekly Volume of Traffic in Selected Roads in RANGPUR

(In Ton - miles)

Mode of transport	Jaldhaka- Mirganj		Rangpur- Badarganj		Jagabandhuhat -Rajarhat		Gaibanda- Saghatta		Bamandanga- Sunderganj	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Head/Shoulder load	325 (5.0)	225 (8.1)	213 (1.6)	160 (2.6)	64 (21.8)	34 (18.9)	39 (0.9)	19 (1.5)	8 (0.7)	5
On back of animals	-	-	-	-	-	-	-	-	-	-
Bullock/Buffallo/ Horse cart	2997 (46.4)	1330 (47.7)	4655 (35.9)	2433 (39.3)	44 (15.0)	27 (15.0)	1374 (32.7)	541 (41.3)	439 (41.8)	217
Pedal rickshaw	433 (6.7)	155 (5.6)	1911 (14.7)	855 (13.8)	73 (24.8)	45 (25.0)	621 (14.8)	38 (2.9)	367 (35.0)	145
Van	-	-	124 (1.0)	68 (1.1)	46 (15.6)	29 (16.1)	-	-	-	-
Bicycle	429 (6.6)	262 (9.4)	801 (6.2)	579 (9.4)	14 (4.8)	14 (7.8)	61 (1.4)	33 (2.5)	70 (6.7)	31
Auto rickshaw	-	-	-	-	-	-	-	-	-	-
Truck	2205 (34.1)	761 (27.3)	1940 (15.0)	551 (8.9)	-	-	2020 (48.0)	631 (48.2)	79 (7.5)	23
Motorcycle	60 (0.9)	49 (1.8)	177 (1.4)	121 (2.0)	53 (18.0)	31 (17.2)	60 (1.4)	32 (2.4)	55 (5.2)	33
Car/Jeep	13 (0.2)	7 (0.3)	158 (1.2)	102 (1.6)	-	-	32 (0.7)	15 (1.1)	31 (3.0)	20
Bus /Minibus	-	-	2979 (23.0)	1315 (21.3)	-	-	-	-	-	-
Total	6462	2789	12958	6184	294	180	4207	1309	1049	474

Table : 6.5 Estimated Weekly Volume of Traffic in Selected Road in Fariapur

Mode of transport	(In Ton-miles)					
	Talma-Hatkrishnapur		Badarpur-Saittha		Rajbari-Baliakandi	
	Dry	Wet	Dry	Wet	Dry	Wet
Head/Shoulder Load	36	18	35	25	45	17
On back of animals	2	1	-	-	-	-
Bullock/Buffallo/ Horse cart	9	3	141	85	60	27
Pedal rickshaw	581	137	157	101	81	25
Van	672	116	51	34	1138	416
Bicycle	62	23	24	13	32	15
Auto rickshaw	63	24	-	-	-	-
Truck	4301	2079	26	15	856	189
Motorcycle £	12	6	7	7	41	13
Car/Jeep	15	9	9	3	41	12
Bus/Minibus	771	215	-	-	1641	363
Total	6524	2631	450	283	3935	1077

Table : 6.6 Estimated Weekly Volume of Traffic in Selected Roads in SYLHET .

(In Ton-miles)

Mode of transport	Sylhet- Kamalbazar		Badhaghat- Shiberbazar		Beanibazar- Dhaka Dakshin		Babigonj- Baniyachung		Bijnaghat- Bahubal	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Head/Shoulder Load	51	30	27	18	48	20	6	6	76	59
On back of animals	-	-	-	-	-	-	-	-	-	-
Bullock/Buffallo/ Horse cart	-	-	-	-	-	-	-	-	-	-
Pedal rickshaw	105	72	-	-	589	200	511	122	205	94
Van	91	58	11	-	1321	377	43	10	1	1
Bicycle	16	10	3	-	37	15	41	8	68	12
Auto rickshaw ⁸	218	107	-	-	6	2	-	-	-	-
Truck	340	229	-	-	47	8	-	-	8	-
Motorcycle	28	9	6	-	53	3	24	-	51	7
Car / Jeep	21	15	-	-	-	-	57	-	73	-
Bus / Minibus	1538	594	-	-	3	-	181	-	40	-
Total	2408	1124	47	18	2154	625	863	146	522	173

Table : 6.7 Estimated weekly volume of Traffic in districts by season.

	(In Ton - miles)		
	Dry	Wet	Total
Rangpur	24970 (69.5)	10936 (30.5)	35906
Faridpur	10909 (73.2)	3991 (26.8)	14900
Sylhet	5994 (74.2)	2086 (25.8)	8080
Total	41873 (71.1)	17013 (28.9)	58886

and 4.05 per cent traffic respectively for dry and rainy seasons (Table 6.8). The corresponding figures for the non-powered modern vehicles (Rickshaw, van and Bicycle) are 57.9 and 62.2 per cent respectively for dry and rainy season. About 39.50 and 33.75 per cent of the total volume of traffic respectively in the dry and rainy seasons are transported by the powered vehicles (auto rickshaw, truck, motorbike, car/jeep etc.). Bullock cart accounts for more than 40 per cent of the total movement of traffic in both dry and rainy seasons.

In Faridpur, however, for all the roads, the movement of traffic by powered vehicles accounts for about 71.34 and 73.54 per cent of the total movement of traffic respectively for dry and wet season. Human portorage and animal back accounts for less than 2 per cent of the total movement of goods in both dry and wet season, whereas the movement of traffic by non-powered vehicles have 27.58 and 24.93 per cent shares in the total respectively in the dry and wet seasons. Volume of traffic by Rickshaws and vans accounts for the most of that of the non-powered vehicles.

In Sylhet, the percentage shares of the portorage, non-powered vehicles and powered vehicles in total volume of traffic are 4.30, 50.75 and 44.95 respectively, in the

Table: 6.8 Distribution of volume of traffic by modes and seasons in the Districts.

	(In Ton miles)					
	Rangpur		Faridpur		Sylhet	
	Dry	Wet	Dry	Wet	Dry	Wet
Porterage (Human and animal)	649 (2.60)	443 (4.05)	118 (1.08)	61 (1.53)	258 (4.30)	133 (6.38)
Non-powered Vehicles(Including bullock cart)	14459 (57.90)	6802 (62.20)	3008 (27.58)	995 (24.93)	3042 (50.75)	979 (46.93)
Powered vehicles	9826 (39.50)	3691 (33.75)	7783 (71.34)	2935 (73.54)	2694 (44.95)	974 (46.69)
Total	24970	10936	10909	3991	5994	2086

Figures in parentheses indicate percentage .

dry season. The corresponding figures for the rainy season are 6.38, 46.93 and 46.69 respectively. Rickshaws and Vans accounts for most of the volume of traffic by non-powered vehicles.

It appears from the figures, that the volume of traffic in the wet season is positively related to degree of the quality of roads. Also, the proportions of traffic by both porterage and non-powered vehicles seem to be inversely related to the degree of road quality. Further, the volume of traffic by powered vehicles seems to be positively related to the road quality.

The estimated weekly volume of traffic by types of commodities for selected roads in Rangpur, Faridpur and Sylhet have been presented in Tables 6.9, 6.10 and 6.11 respectively. From Table 6.9, one will notice that agricultural products (crops, vegetables and livestock, etc.) account for about 81.66, 87.48, 95.03, 75.12 and 88.42 per cent of the traffic respectively for Jaldhaka-Mirganj, Rangpur - Badarganj, Jagabandhuhat - Rajahat, Gaibandha - Saghatta and Bamandanga - Sundarganj Roads. The rest of the traffic is the non-agricultural and construction materials which, as is observed from the Table, seems to rise with the rise in the road network and quality of roads.

Table.6.9 : Estimated Weekly Volume of Traffic by Type of CommodityRANGPUR

Type of Load	Rangpur Region-I Jaldhaka-Mirganj		Rangpur Region-II Rangpur-Badarganj		Rangpur Region-III Jagabandhuhat-Rajarnat		Rangpur Region-IV Gaibandha-Saghatta, Bamandanga-Sunderganj			
	Ton mile	% of total	Ton mile	% of total	Ton mile	% of total	Ton mile	% of total	Ton mile	% of total
Food crops	1188	32.21	1777	25.34	76	41.99	530	23.42	219	44.51
Cash crops	2145	46.43	3641	51.92	71	39.23	932	41.18	134	27.24
Vegetables	112	2.42	308	4.39	18	9.94	88	3.89	24	4.88
Livestock, Fisheries Forestry Products	28	0.61	409	5.83	7	3.87	159	6.63	58	11.79
Non-agricul- tural commodities	164	3.55	422	6.02	9	4.97	131	5.79	44	8.94
Construction materials	683	14.78	456	6.50	-	-	432	19.09	13	2.64
Total	4620	100	7013	100	181	100	2263	100	492	100

Table. 6.10 : Estimated Weekly Volume of Traffic by Type of CommodityFARIDPUR

Type of Load	Faridpur Region-I		Faridpur Region-II		Faridpur Region-III	
	Talma-Hatkrishnapur		Badarpur - Saltha		Rajbari - Baliakandi	
	Ton mile	% of total	Ton mile	% of total	Ton mile	% of total
Food crops	254	9.47	32	17.96	128	9.88
Cash crops	1926	71.84	7	3.40	948	73.15
Vegetables	187	6.98	15	7.28	54	4.17
Livestock, Fisheries Forestry Products	273	10.18	139	67.48	133	10.26
Non-agricultural commodities	41	1.53	8	3.88	53	4.15
Total	2681	100	206	100	1296	100

Table : 6.11 Estimated weekly volume of Traffic by type of commodity, SYLHET .

Type of Load	Sylhet I				Sylhet II		Sylhet III			
	Sylhet-Kamal-bazar		Badhaghat-Shiberbazar		Beanibazar-Dhaka Dakshin		Nabiganj-Bani-yachung		Bijnaghat-Bahubal	
	Ton mile	% of total	Ton Mile	% of total	Ton mile	% of total	Ton mile	% of total	ton mile	% of total
Food crops	83	19.90	10	27.78	770	93.00	166	50.76	81	28.83
Cash crops	40	9.59	3	8.33	39	4.71	42	12.84	37	13.17
Vegetables	80	19.18	15	41.67	13	1.57	74	22.63	57	20.28
Livestock, Fisheries Forestry products	28	6.72	3	8.33	6	0.72	32	9.79	66	23.49
Non-agricultural commodities	77	18.47	5	13.89	-	-	13	3.98	40	14.23
Construction materials	109	26.14	-	-	-	-	-	-	-	-
Total	417	100	36	100	828	100	327	100	281	100

From Table 6.10, one will notice that the agricultural products account for about 97.47, 96.12 and 97.45 respectively for Talma - Hatkrishnapur, Badarpur - Saltha and Rajbari - Baliakhandi Roads in Faridpur. The volume of traffic with non-agricultural product^{is} negligible compared to that in Rangpur.

From Table 6.11, similar features are observed in Sylhet. The shares of agricultural products are 55.39, 86.11, 96.02 and 85.77 respectively for Sylhet - Kamalbazar, Badhaghat - Shiberbazar, Nabiganj - Baniyachung and Bijnaghat - Bahubal roads. Agricultural products accounted for 100.00 per cent of traffic on Dhakadakhin - Beanibazar Road.

From the available data, it appears that the proportion of agricultural commodities in the total volume of traffic is higher for relatively less developed roads. On the other hand, the proportion of non-agricultural commodities is higher for better roads with relatively higher degree of connectivity. This indicates that the proportion of non-agricultural goods is higher in relatively more accessible areas and since non-agricultural commodities come from outside the areas, Roads may lead to more commercialization and transformation of the subsistence economy.

The distribution of the volume of traffic by mode and the type of commodities for each of the selected roads are presented in Appendix Tables A.6.1. - through A.6.13.

Estimated annual volume of traffic per road mile by different mode of transportation for all the districts are presented in Table 6.12. In order to estimate the annual volume of traffic, both dry and wet season traffic were estimated. Dry season traffic for mode estimated by blowing the average dry season weekly traffic for a mode by 34, whereas the wet season traffic for a mode was estimated by blowing up the figures by 18. The sum of both dry and wet season traffic was over annual average traffic for a mode. The estimator for the dry season traffic per road mile was the following :

$$\sum_k t_{jk} = \sum_k \frac{\bar{m}_{jk} \bar{d}_{jk} N_{jk}}{D_i} \times 34$$

Where t_{jk} is the annual average traffic for mode j with type of good k , D_i is road milage of road i and \bar{m}_{jk} , \bar{d}_{jk} and N_{jk} are the same as before.

As reported in Table 6.12, the average annual traffic per mile for all the modes differ significantly from one another indicating considerable variation in the intensity of road use. Not surprisingly, the intensity of road use tend to rise with the degree of connectivity and the quality of roads. The details are given in the tables.

6.5 Transport Charges by Different Modes

From the data available from our survey, the average distance covered by each mode and the average transport charges per maund per mile in each district were estimated. The average distance covered by each mode for each selected roads for Rangpur, Faridpur and Sylhet have been placed in Table 6.13, 6.14 and 6.15 respectively.

One will notice from the tables that the average distance covered by each mode is higher on better roads. Also the average distance covered in each mode is higher in accessible markets compared to the interior markets. The average distance covered by head/shoulderload is the lowest in all the districts while the average distance covered by motor vehicle is the highest.

Table : 6.12 Estimated Annual Volume of Traffic per Road mile by mode of Transport in (All Districts)

Mode of transport	Rongpur road regions					Faridpur road regions			Sylhet road regions				
	Jaldhaka-Mirganj	Rangpur-Badarganj	Jagabandhu hat to Rajarhat.	Gaibandha-Saghatta	Bainadanga-Sunderganj	Talma-Hatk-rishnapur	Badarpur-Sattha	Rajbari-Baliakandi.	Sylhet-Kamalar.	Badhaghat-Shiberbarzar	Beani bazar-Dhaka-Dakshin.	Mabi-gonj-Ban-iyachung.	Bijnaghat-Bahubal
Head/Shoulder load	1373	723	553	88	60	387	164	131	569	274	370	31	228
On back of animals	-	-	-	-	-	21	-	-	-	-	-	-	-
Bullock/Bufallo/Horse cart	11440	14433	389	2971	3138	92	633	180	-	-	-	-	-
Pedal rickshaw	1592	5741	659	1147	2514	5553	716	229	1215	-	2363	580	541
Van	-	389	416	-	-	6236	235	3298	1933	75	4517	164	3
Bicycle	1755	2689	146	141	490	631	105	97	183	20	152	153	159
Auto rickshaw	-	-	-	-	-	644	-	-	2334	-	23	-	-
Truck	8060	5420	-	4213	518	45913	115	2322	3920	-	174	-	17
Motorcycles	265	586	471	-	410	131	36	117	277	41	186	82	116
Car / Jeep	52	515	-	138	235	170	37	115	248	-	-	194	155
Bus / Minibus	-	8925	-	-	-	7523	-	4452	15744	-	10	615	85
Total	24537	39421	2648	8698	7365	67301	2041	10810	25523	383	7795	1819	1384

Table: 6:13 Average distance covered on the selected road by mode of transport RANGPUR.

Mode of Transport	Rangpur I	Rangpur II	Rangpur III	Rangpur IV	
	Jaldhaka-Mirganj	Rangpur-Badargong	Jagabandhuhat-Rajarhat	Gaibandha-Saghatta	Bamandanga-Sunderganj
	Average distance (miles)				
Head/Shoulder load	3.00	1.58	3.10	1.32	0.68
Animal back	-	-	-	-	-
Bullock/Buffallo/ Horse cart	5.07	4.72	1.33	4.14	1.31
Pedal rickshaw	6	3.5	0.94	3.78	2.20
Van	-	5	1.25	-	-
Bicycle	4.07	3.5	0.75	1.7	0.92
Auto rickshaw	-	-	-	-	-
Truck	13	5.57	-	5.33	4.75
Motor cycle	5.00	2	4	3.17	4
Car / Jeep	3.00	5	-	4	4.5
Bus / Minibus	-	5.5	6	-	-

Table : 6.14 Average distance covered on the selected road by mode of transport, FARIDPUR .

Mode of Transport	Faridpur I	Faridpur II	Faridpur III
	Talma- Hatkrishapur Average distance (mile)	Badarpur - Saltha Average distance (mile)	Rajbari - Baliakandi Average distance (mile)
Head/Shoulder load	.49	2.2	1.58
Animal back	-	-	-
Bullock/Buffallo/ Horse cart	3.72	9.43	2.03
Pedal rickshaw	2.35	3.04	2.33
Van	2.14	3.57	3.79
Bicycle	.12	3	1.75
Auto rickshaw	-	-	-
Truck	3.44	2	7
Motor cycle	3.00	3	7
Car / Jeep	3.00	3	7
Bus / Minibus	4.00	-	7

Table : 6.15 Average distance covered on the selected roads by mode of transport, SYLHET.

Mode of transport	Sylhet Region I		Sylhet II	Sylhet III	
	Sylhet-Kamalbaaar	Badhaghat-shiberbazar	Beanibazar-Dhaka Dakshin	Nabigonj-Baniyachung	Bijnaghat-Bahubal
	Average distance (mile)	Average distance (mile)	Average distance (mile)	Average distance (mile)	Average distance (mile)
Head / Shoulder load	1.5	1.89	1.8	0.12	1.67
Animal back	-	-	-	-	-
Bullock/Buffallo/ Horse cart	-	-	-	-	-
Pedal rickshaw	2.03	-	4.8	3.5	1.5
Van	2.22	1.75	5	3.45	0.5
Bicycle	2.6	2	3.6	3.50	3
Auto rickshaw	3	-	2.5	-	-
Truck	2.11	-	1.78	-	4.5
Motorcycle	3.5	3.00	6	3.8	4.5
Car/Jeep	2.85	-	-	2	3
Bus / Minibus	4.00	-	2.00	3.2	2.5

Although no estimate of the average distance covered in rainy season was made, available data indicates that it is in general lower in wet season compared to that in dry season.

The estimated transport charges per maund per mile for each mode on each load in each district have been shown in Table 6.16, 6.17 and 6.18 respectively for Rangpur, Faridpur and Sylhet. The details are shown in the tables. One will notice that although there is a considerable variation of transport charges among the districts, per maund per mile transport charge is the highest in case of human portering followed by non-powered modern vehicles (Rickshaw, Van). It is the lowest in case of the modern powered vehicles.

In order to see if there are differences in transport charges and distance covered between accessible and interior markets, the average distance and the average charges for bullock carts and Rickshaws/Van classified by accessible and interior markets were estimated. These are presented in Tables 6.19 and 6.20 respectively for bullock carts and Rickshaws/Vans.

Table : 6.16 Transport charges by mode of transport, RANGPUR

(In Taka per mound per mile)

Mode of transport	Rangpur I	Rangpur II	Rangpur III	Rangpur IV	
	Jaldhaka- Mirganj	Rangpur-Badarganj	Jagaban- dhuhat - Rajarhat	Saiban- dha-Saghatta	Baman- darga-sunder ganj.
Head/Shoulder load	2.00	1.86	2.05	2.15	1.90
Animal back	-	-	-	-	-
Bullock/Buffallo/ Horse cart.	1.92	1.42	1.82	2.05	2.10
Pedal rickshaw	1.36	1.69	1.84	1.93	2.00
Van	-	1.84	1.34	-	-
Bicycle	-	-	-	-	-
Auto rickshaw	-	-	-	-	-
Truck	1.09	1.00	-	0.47	1.00
Motor cycle	-	-	-	-	-
Car / Jeep	-	-	-	-	-
Bus / Minibus	-	0.63	-	-	-

Table : 6.17 Transport charges by mode of transport, FARIDPUR

(In Taka per maund per mile)

Mode of transport	Faridpur I		Faridpur II		Faridpur III	
	Talma-Hatkrisnapur		Badarpur- Sattha		Rajbari - Baliakandi	
Head/Shoulder load	2.15		2.00		1.96	
Animal back						
Bullock/Buffallo/ Horse cart	0.75	1.85	0.69	1.75	0.96	1.96
Pedal rickshaw	1.80		1.86		1.85	
Van	1.60		1.65		1.25	
Bicycle						
Auto rickshaw						
Truck	.79		.80		.75	
Motor cycle						
Car / Jeep						
Bus / Minibus	.50				.30	

Table : 6.18 Transport charges by mode of transport, SYLHET

(In Taka per mound per mile)

Mode of transport	Sylhet I		Sylhet II	Sylhet III	
	Sylhet-Kamalbazar	Badhaghat-Shibebazar	Beanibazer-Dhaka Dakshin	Nabigonj-Baniyachung	Bijnaghat - Bahulsal
Head/Shoulder load	2.75	2.05	2.75	2.10	2.00
Animal Back			-	-	
Bullock/Buffallo/ Horse cart			-	-	
Pedal rickshaw	1.62		2.50	1.90	1.55
Van	1.63	1.61	1.85	1.75	1.28
Bie cycle	-	-	-	-	-
Auto rickshaw	0.65		0.70	-	-
Truck	0.73		0.77	-	1.66
Motor cycle	-	-	-	-	-
Car / Jeep	-	-	-	-	-
Bus / Minibus	0.50		0.65	0.70	0.65

Table : 6.19 Difference in transport charge and distance covered between accessible and interior markets for Bullock cart/ Horse cart

	Rangpur			Faridpur			
	Region I	Region II	Region III	Region IV	Region I	Region II	Region III
Accessible markets:							
1. Average distance covered (mile)	4.77	4.72	1.50	5.50	2.90	3.00	2.03
2. Transport charge per md. per mile	1.66	1.42	1.87	1.89	1.98	0.75	0.96
Interior markets							
1. Average distance covered (mile)	5.37	-	1.16	0.50	-	-	-
2. Transport charge per md. per mile &	2.18	-	1.77	2.10	-	-	-
All markets							
1. Average distance covered (mile)	5.07	3.25	1.33	3.00	2.90	3.00	2.03
2. Transport charge per md. per mile	1.92	1.25	1.82	1.99	1.98	0.75	0.96

Table 6.20 Differences in transport charge and distance covered between accessible and interior markets for pedal rickshaw.

	Rangpur				Faridpur		Sylhet			
	Region I	Region II	Region III	Region IV	Region I	Region II	Region III	Region I	Region II	Region III
Accessible markets:										
1. Average distance covered (mile)	6.20	3.25	1.07	3.62	2.35	3.04	2.33	3.04	-	1.5
2. Transport charge per md. per mile	1.30	2.06	1.76	1.68	1.80	1.86	1.85	1.92	-	1.55
Interior markets:										
1. Average distance covered (mile)	5.80	-	0.78	2.04	-	-	-	-	4.8	3.5
2. Transport charge per md. per mile	1.42	-	1.92	1.70	-	-	-	-	2.5	1.90
All markets										
1. Average distance covered (mile)	6	3.25	0.94	2.83	2.35	3.04	2.33	3.04	4.8	2.5
2. Transport charge per md. per mile	1.36	2.06	1.84	1.69	1.80	1.86	1.85	1.92	2.5	1.72

One will notice from the Tables that the average distances covered by both bullock carts and Rickshaws are higher in case of accessible markets compared to the interior markets. The average transport charges for bullock cart and Rickshaws are lower in accessible markets compared to those in interior ones.

There may be several factors responsible for the difference in average distance covered by a mode of transport. An important factor is the quality of roads. Better roads require less effort or cost which results in larger distance covered by a mode for accessible markets compared to the interior ones.

The regional variation of the transport cost may be the result of the level of utilization of capacity of the modes of transport. Higher utilization of capacity of a mode reduces per maund per mile cost. Utilization of capacity, however, depends on the quality of roads and the demand for transport services which in turn depends on the marketable surplus. Details of the average rate of capacity utilization (in percentage) by different modes in different districts are presented in Table 6.21. Further, the agricultural wage rates and the employment opportunities differ among the regions.

Table 6.21 : Capacity Utilization of Different Modes of Transport On Selected Roads in Districts

Mode of Transport	Rangpur		Faridpur		Sylhet	
	Average capacity (md)	% utilized	Average capacity in maund	% utilized	Average capacity in maund	% utilized
Head/Shoulder load	1.4	88	1.2	80	1.12	78
Animal back	-	-	2.5	64	-	-
Bullock cart	16.0	76	12.6	84	-	-
Rickshaw	4.8	82	5.0	66	5.3	86
Van	6.5	80	7.0	90	6.4	80
Bicycle	2.0	70	1.5	90	1.5	70
Truck	138	90	138	90	137	88

The variation of transport charges between different modes may be related to the capacity and the speed of the mode used. Both capacity and speed increases as one moves from human portorage to the non-powered vehicles (Rickshaws and Vans) and from non-powered vehicles to motor powered vehicles. Given the alternative employment opportunities, the wage rates and the capital charges, larger amount of goods can be carried to a larger distance by a modern mode. The benefit that accrue from operating a modern mode more than compensates the increase in the cost of production (wage + capital cost), if any and as a result the per unit cost of transport is reduced.

6.6 Estimated User Costs Savings

The findings from our data show that as one moves from low capacity and slow mode of transport to a fast and higher capacity powered vehicles, per maund per mile cost of transport is considerably reduced. Thus, there is a possibility of substantial user costs savings by improving the quality of roads through investment on roads. Also, our findings show that there is substantial difference in transport charge for the same mode of transport among

different roads under study , depending on the condition of roads. Further, as the data shows, a substantial volume of goods are transported by porterage and bullock carts. Investment on roads will improve the quality of road which in turn will change the composition of the modes of transport in favour of the modern modes. As a result, a considerable amount of cost savings for the road users will be possible from the existing volume of traffic by way of improvement of the road condition.

Tables 6.22 to 6.25 give the estimated cost savings per road mile for different types ^{of} road development schemes based on our findings on the volume of traffic and transport charges under different modes.

It will be noticed from Table 6.22 that at the level of development of Baniyachung, improvement of earth road may generate a cost saving of about 5 thousand Taka only per road mile at the existing ^{level} of traffic. One may however, assume that the link between Baniyachung and Nabiganj Upazilla will increase the volume of traffic. If one assumes a hundred per cent increase in the volume, the cost savings of the users will be about 10.11 thousand taka.

Table : 6.22 : Estimated Benefits from Road Improvement at the level of traffic.
Nabiganj - Baniyachunga Road

Nature of Improvement	Existing mode		New mode	Saving per Ton - mile (in Tk.)	Tonnage per annum	Cost saving(.000)
1. Improvement on Earth Road	Head load	1.7	2.0	2.78	1819	5.957
	Rickshaw/Van	49.3	40.0		3638	10.114
	Power vehicles	49.0	58.0		(100% increase)	
2. Earth Road Brick/Paved	Head load	2.0	2.0	3.11	1819	5.657
	Rickshaw/Van	40.0	30.0		9095	28.285
	Power vehicles	58.0	68.0			

Table 6.23 : Estimated Benefits from Road Improvement at the level of Traffic.

Jaldhaka - Mirganj Road

Nature of Improvement	Existing mode		New mode	Saving per Ton - mile (in Tk.)	Tonnage per annum	Cost saving(.000)
1. Earth Road Brick paved	head load	6.0	5.0	4.08	24537	100.11
	Bullock Cart	47.0	25.0			
	Rickshaw/Van	14.0	30.0			
	Power Vehicle	33.0	40.0			

Note : This 11 mile long road has two sections/segments; one is a six mile metalled all season road from Jaldhaka upazilla HQ to Tengonmarihat. The second section/segment of the road from Tengonmarihat upto Mirganj is dirt one and may be improved by herring bone brick work and concrete.

Table : 6. 24 Estimated Benefits from Road Improvement at the level of Traffic.

Bamandanga - Sunderganj road

Nature of Improvement	Existing mode	New mode	Saving per ton mile (In Taka)	Tonnage per annum	cost saving (in '000 Tk.)	
1. Improvement on rough concrete/paved road	Headload	0.8	1.0	8.51	7365	62.676
	Bullock cart	42.6	24.0			
	Rickshaw/ Van	40.8	30.0			
	Power vehicles	15.8	45.0			

Note : This 6 mile rough & damaged concrete road needs immediate improvement and maintenance work.

Table 6.25 Estimated Benefits from Road Improvement at the level of Traffic.

Badarpur - Saltha Road

Nature of Improvement	Existing mode		New mode	Saving per ton mile (in taka)	Tonnage per annum	cost saving ('000) in '000' Tk.
1. Improvement on Earth Road	Headload	10.0	10.0	5.22	2041	10.654
	Bullock/Horse cart	30.0	20.0			
	Rickshaw/Van	50.0	40.0		3062	15.984
	Power Vehicles	10.0	30.0		(50% increase)	
2. Earth Road/ paved road	Head load	10.0	5.0	4.00	2041	8.164
	Bullock/ Horse cart	20.0	20.0		4082	32.456
	Rickshaw/Van	40.0	30.0		(200% increase)	
	Power vehicles	30	45.0			

Note : This is a 10 mile (16 km) road (3 mile all season concrete + about 3 mile dirt track + about 3 mile pedestrian Truck). The paved section of the road ends at tambulkhana Bazar from which the second section starts and runs through Thentenia hat and terminated at Gatti Bridge (a bridge under constn). This section has a rough undulating earth surface and may be improved.

If the alternative development scheme is to convert the earth road into a paved one, the estimated benefit would be about 5.6 thousand Taka at the existing level of traffic and about 28.6 thousand Taka per mile for a rise of existing traffic by 500 per cent. This is an important road and improving it to a paved road will reduce the distance of Baniyachung from Sylhet considerably and as such a 500 per cent rise of existing volume of traffic is conceivable.

From Table 6.23, one will notice that the estimated benefit from an improvement to paved at the existing level of traffic on Jaldhaka - Mirganj road will be about 100.11 thousand Taka. This road can be considered as a road connecting two upazilla with linkage to growth centres. This 11 mile long road has two segments; one is a six mile long all season road from Jaldhaka upazilla headquarters to Tengonmarihat. The second segment of the road from Tengonmarihat upto Mirganj is a dirt one and needs improvements.

From Table 6.24, it will be observed that an improvement/maintenance of Bamandanga-Sundarganj road - a rough concrete paved road-will produce an estimated benefit of about 62.7 thousand Taka per road mile at the existing level of traffic.

Estimated benefits from different road improvement schemes at the level of traffic on Badarpur - Saltha road are shown in Table 6.25. Improvement on earth road will produce a benefit of about 10.65 thousand Taka at the existing level of traffic and about 16 thousand Taka at the level of traffic 50 per cent higher than the existing one.

A different scheme of improvement of earth road to a paved one will produce a benefit of about 8.2 thousand taka per road mile at the existing level of traffic and about 32.5 thousand taka at the level of a 200 per cent increase of existing level of traffic.

In order to see whether a road development scheme is economically viable, one needs to match the expected benefit of the road development as against its costs. The estimated costs of different types of rural road development per road mileage at the existing level of agricultural wages and material costs are the following:

Earth road (including land and culverts)	Tk. 120 - 155 thousand
Improvement of earth road (culverts and maintenance)	Tk. 50 - 66 thousand
Paved road/Brick soling road	Tk. 860 - 1000 thousand
Maintenance of paved Road	Tk. 200 - 350 thousand

If one compares the benefit with cost, one will observe that the cost of investment on improvement of earth road in agriculturally backward areas like Baniyachung - Nabiganj would be recouped within a period of 5 years. In case of investment on paved road, cost would be paid back in about 30 years. The cost of investment on paving Jaldhaka - Mirganj road, in an agriculturally progressive area, would be paid back in less than 6 years (assuming 6 miles maintenance and 5 miles paving). The cost of investment on maintenance of Bamandanga - Sundarganj road in a progressive area would be recouped within a period of 3.5 years. However, the cost of investment on improvement of earth road would be recouped within 5 years on Badarpur - Saltha road. The choice of alternative road development schemes and hence the level of investment on roads would then depend on the life of the scheme.

It may be mentioned here that a significant proportion of the volume of goods are transported by boats using waterways in the rainy season. When a choice between water ways and roads are available, one may choose a boat instead of a cart since the per maund per mile cost would be lower in the former than the later. This is more so in the rainy season, when roads are difficult. Boats are slower but have

much larger capacity than the carts or rickshaws. Thus there is a competition between road and water transport. Water and road transport may be complementary to each other in low-lying areas where it is connected by waterways. We did not collect any data on water transport as this was beyond the scope of our study.

6.7 Distribution of Transport Cost Savings

In order to see how the transport cost savings would be distributed when a road development scheme is undertaken, we have here presented the background of the road users, i.e. the transport operators. Table 6.26 reports the types of transport operator by modes of transport for all the districts.

One will notice from the table that the proportion of pure transport operator in Rangpur, Faridpur and Sylhet are 42.5, 38.9, 27.8 percent respectively. This indicates that the proportion of pure transport operator is higher in an accessible area with better quality roads. Also, one will notice that the proportion of pure transport operator is relatively higher in the modern modes of transport (Rickshaw/Van, powered vehicles) in all the selected areas

Table.6.26. Types of Transport Operator by Modes of Transport

Mode of Transport	Only Transport Operator		Trader-cum-Transport Operator		Producer, Trader-cum Operator	
	No.	% of row Total	No.	% of row Total	No.	% of row Total
<u>Rangpur</u>	51	42.5	24	20.0	45	37.5
Head/Shoulderload	18	30.0	12	20.0	30	50.0
Bullock/Horse cart	2	15.4	6	46.2	5	38.4
Rickshaw/Van	26	70.3	2	5.4	9	24.3
Push cart	2	33.3	4	66.7	-	-
Bus/Mini/Truck	3	75.0	-	-	1	25.0
<u>Faridpur</u>	35	38.9	15	16.7	40	44.4
Head/Shoulderload	3	10.0	7	23.3	20	66.7
Bullock cart	-	-	4	44.4	5	55.6
Rickshaw/Van	23	65.7	4	11.4	8	22.9
Truck/Mini/Bus	2	22.2	-	-	7	87.8
Auto-Rickshaw	7	100.0	-	-	-	-
<u>Sylhet</u>	25	27.8	20	22.2	45	50.0
Head/Shoulderload	3	6.4	13	27.7	31	65.9
Rickshaw/Van	6	46.2	3	23.0	4	30.8
Push cart	1	33.3	1	33.3	1	33.3
Bus/Mini/Truck	9	52.9	2	11.8	6	35.3
Auto-Rickshaw	6	60.0	1	10.0	3	30.0
<u>All</u>	111	37.0	59	19.7	130	43.0
Head/Shoulderload	24	17.5	32	23.4	81	59.1
Bullock/Horse cart	2	9.0	10	45.5	10	45.5
Rickshaw/Van	35	58.5	16	19.2	21	22.3
Push cart	3	33.3	5	55.6	1	11.1
Bus/Mini/Truck	14	46.7	2	6.6	14	46.7
Auto-Rickshaw	13	76.5	1	5.9	3	17.6

of Rangpur, Faridpur and Sylhet. Further, the proportion of the pure transport operator is relatively higher in each mode for Rangpur than that of Faridpur, indicating a positive relationship of proportion of pure transport operator with the degree of accessibility. The table also shows that the majority of the transport operators carry their own produce to trade.

Table 6.27 presents the distribution of ownership of land of transport operators by modes of transport for all the districts. It will be noticed from the table that about 71 per cent operator carrying load on the head or shoulder own less than one acre of land while about 32 and 50 per cent of bullock cart operator respectively own less than one acre and more than 2.5 acres of land. In case of Rickshaws/Van operators, about 86 per cent own less than one acre of land while all the push cart operators own less than an acre.

It appears that when marginal farmers (owning less than 2.5 acres) having little surplus carry their load on the shoulder, surplus farmers (having more than 2.5 acres) carry their produce by owned bullock cart. The distribution of land ownership of transport operators for Rangpur, Faridpur and Sylhet are reported in Appendix Tables A.6.14, A.6.15 and A.6.16 respectively.

Table. 6.27 : Distribution of Landownership of Transport Operators
by mode of Transport

(ALL DISTRICTS)

Size of land ownership (in acres)	Headload/ Shoulderload		Bullock/ Buffallo/ Horse Cart		Rickshaw/ Van		Push Cart		Bus/Minibus/ Truck		Auto-Rickshaw	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Landless	18	13.1	1	4.5	21	28.4	3	33.3	-	-	5	29.4
< 0.50	35	25.5	5	22.7	50	67.6	5	55.6	15	50.0	3	17.6
0.50 - < 1.00	45	32.8	1	4.5	9	12.2	1	11.1	4	13.3	7	41.2
1.00 - < 2.50	39	28.6	4	18.2	4	5.4	-	-	3	16.7	1	5.9
2.50 - < 5.00	-	-	7	31.9	1	1.4	-	-	5	16.7	1	5.9
5.00 +	-	-	4	18.2	-	-	-	-	1	3.3	-	-
ALL	137	100.0	22	100.0	74	100.0	9	100.0	39	100.0	17	100.0

The distribution of ownership of land by nature of transport operators for all districts are presented in Table 6.28. One will observe that about 34.3 per cent of the pure transport operator and about 16.9 per cent of the trader-cum-operators are pure landless. About 78 per cent of pure transport operator and about 86 per cent of trader-cum-operators own less than 0.50 acre. The details for Rangpur, Faridpur and Sylhet are shown in Appendix Tables A.6.16, A.6.17, A.6.18 respectively.

The data also indicates that a large proportions of the head/shoulder **load** operators and bullock cart operators are cultivators. A large majority of the Rickshaws/Vans/Push cart operators are agricultural labour while a significant proportion of head/shoulderload operators are traders.

From the above findings, it appears that the movement of goods and passengers increases with the improvement of quality and network (increasing degree of accessibility) of roads. Due to improved road quality, the demand for transport services increase with a change in the modal composition of transport in the direction of cheaper and faster modes of

Table 6.28 : Landownership by Nature of Transport OperatorALL DISTRICTS

Size of land ownership (in acres)	Pure Transport Operator		Trader-Cum-Transport Operator		Producer/Trader/Transport Operator	
	No.	%	No.	%	No.	%
Landless	38	34.3	10	16.9	-	-
< 0.50	49	44.1	41	69.5	23	17.7
0.50 - < 1.00	5	4.5	6	10.2	56	43.1
1.00 - < 2.50	19	17.1	2	3.4	32	24.6
2.50 - < 5.00	-	-	-	-	14	10.8
5.00 +	-	-	-	-	5	3.8
ALL	111	100.0	59	100.0	130	100.0

transport. It also appears that the proportion of pure transport operator is relatively higher in each of the modern modes of transport in an accessible area compared to an interior one. Again, an overwhelming majority of the pure transport operators come from the class of landless agricultural labour supplying households. Thus it indicates that investment ^{on} road improvement and maintenance will increase the employment opportunities of the landless agricultural labour and their income position will improve. Also, employment may also increase in other sectors through linkage effects and increased efficiency in those sectors.

Although, the major beneficiaries of transport cost savings as a result of investment of roads would be the surplus farm-households and traders, more and more workers from the landless agricultural labour class will be absorbed as pure transport workers. This will improve their absolute income position and hence the welfare, but the net effect on the distribution of income will be uncertain.

Chapter - VII

GROWTH CENTRE/MARKETS IN THE ROAD TRANSPORT IMPROVEMENT REGIONS

There are a number of marketing and trading centres located along the selected project roads of the road transport improvement regions. These are basically the centres for disposal of local agricultural produce and for procuring various farm inputs and necessities of life. Majority of these growth centres/markets sit twice a week as hats and bazars everyday in these centres. These centres have an important role to play in the local economy and some of these have already emerged as what is called the viable growth centres.

The present chapter deals with these selected growth centres in the road regions of Rangpur, Faridpur and Sylhet. Information on their location, their economic size expressed in terms of number of various types of shops and facilities, the pattern of use of land and land values and the growth of socio-economic infra-structures in and around them were collected through an intensive survey.

7.1: Location of the growth centres/markets

As mentioned earlier, these growth centres/markets were all located along the selected roads of the study regions or around the roads. In order to indicate the effects of road accessibility on various socio-economic indicators, the markets were all divided into accessible and interior markets. As defined earlier, accessible markets were those which were connected by a paved or trunk road. The interior markets were defined as those which were only connected by a Kutcha road. Some of these results have been reported earlier in chapter V and VI.

Tables 7.1, 7.2 and 7.3 summarize the information regarding locations of the selected growth centres/markets as geographic nodes with their economic thresholds. As will be seen from the Table that, many of these markets are connected by paved road, some lie at a distance and some are located far away from the nearest point of the paved road. (See Figure 7.1.,7.2,7.3)

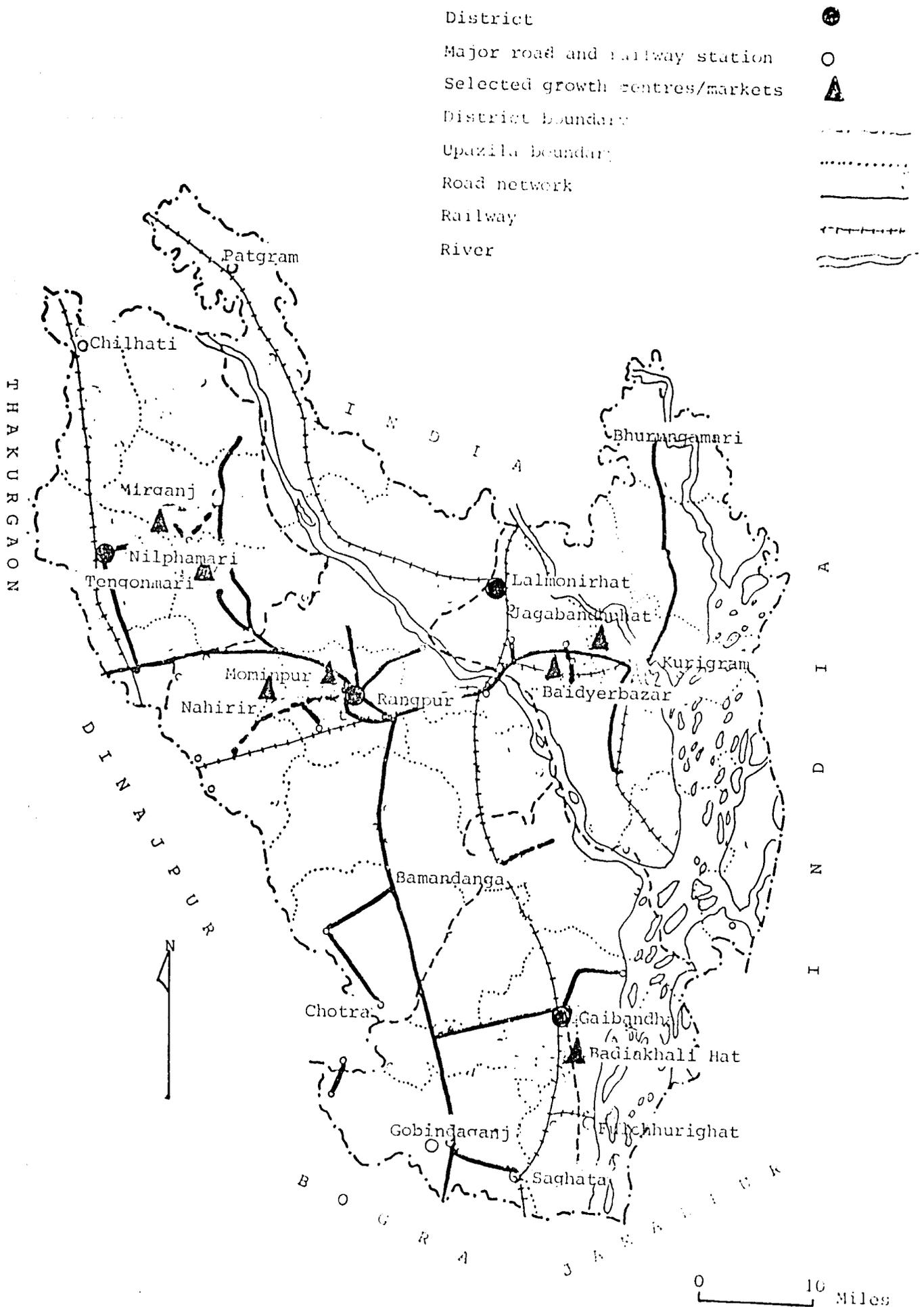


Figure 7.1 LOCATION OF SELECTED GROWTH CENTRES

FARIDPUR

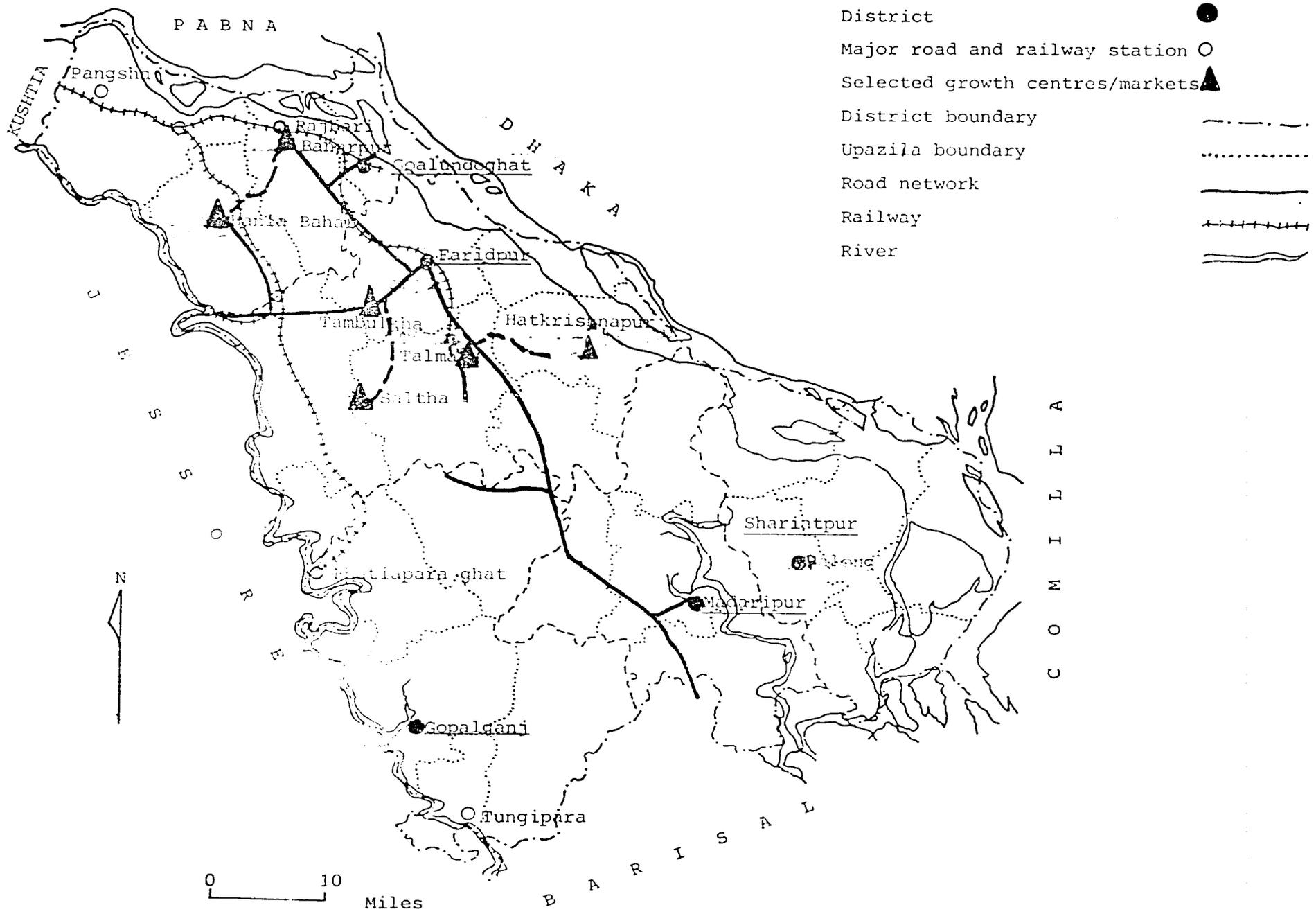


Figure 7.2 LOCATION OF SELECTED GROWTH CENTRES/MARKETS

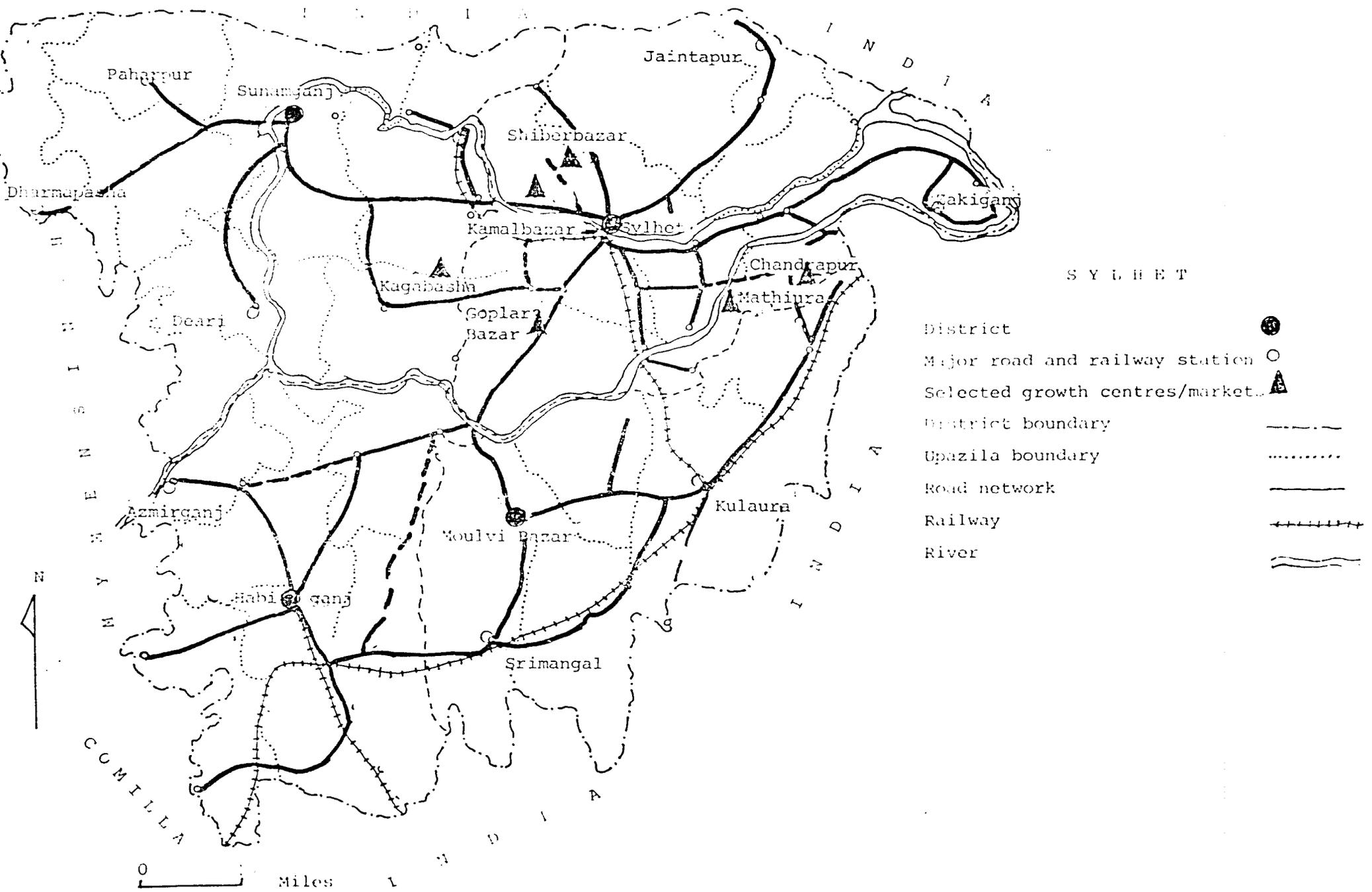


Figure 7.3 LOCATION OF SELECTED GROWTH CENTRES/MARKETS

Table: 7.1 Location and Economic threshold of the selected markets, Rangpur

S.No.	Distance of nearest point of paved Rd.	Distance of Transport point (in mile)			Distance from which people usually come to this centre for the following.								
		Bus	Railway	Steamer Launch	Food crops	cash crops	Vegetable	Fish/Meat	Medicine	Grocery	Average distance of all	Maximum distance	Minimum distance
Tengonmarihat	0	5	-	-	8	10	2	8	4	4	6	10	2
Mirganj Hat	6	11	-	-	15	23	2	5	7	5	9.5	23	2
Nahirir Hat	0	0	3	-	8	20	1.50	4	8.5	0.50	7.08	20	0.50
Maminpur	0.19	2	6	-	3.50	3.50	0.50	2.50	7	7	4	7	0.50
Bairdar bazar	0.50	2	4	-	1.50	1.50	1.50	1.50	12	3	3.50	12	1.50
Jagabandhu Hat	0	0	3	-	1.50	1.50	1.50	1	4	10	3.25	10	1
Badia-khali Hat	0	-	1	-	5	5	2.50	2	6	6	4.40	6	2
Jllah Bazar	0	-	0.25	1	4.5	4.5	4.5	1.5	10	10	5.83	10	1.5

Table : 7.2 Location and economic threshold of the market.

Faridpur

Sl. No.	Growth centre	Distance of nearest point of paved Rd.	Distance of Transport point (in mile)			Distance from which people usually come to this centre for the following								
			Bus	Railway	Steamer/ Launch	Food crop	Cash crop	Vegetable	Fish/ meat	Medicine	Grocery	Average distance of all	Maximum distance	Minimum distance
1.	Hatkrishna pur	0	4	6	14	35	20	15	11	5	10	16	35	5
2.	Talma	0.50	1	0.25	15	10	20	10	2.60	5	5	8.77	20	2.60
3.	Baharpur	0	0	0.13	20	6	40	17.5	3.75	2	1	11.71	40	1
4.	Banibahar	0	0	5	20	7.5	12.5	4.5	2	1	1	4.75	12.5	1
5.	Saltha	10	7	10	1.50	5	15	7	5	5	6	7.17	15	5
6.	Tambulkhara	0	6	8	10	2	-	3	5	7	3	4	7	2

Table 7.3 Location and Economic threshold of the market Sylhet

Sl. No.	Growth Centre Distance of nearest point of paved Rd.	Distance of Transport point (in mile)			Distance from which people usually come to this centre for the following.								
		Bus	Railway	Steamer/ Launch	Food crop	Cash crop	Vegeta- ble	Fish/ meat	Medi- cine	Grocery	Avera- ge dis- tance of all	maxi- mum distan- ce	Mini- mum dista- nce
1. Kamalbazar	0.125	0.125	3.30	-	3.50	3	4.50	4	4	3	3.67	4.50	3
2. Shiber bazar	2	2	11	-	4.50	7.50	7.50	3.75	9	9	6.87	9	3.75
3. Chandarpur	0.25	0.25	15	0	5	5	2	2	6	5	4.16	6	2
4. Matiura	0.50	0.50	8	2	2.25	2.25	3.50	3.50	4.50	4.50	3.42	4.50	2.25
5. Kagabasha	6	2	14	15	6	5	4	0.25	4	3	3.71	6	0.25
6. Goplar bazar	1	2	18	6	6	5	12	5.5	20	3	8.58	20	3

The distances of the nearest transport points were also found to be different for different markets. As seen from Table 7.1, Tengormari and Mirganj hats can only be approached by buses, whereas some others may be approached both bus and train communications. Only Ullahbazar may be approached by both railway and waterways. Similarly, in Faridpur and Sylhet, some markets could be approached by road, some by waterways and roads and some of them could be approached by all types of surface transport networks. The details may be seen from the Tables.

As has been pointed out earlier, the selected markets play an important role in the local economy. Therefore, in order to identify their importance, an attempt has been made to find the zone of influence or service limit (threshold limits) by estimating the maximum distances from which people usually come to these centre to procure various goods and services.

One will observe from Table 7.1, that for Mirganj and Nahirirhat, the maximum distances from which people

come to these centres were 23 and 20 miles respectively. The corresponding average distances (averages of distances from which people come to the centre for different types of goods) were 9.50 and 7.08 respectively. Badiakhali-hat had the smallest range of influence or threshold (6 miles) as the maximum distance from which people came to these market was 6 miles.

It will be seen from Table 7.2, that the threshold limits for the markets of Faridpur were much higher compared to those of Rangpur or Sylhet. The largest distance from which people came was 40 miles which covered in case of Baharpur, followed by 35 miles and 20 miles in cases of Hatkrishnapur and Talma respectively. The highest threshold limit, if measured in terms of the average distance from which people came, however, occurred in case of Hatkrishnapur market.

Threshold limit of the markets of Sylhet were much smaller compared to both Faridpur and Rangpur measured in terms of both the maximum distance and the average distance. The details may be seen from Table 7.3.

The socio-economic interaction between the zone of influence and the market centre for the satisfaction of various needs, economic and social, continue to take place when no insurmountable physical barrier exists between them excepting a few minor gaps such as small streams and haors. These tend to obstruct the interaction during rainy season when they are flooded. It appears that the interaction between the market and the zone of influence is a product of the existing pattern of transportation network and the mode of transport.

7.2: The size of the growth centres/markets

The area of the growth centre shows a considerable variation among the regions. As can be seen from Table 7.4, the average area in acres varies significantly from one acre in region III of Rangpur to about 22 acres in region I in Faridpur. There is also substantial inter-regional variation within each district. However, the average size of growth centres/markets is the highest in Faridpur followed by Rangpur and Sylhet.

Table 7.4 : Average size and average number of various type of shops and Facilities
by regions : All Districts

TRANSPORT REGIONS	Average Area (in acre)	Average Number of permanent shops	Average number of temporary shops	Average number of proce- ssing mills	Average number of cottage/ Engg Industry	Average No. of other ish mill	Average Grain storage capacity in M.D
FARIDPUR REGION - I	21.75	252	590	15.5	1	-	28600
FARIDPUR REGION -II	2.73	70	105	5	-	-	6000
FARIDPUR REGION -III	8.00	92	199	6	-	0.5	19500
SYLHET REGION -I	4.00	49	1041	4	-	-	-
SYLHET REGION - II	2.00	60	364	2	-	-	825
SYLHET REGION - III	12.50	75	140	1.5	-	-	4000
RANGPUR REGION -I	16.00	100	256	1	2.5	-	2405
RANGPUR REGION -II	3.35	33	96	3	-	-	810
RANGPUR REGION -III	1.00	41	106	1.5	-	-	125
RANGPUR REGION - IV	10.00	76	143	5	-	-	25000

The Table also indicates that both the average number of permanent and temporary shops vary significantly among the regions. They also vary considerably among the districts as a whole. It is also observed that the average number of permanent shops ranges from 33 in region II in Rangpur to about 252 in region I in Faridpur. The average number of shops per market is the highest in Faridpur (127) followed by Rangpur(63) and Sylhet (61). However, the average number of temporary shops is the highest in Sylhet (515) per market followed by Faridpur (298) and Rangpur (100). The average number of processing mills also varies significantly among the regions of the districts. It ranges from I in region I in Rangpur to about 16 per market in region I in Faridpur. Similarly, there is a considerable variation in the grain storage capacity per market. The numbers of different types of shops, processing mills and the grain storage capacity together determine the economic size of the growth centres/markets.

Table 7.5 gives the description of the number of permanent and temporary shops by types in all the districts. One will observe that the maximum number of shops in the markets (all the districts together) are the grocery/stationery/utensils shops followed by services and miscellaneous shops. On the other hand, in the temporary shops category, the maximum number of shop belongs to miscellaneous category (others) followed by those of vegetable and fish vendors.

7.3: The pattern/kind of use of land

The pattern of use of land in the growth centres are shown in Table 7.6 for all the districts. It will be observed from the table that, for all the districts together about 44, 131, 12 and 5 per cent of area are used for the purpose of business and commerce, utilities, industries and administrative functions respectively. Only about 3.42 per cent area is used for residential purposes, while about 22.78 per cent area is open space.

Table 7.5 Distribution of permanent and temporary shop by types in the selected growth centres. All district

Districts Types of shops	FARIDPUR		RANGPUR		SYLHET			
	Av. No. of permanent shops	Av. No. of temporary shops	Av. No. of permanent shops	Av. No. of temporary shops	Av. No. of permanent shops	Av. No. of temporary shops	Av.No.of permanent shops	Av.No. of temporary shops
1. Grocery/Stationary/ utensils	40.33	48.0	21.50	23.0	22.5	50.83	27.45	38.85
2. Food grain (rice/wheat/ flour)	13.67	60.5	0.17	19.5	1.17	78.50	4.52	49.50
3. Bakery, confectionery & restaurants	13.83	-	6.25	-	3.5	-	7.70	-
4. Medicine	11.50	-	6.38	0.63	5.17	-	7.55	0.25
5. Services	22.67	-	15.38	-	12.67	-	16.75	-
6. Fuel	4.17	10.0	.38	2.5	9.67	3.17	4.30	4.95
7. Meat & Poultry	-	18.33	-	18.5	-	78.17	-	36.35
8. Fish	-	54.83	-	16.13	-	91.17	-	50.25
9. Vegetables	-	102.33	-	29.5	-	80.33	-	66.60
10. Others	28.16	211.83	11.25	22.38	10.17	138.17	16.00	117.95

1= Grocery + Stationary + utensils
 2= Rice+Atta/wheat
 3= Bakery+Hotel/Restaurants
 4= Alopatee+Homeopatee+other.

5= Cycle parts/mech.+Laundries+Radio mech.
 +Tailoring + Carage + Mike services
 6= Fuel wood+ Kerosine/diesel
 7= Meat & Poultry
 8= Fish
 9. Vegetables
 10. Others

Table : 7.6 Pattern/kind of use of land in the growth centres/markets in the districts

Districts Use of Land	FARIDPUR		SYLHET		RANGPUR		ALL	
	average area in acres	% of the total.	Average area in acres	% of the total	Average area in acres	% of the total	Average area in acres	% of the total.
1. Business and commerce	4.74	43.74	2.98	48.31	3.19	42.13	3.60	44.28
2. Industrial	2.25	20.73	0.26	4.22	0.12	1.52	1.00	12.30
3. Utility service	1.55	14.33	1.19	19.26	0.24	3.18	1.02	12.51
4. Administrative uses	0.76	7.0	0.22	3.55	0.07	.97	0.38	4.71
5. Residential	0.12	1.14	0.24	3.88	0.60	7.86	0.28	3.42
6. Open Space	1.41	13.06	1.28	20.78	3.37	44.34	1.85	22.78
All	10.83	100.0	6.17	100.0	7.59	100.0	8.14	100.0

One will also notice that about 44, 48 and 42 per cent area are used for business and commerce for Faridpur, Sylhet and Rangpur respectively. The percentage area used for utility services ranges from about 3.2 per cent in Rangpur to about 19.3 per cent in Faridpur. However, there is a substantial variation in the area used in the market for industrial purposes among the districts. It ranges from 1.52 per cent in Rangpur to about 21 per cent in Faridpur.

It appears that, the economic threshold of the market seems to have a positive relationship with the land area used for industrial and utility services.

7.4: The Socio-Economic Infrastructure of the growth centres/markets

The information regarding the socio-economic infrastructure has been summarised in Tables 7.7, 7.8 and 7.9. Information regarding the education has been reported in Table 7.7. One will notice that the average number of schools in and around the growth centres with

Table No. 7.7 Educational Infrastructure of the Growth Centres.

Transport Regions	Primary School		Secondary School		Colleges		Madrasa	
	Average No.	Av. distance (in mile)	(including girls School)	Av. distance (in mile)	Av. Number	Av. dis- tance (in mile)	Av. Number	Av. dis- tance (in mile)
Rangpur I	1.5	.33	1.5	2	1	5.5	1	0.25
Rangpur II	1.5	.66	1	2	1	3.25	-	-
Rangpur III	2	.31	2	1.13	1	3.5	.5	0
Rangpur IV	1.5	.33	1.5	0.75	1	5.5	1	0.25
Faridpur Region-I	6	0.17	2	2	1	7	-	-
Faridpur Region II	6.5	0.15	2	4.25	1	7.5	-	-
Faridpur Region III	5.5	0.18	1	5	1	4.5	-	-
Sylhet Region-I	5	0.20	0.5	1	1	6.42	-	-
Sylhet Region-II	6	0.17	2	1.13	1	2.5	-	-
Sylhet Region-III	1.5	0.67	1.5	2.5	1	5.5	-	-

Table 7.8 Social Infrastructure of the growth centres

Transport Region.	Hospital/Health centre		F.P. Clinic		No. of Doctors			No. of Trained Nurse/Midwives/Dai
	Av. Number	Av. Distance (in mile)	Av. number	Av. dista- nce(in mile)	Alopathic	Kabiraj	Homeo- pathic	
Rangpur - I	1.5		1	2	2.5	1.5	2.5	1
Rangpur - II	2	6	1	5.5	2	1	4.5	2.5
Rangpur -III	1	.75	1	3	1.5	3	1	.5
Rangpur -IV	1	1	.5	.5	.5	1.5	1	1.5
Faridpur - I	2	5.25	1	3	1.5	2	2	11.5
Faridpur -II	2	3.75	1	3.5	14	10	2.5	47
Faridpur-III	2	2.25	1	4.5	1	0	4	-
Sylhet - I	1.5	4.83	1	6.25	4	-	2.5	-
Sylhet - II	2	1.25	1	2.06	7.5	1	2.5	9.5
Sylhet -III	2	2.50	1	5.5	6.5	2	2	2

Table No. 7.9 Economic Infrastructure in the growth centres.

Transport Region	Average No. of commercial Banks/ Etc.	Average No. of Post Offices.	Average No. of Telegraph offices	Average No. of seeds/ Fertilizer dealers
Rangpur - I	1.5	1	-	7.5
Rangpur -II	-	.5	-	5.5
Rangpur -III	-	.5	-	2
Rangpur -IV	1	-	-	2.5
Faridpur-I	2	1	-	7
Faridpur-II	.5	1	-	3.5
Faridpur-III	1	1	-	12.5
Sylhet -I	0.5	1	-	3.5
Sylhet -II	0.5	1	-	1
Sylhet-III	1	1	-	3

their average distances show considerable variation among the regions. The average number of primary schools ranges from 1.5 in Rangpur II and Sylhet III to about 6.5 in Faridpur II and that of secondary Schools ranges from 1 in Rangpur II and Faridpur III to about 2 in Rangpur III, Faridpur I and Faridpur II.

Information regarding health by regions has been reported in Table 7.8. One will notice that there is a considerable variation in the average numbers of hospitals/health clinic, family planning clinic, number of different types of doctors and the number of trained nurses and Dai's among the regions.

Information regarding the economic and financial infrastructure has been summarised in Table 7.9. There is a considerable variation in the average numbers of commercial banks, post offices, telegraph offices and fertilizer dealers among the regions. Details may be seen from the Table.

7.5: Land values in and around the Growth Centres/Markets

The average land prices per acre within and around the growth centres/markets are shown in Table 7.10. It appears that the overall pattern of land values is essentially a reflection of accessibility. Prices of all types of land are higher within and around the centres but it systematically declines with the increase in distances from the growth centres. Although, accessibility seems to be the dominant factor, crop situation, remittances from abroad and the general economic situation (high income level) inevitably influences the land price.

Table No. 7.10 Land price situation by types (price in '000' Tk. per acre) within and around the centres by zones.

Location and type	Inside the centre			Within the $\frac{1}{8}$ mile			Within $\frac{1}{4}$ mile			Within $\frac{1}{2}$ mile		
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
<u>Zones</u>												
<u>FARIDPUR</u>												
Region 1.	188	150	135	115	100	78	80	80	65	71	68	59
Region 2.	300	270	245	80	60	55	70	55	50	65	55	45
Region 3.	290	50	43	45	20	23	25	20	14	16	15	9
<u>SYLHET</u>												
Region 1.	1050	845	737	250	245	295	200	197	165	180	178	150
Region 2.	325	165	125	325	165	125	275	125	100	237	105	100
Region 3.	155	45	33	35	32	22	20	20	20	15	14	12
<u>RANGPUR</u>												
Region 1	110	63	63	103	60	60	98	59	58	93	66	55
Region 2.	118	98	88	113	93	80	100	85	76	100	80	70
Region 3.	40	40	29	48	40	28	40	36	26	37	35	25
Region 4.	118	43	30	105	38	24	95	35	25	80	35	25

Chapter VIII

Summary and Conclusion

The objective of the study has been to generate and assess the socio-economic base line data for determining the impact of Road Maintenance and Improvement Projects in the old districts of Rangpur, Faridpur and Sylhet. The data were generated on the occupational structure, distribution of land ownership, operational holding, land use and tenurial patterns, cropping pattern, agricultural production, market surplus farm and non-farm employment, product and input prices, road traffic and transport changes from ten Road Maintenance and Improvement Regions (RMIR) of the three old districts. They were collected through primary surveys of the selected growth centres/markets, shopkeepers (both temporary and permanent), traders, farm/households labour supplying households transport workers and traffic from the ten road regions of the districts by administering eleven structured questionnaires. The period of survey was August 1985 to January 1986. The household survey refers to the crop year 1985-86.

The findings in chapter IV indicate that the cultivation intensity does not seem to depend on level of road development. On the other hand, cropping intensity seems to depend on the level of road development. Also, the adoption of irrigation practices does not seem to be related to the accessibility of roads although incidence of irrigation was the highest in Rangpur. The findings also suggest that there^{is}/_{no} significant relationship between accessibility and use of fertilizer per acre in the regions. However, the amount of variation in fertilizer uses (measured in terms of^{co-}efficient of variation) is the lowest in Rangpur regions where degree of accessibility is higher, followed by Faridpur and Sylhet. However, the fertilizer procurement prices in the villages seem to be inversely related to the degree of accessibility in all the selected villages in districts.

The difference in incidence of irrigation and fertilizer use has differential impact on crop yields.

The per acre yield of paddy (HYV and local together) is substantially higher in Rangpur (34.27 maunds) compared to Faridpur (21.73 maunds) or Sylhet (19.83 maunds). The difference is due to cultivation of HYV paddy during winter season in a substantially larger proportion in Rangpur compared to that in Faridpur or Sylhet. The per acre yields of other crops like Jute and Wheat are also substantially higher in Rangpur compared to Faridpur or Sylhet. Furthermore, the gross value of crop production per acre in Rangpur (Tk. 6861) is about 36 and 82 per cent higher respectively compared to that in Sylhet and Faridpur.

The variation in the marketed surplus that determines the use of roads, is much higher than the variation in paddy yield or gross value of crop production in the selected villages of the road regions. The marketing ratio has been found to rise systematically with the rise in size of farms. Findings also indicate that the marketing ratio is significantly higher in regions where there is some specialization in crop production. Further, marketing ratio has a tendency to rise with the rise in the level of

accessibility. Also, the estimated marketing ratio of yield sold within two weeks of production, has a systematic tendency to decline with the rise in farms.

Findings indicate that the differences in product prices between accessible and interior markets was substantial. The differences in price of paddy between accessible and interior markets was about Tk. 2, Tk.21 and Tk. 7 respectively for Rangpur, Faridpur and Sylhet. The differences in input prices between accessible and interior markets was also substantial. The results suggest that the difference in prices for both product and input prices tend to decline as the degree of road network increases.

The findings thus, indicate that investment programmes for maintenance and improvement of roads may enable the farm households to obtain better prices for the products they sell and to secure lower prices of agricultural inputs they use for increasing production. These changes in prices will widen the gap

between the cost and value of production, and as a result, the profitability of crop production will increase. If the farmers are responsive to profitability and prices, the production will increase.

The findings related to employment and income of the various types of households (chapter V) indicate that the average number of days employed per adult male worker on own farm and wage labour together for Rangpur, Faridpur and Sylhet respectively were about 73, 44 and 54. The average number of days employed per adult male worker on own farm and wage labour for small farms was the highest followed by medium and large farms. Findings also indicate that there was a substantial variation in annual income of the households among the districts within the same size group of farms. There was also a considerable variation in the composition of farm incomes.

The extent of participation in wage and self employment for adult male workers of the labour supplying households, respectively, were about 92 and 23 per cent of the total male adult members in Rangpur about 61 and 18 per cent in Faridpur and about 69 and 28 per cent in Sylhet.

The participation in wage and self employment was not mutually exclusive. The extent of participation in wage labour and self employment respectively for the adult female workers of the same type of household were about 57 and 23 per cent for Rangpur, 23 and 30 per cent in Faridpur and about 32 and 46 per cent in Sylhet.

The total number of days employed on wage labour and self employment for adult male workers for these households, considering all the districts together, were about 163 and 25 respectively, totalling about 188 days. For the female workers, however, the same were about 73 and 52 respectively, totalling about 125 days.

Findings also indicate about 54, 55 and 49 per cent of the male workers are engaged as agricultural labour in Rangpur, Faridpur and Sylhet, respectively. This is followed by earth work (19 per cent) in Rangpur, transport work (18 per cent) in Faridpur and fishing (41 per cent) in Sylhet. For the female employed workers, about 36 and 38 per cent respectively, are employed as non-agricultural workers (mostly domestic help) in Rangpur and Faridpur,

about 33 per cent in each of rice husking and cottage industries/handicrafts in Sylhet and about 36 per cent as agricultural labour in Rangpur only. Findings also indicate substantial wage differences between male and female workers in the same type/^{of}activity in all the districts. Similarly, there were substantial differences in average return per worker for self employment between male and female workers in all the districts.

The average number of days employed for traders was found to^{be}/about 210 with an average annual income of about 23 Thousand Taka. There were substantial variations in both number of days employed and income earned among the districts.

There were also considerable inter-district and intra-district variations in average number of days employed by different types of transport workers. Findings show that the average number of days employed ranges from 102 days for push cart to about 280 days for Rickshaw/Van drivers in Rangpur, from about 100 days for head/shoulder load operators to about 280 days for auto-rickshaw driver

in Faridpur and from about 80 days for head/shoulder load operators to about 280 days for auto-rickshaw drivers in Sylhet. There were also substantial inter and intra district variations in the average annual income of transport workers operating different modes.

The findings from chapter VI indicate that there is a considerable variation in the weekly volume of traffic between dry and wet seasons in all the districts. The dry season traffic accounts for about 70, 73 and 71 per cent of the total volume of traffic respectively for the selected roads in Rangpur, Faridpur and Sylhet. The level of traffic was found to be the highest in Rangpur for both dry and wet seasons followed by Faridpur and Sylhet.

The findings also reveal the extent of use of various modes of transport on the selected roads. In Rangpur, for all the selected roads taken together, human portage and animal back accounts for about 2.6 and 4.1 per cent of the volume of traffic in dry and rainy seasons respectively. The corresponding figures for dry

and rainy seasons for the non-powered modern vehicles (Rickshaw, Van and Bicycle) were about 58 and 62 per cent respectively of which the share of Bullock carts were more than 40 per cent in both seasons. The powered vehicles (auto-rickshaw) accounted for about 40 and 34 per cent of the total volume of traffic respectively in dry and rainy seasons.

In Faridpur, however, for all the selected roads considered together, powered vehicles accounted for about 71 and 74 per cent of the total volume of traffic in dry and rainy seasons respectively. Human portorage and animal back accounted for less than 2 per cent of the traffic in both seasons, whereas, the non-powered modern vehicles accounted for about 28 and 25 per cent in dry and rainy seasons, respectively of which Rickshaws/Van constituted the most.

In Sylhet, the percentage shares of the portorage, non-powered vehicles and powered vehicles in the total volume of traffic were about 4, 51 and 45 respectively in the dry season. The corresponding figures for the wet

season were 6, 47 and 47 respectively. Rickshaws and Vans accounted for most of the traffic by non-powered vehicles. Estimated annual volume of traffic per road mile indicates that there is a considerable variation, in the composition of traffic by mode as well as in the intensity of road use. Intensity of road use tends to rise with the degree of connectivity and the quality of roads.

The findings thus seem to suggest that the volume of traffic in the wet season is positively related to the degree of quality of roads. Also, the proportions of traffic by both porterage and non-powered vehicles seem to be inversely related to the degree of road quality. Further, the volume of traffic by powered vehicles seems to be positively related to the degree of quality of road.

The findings regarding the volume of traffic by types of commodities in the selected roads indicate that the proportion of agricultural commodities transported ranged from about 75 per cent on Gaibandha - Saghatta road to

about 95 per cent on Rangpur-Badarganj Road in Rangpur, from about 96 per cent on Badarpur - Saltha road to about 97 per cent on Talma - Hatkrishnapur road in Faridpur and from about 55 per cent on Sylhet - Kamalbazar road to about 96 per cent on Bijnaghat - Bahubal road in Sylhet. It appears that the proportion of agricultural commodities in the total volume of traffic is higher for relatively less-developed roads while, that of the non-agricultural commodities is higher for better roads with relatively higher degree of connectivity. The findings suggests that the proportion of non-agricultural commodities is higher in relatively more accessible areas and since non-agricultural commodities come from outside the areas, roads may lead to more commercialization and transformation of the subsistence economy.

Findings regarding the volume of goods entering into markets by type suggest that the accessible markets handle about 69 per cent of the total volume of goods for all the districts taken together. The percentage shares of crops, vegetables and other agricultural products in their respective total volume for the accessible markets

were 67, 68 and 84 respectively. Similar features were observed in accessible markets in all the study regions though there were considerable regional variations in the percentage shares of various types of goods. It appears that the volume of goods that enter into the markets is positively related to the degree of accessibility. Further, the results seem to suggest that the factors like road connectivity, accessibility and the level of regional development may also account for the regional variations in the shares of various types of goods for the markets.

The findings regarding transport charges indicate that although there is a considerable variation in the average per maund per mile transport charges among the districts, it is the highest in case of human portorage followed by non-powered modern vehicles (Rickshaw/Van, etc.). It is the lowest in case of the modern powered vehicles. There are also substantial differences in the average distance covered and average charges between accessible and interior markets. The average distances covered by both bullock carts and rickshaws were higher in case of

accessible markets compared to that of interior markets, while the reverse was the case for the average transport charges for the above modes of transport. The findings seem to suggest that the variation of the transport charges between various modes of transport may be the result of the levels of utilization of capacity and the speed of a mode. Both capacity and the speed increase as one moves from human portorage to modern modes and given the alternative employment opportunity, wage rates and the capital charges, larger amount of goods can be carried to a larger distance by a modern mode at a cheaper cost.

The findings of the study also indicate that there is a possibility of substantial user costs savings by improving the quality of roads. Investment on roads will improve the quality of roads which, in turn, will change the composition of modes of transport in favour of the modern modes of transport. As a result, a considerable amount of cost savings for the road users will be possible from the existing volume of traffic by way of improvement of road quality. Thus, at the existing level of development

of Baniyachunga, an improvement on earth road may generate a cost saving of about Five Thousand Taka per road mile at the existing level of traffic and about Ten Thousand Taka at the level of traffic twice that of existing one. An alternative development scheme of converting the earth road to a paved one, would produce a benefit of about 6 Thousand Taka at the existing level of traffic and about 29 Thousand Taka per road mile for rise of existing traffic by 500 per cent.

Similarly, the estimated cost savings from an improvement of Jaldhaka - Mirganj road and Bamandanga - Sunderganj road to paved ones, would be about 100 Thousand and 63 Thousand Taka per road mile at the existing levels of traffic, respectively. Again, at the existing level of traffic on Badarpur - Saltha road, an improvement on earth road would produce a cost saving of about 11 Thousand Taka, while the cost saving would increase to about 16 Thousand Taka at the level of traffic 50 per cent higher than the existing one.

The results also suggest that the cost of investment

on improvement of earth road in agriculturally backward areas like Baniyachunga - Nabiganj, would be recouped within a period of 5 years. In case of investment on paved road, this would be paid back in about 30 years. The cost of paving Jaldhaka - Mirganj road in an agriculturally progressive area would be recouped within a period of less than 6 years. Similarly, the cost of investment on maintenance of Bamandanga - Sunderganj road in a progressive area would be recouped within a period of less than 4 years. The choice of alternative road development schemes would, thus, depend on the life of the scheme. Further, increased investment on agriculture would justify the investment on roads since this would substantially increase the user costs savings as the demand for traffic will expand.

The findings also suggest that an improvement of road leads to change in the composition of modes of transport towards cheaper and faster forms of transport. Results indicate that the proportion of pure transport operator is relatively higher in each of the modern modes

in an accessible area compared to an interior one. Further, an overwhelming majority of transport operators comes from the landless labour supplying households. Thus, it indicates that investment on road improvement and maintenance will increase the employment opportunities of the landless agricultural labour and their incomes position may improve. Also, employment may increase in other sectors, through linkage effects and increased efficiency in these sectors.

Findings in chapter VII suggest that the economic size of the growth centres/markets, depends on first, the level of development of the socio-economic infrastructure and the intensity of land use in the study regions and second, on the level of accessibility as determined by the various forms of transport networks. Also, the size of the market seems to be affected by the level of interaction between markets with their zones of influence. Findings indicate that there is a considerable inter-district and intra-district variation in the size of market. The variation in the size of market seems to be related to the level of interaction as well as the

the modal differences in the study regions.

It emerges from our findings that as the rural areas are made more accessible by investing on roads and more extensive networks, the mobility of goods and passengers increase as an outcome of the cheaper and faster modes of transportation. This facilitates marketing of surplus produce and provides incentives to farmers for increasing production. Cheaper cost of transport secures better price for farm produce and reduces input prices which in turn increase profitability of farm production. This may also provide incentives to adopt high yielding crop technologies and the diffusion of such technologies. Thus the potential of agricultural production may be realised if the areas are made more accessible.

It also emerges from the study that investments on road projects are complementary rather than competing ones to other infra-structure building projects. The economic gains from investment on road depends on the existing and the potential volume of traffic and the rate of which

the potential can be realised. This, among other things, depends on the volume of marketed surplus which is again dependent on investment on other land augmenting investment projects such as irrigation and drainage, improvement of rural markets, etc. Thus, it may be quite possible that the potential of the benefits out of such land augmenting investment, cannot be fully realised until investment on building better quality roads are made and marketing of increased volume of products and inputs are made possible. Thus, the expected complementarity can be fully realised if different rural infra-structure building projects are undertaken jointly with proper phasing and co-ordination.

The gains from investment on roads, among other things, depends on the overall level of development of the area. The findings on the estimated gains as against the crude estimates of cost of construction of roads indicate that construction or maintenance of earth road is economic even for an agriculturally backward area like Baniyachunga - Nabiganj.

These earth roads at the present level of development of the areas may be developed as feeder roads to paved roads linking viable growth centres, upazillas or district headquarters. But as economic activity increases over time resulting from increased level of traffic demand due to accessibility of the area, these may be economically justified to be paved in the near future.

However, investment on paved roads may not be economically justified at the present level of development as the time needed for recoupment of the cost of investment may be longer than intended. It may be reasonably expected that a better link between Baniyachunga and Nabiganj would reduce the distance between the two upazillas and as such, the volume of traffic may substantially increase due to diversion of traffic from other road links to this and the increased demand for traffic generated in the area. The findings however, strongly suggest that investment on roads for improvement or maintenance in an agriculturally progressive area, may be economically justified on the ground of increased traffic demand and the shorter recoupment period of the cost of investment.

APPENDICES

Table : A. 6.1. Goods Transported by type of commodity, RANGPUR
Jaldhaka - Mirganj

	Head/ Shoulder Load	On back of animals	Ballock/ Buffallo/ Horse Cart	Padal Rickshaw	Van	Bicycle	Auto Rickshaw	Truck	Motor Cycle	Car/ Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	61	-	612	81	-	51	-	683	-	-	-	1488	32.21
Cash crops	200	-	1826	56	-	63	-	-	-	-	-	2145	46.43
Vegetables	40	-	58	4	-	10	-	-	-	-	-	112	2.42
Livestock, Fisheries, Forestry Products	-	-	-	28	-	-	-	-	-	-	-	28	0.61
Non-agricultural commodities	24	-	130	5	-	5	-	-	-	-	-	164	3.55
Construction materials	-	-	-	-	-	-	-	683	-	-	-	683	14.78
Total	325 (325)	-	2626 (2997)	174 (433)	-	129 (429)	-	1366 (2205)	0 (60)	0 (13)	-	4620 (6462)	100.0

(Figures in the parentheses indicate totals including passenger and traffic without load traffic.)

264

Table : A 6.2 Goods Transported by type of commodity, RANGPURRangpur - Badarganj

in ton miles													
	Head/ Shaul- der load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal rickshaw	Van	Bicycle	Auto Rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Mini- bus	Total ton mile	%of total
Food crops	66	-	1373	285	-	29	-	24	-	-	-	1777	25.34
Cash crops	76	-	2251	296	63	227	-	728	-	-	-	3641	51.92
Vegetables	37	-	198	57	8	8	-	-	-	-	-	308	4.39
Livestock, Fisheries Forestry Products	12	-	380	16	-	1	-	-	-	-	-	409	5.83
Non agricultural commodities	22	-	-	126	10	41	-	223	-	-	-	422	6.02
Construction materials	-	-	-	-	-	-	-	456	-	-	-	456	6.50
Total	213 (213)	-	4202 (4655)	780 (1911)	81 (124)	306 (801)	-	1431 (1940)	0 (177)	0 (158)	0 (2979)	7013 (12958)	100.0

(Figures in parentheses are totals including passengers and traffic without load.)

Table A 6.3. Goods Transported by type of commodity, RANGPUR

Jagabandhuhat - Rajarhat

(in ton miles)

	Head/ Shoul- der load	On back of animals	Bullack/ Buffallo/ Horse cart	Pedal rickshaw	Van	Bi- cycle	Auto Ricksh -aw	Truck	Motor cycle	Car/ Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	32	-	18	11	14	1	-	-	-	-	-	76	41.99
Cash crops	11	-	19	19	21	1	-	-	-	-	-	71	39.23
Vegetables	12	-	-	4	1	1	-	-	-	-	-	18	9.94
Livestock, Fisheries Forestry Products	7	-	-	-	-	-	-	-	-	-	-	7	3.87
Non agricul- tural commodi- ties	2	-	1	3	3	-	-	-	-	-	-	9	4.97
Construction materials	-	-	-	-	-	-	-	-	-	-	-	-	..
Total	64 (64)		38 (44)	37 (73)	39 (46)	3 (14)	-	-	0 (53)	-	-	181 (294)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table : A 6.4

Goods Transported by type of commodity, RANGPURGAI-BANDHA - SAGHATTA

	Head/ Shoulder load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal ricks- haw	Van	Bi- cycle	Auto- Rickshaw	Truck	Motor cycle	Car Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	14	-	269	54	-	12	-	181	-	-	-	530	23.42
Cash crops	7	-	386	28	-	2	-	509	-	-	-	932	41.18
Vegetables	11	-	-	8	-	-	-	69	-	-	-	88	3.89
Livestock Fischeries Forestry Products	7	-	89	18	-	1	-	35	-	-	-	150	6.63
Non agricultural products	-	-	108	22	-	1	-	-	-	-	-	131	5.79
Construction materials	-	-	-	-	-	-	-	432	-	-	-	432	19.09
	-	-	-	-	-	-	-	-	-	-	-	-	
Total	39 (39)	-	852 (1374)	130 (621)	-	16 (61)	-	1226 (2020)	0 (60)	0 (32)	-	2263 (4207)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table : A 6.5 Goods Transported by type of commodity, RANGPUR
Bamandanga - Sunderganj

(in ton miles)

	Head/ Shoul- der load	On back of animals	Bullock/ Buffallo/ Horse Cart	Pedal ricksh- aw	Van	Bi- cycle	Auto rickshaw	Truck	Motor cycle	Car Jeep	Bus mini bus	Total ton mile	% of total
Food crops	3	-	125	48	-	11	-	32	-	-	-	219	44.51
Cash crops	1	-	103	26	-	4	-	-	-	-	-	134	27.24
Vegetables	2	-	12	8	-	2	-	-	-	-	-	24	4.88
Livestock, Fisheries Forestry Products	1	-	44	12	-	1	-	-	-	-	-	58	11.79
Non agricultural products.	1	-	25	5	-	3	-	-	-	-	-	44	8.94
Construction materials	-	-	-	-	-	-	-	13	-	-	-	13	2.64
	-	-	-	-	-	-	-	-	-	-	-	-	
Total	8 (8)		319 (439)	99 (367)		21 (70)		45 (79)	0 (55)	0 (31)		492 (1049)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table A 6.6 Goods Transported by type of commodity, FARIDPURTAJMA - HATKRISHNAPUR

(in ton miles)

	Head/ shoul- der load	On back of animals	Bullock Buffallo/ Horse Cart	Pedal rick- shaw	Van	Bi- cycle	Auto- rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Mini- bus	Total ton mile	% of total
Food crops	7	-	-	9	37	-	5	196	-	-	-	254	9.47
Cash crops	9	2	5	48	144	1	3	1714	-	-	-	1926	71.84
Vegetables	12	-	-	18	47	1	5	104	-	-	-	187	6.98
Livestock Fisheries Forestry Products	3	-	-	13	35	-	-	222	-	-	-	273	10.18
Non agricultural commodities	5	-	-	7	28	1	-	-	-	-	-	41	1.53
Construction materials	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	36 (36)	2 (2)	5 (9)	95 (581)	291 (672)	3 (62)	13 (63)	2236 (4301)	0 (12)	0 (15)	0 (771)	2681 (6524)	100.00

Figures in parentheses are total including passengers and traffic without load.

Table : Goods Transported by type of commodity,

FARIDPURA 6.7Badorpur - Saltha

	Head/ Shoul- der load	On back of animals	Bulleck/ Buffallo/ Horse Cart	Pedal rickshaw	Van	Bi- cycle	Auto rickshaw	Truck	Motor cycle	Car Jeep	Bus miniton bus mile	Total	% of total
Food crops	13	-	-	24	-	-	-	-	-	-	-	37	17.96
Cash crops	2	-	-	5	-	-	-	-	-	-	-	7	3.40
Vegetables	10	-	-	4	1	-	-	-	-	-	-	15	7.28
Livestock Fisheries Forestry Products	7	-	106	7	18	1	-	-	-	-	-	139	67.48
Non agricul- tural commodities	3	-	-	2	3	-	-	-	-	-	-	8	3.88
Construction materials	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	35 (35)	-	106 (141)	42 (157)	22 (51)	1 (24)	-	0 (26)	0 (7)	0 (9)	-	206 (399)	100.0

Figures in parentheses are totals including passengers and traffic without load.

Table. A 6.8 Goods Transported by type of commodity, FARIDPUR
RAJBARI - BALIAKANDI

	Head/ Shoul- der load	On back of animals	Bullock/ Buffallo Horse cart	Pedal rick- shaw	Van	Bi- cycle	Auto rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Minibus	Total ton mile	% of total
Food crops	11	-	6	1	108	2	-	-				128	9.88
Cash crops	15	-	17	7	193	2	-	714				948	73.15
Vegetables	10	-	1	4	36	1	-	-				54	4.17
Livestock Fisheries Forestry Products	5	-	16	-	15	-	-	96				133	10.26
Non agricul- tural commodi- ties	4	-	19	-	10	-	-					33	2.55
Construction materials	-	-	-	-	-	-	-	-				-	
Total	45 (45)		59 (60)	12 (81)	365 (1138)	5 (32)		810 (856)	0 (41)	0 (41)	0 (1641)	1296 (3945)	100.00

Figures in Parentheses are totals including passengers and traffic without load.

Table : A 6.9 Goods Transported by type of commodity,

SYLHETSylhet - Kamalbazar

	Head/ shoul- der load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal rick- shaw	Van	Bi- cycle	Auto rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	99	-	-	14	26	-	-	34	-	-	-	83	19.90
Cash crops	15	-	-	11	14	-	-	-	-	-	-	40	9.59
Vegetables	18	-	-	12	11	-	-	39	-	-	-	80	19.18
Livestock Fisheries Forestry Products	7	-	-	15	6	-	-	-	-	-	-	28	6.72
Non agricultural commodities	2	-	-	4	22	-	-	49	-	-	-	77	18.47
Construction materials	-	-	-	-	-	-	8	101	-	-	-	109	26.14
Total	51 (51)			56 (105)	79 (91)	0 (16)	8 (218)	223 (340)	0 (28)	0 (21)	0 (1538)	417 (2408)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table A 6.10 Goods Transported by type of commodity, Sylhet
Badhaqhat - Shiberbazar

(in ton miles)

	Head/ Shoul- det load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal rick- shaw	Van	Bi- cycle	Auto- rick- shaw	Truck	Motor cyclę	Car/ Jeep	Total ton mile	% of total
Food crops	8	-	-	-	2	-	-	-	-	-	10	27.78
Cash crops	3	-	-	-	-	-	-	-	-	-	3	8.33
Vegetables	11	-	-	-	4	-	-	-	-	-	15	41.67
Livestock Fisheries Forestry, Products	3	-	-	-	-	-	-	-	-	-	3	8.33
Non-agricultural commodities	2	-	-	-	2	-	-	-	-	-	5	13.89
Construction materials	-	-	-	-	-	-	-	-	-	-	-	
Total	27 (27)				8 (11)	0 (3)			0 (6)		36 (47)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table : A 6.11

Transported by type of commodity, Sylhet

Dhaka Dakhin - Beanibazar

	Head/ Shoulder load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal rick- shaw	Van	Bi cycle	Auto rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	40				683			47				770	93.00
Cash crops	39											39	4.71
Vegetables	13											13	1.56
Livestock													
Fisheries	6											6	0.72
Forestry													
Products													
Non-agricultural commodities													
Construction materials													
Total	98 (98)			0 (589)	683 (1321)	0 (37)	0 (6)	47 (47)	0 (53)		0 (3)	828 (2154)	100.00

Figures in parentheses are totals including passengers and traffic without load.

Table A 6.12 Goods Transported by type of commodity, Sylhet
Nobiganj - Baniyachang

	Head/ Shoul- der load	On back of animals	Bullock/ Buffallo/ Horse cart	Pedal rick- shaw	Van	Bi- cycle	Auto rick- shaw	Truck	Motor cycle	Car Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	1	-	-	140	24	1	-	-	-	-	-	166	50.76
Cash crops	1	-	-	41	-	-	-	-	-	-	-	42	12.84
Vegetables	1	-	-	68	4	1	-	-	-	-	-	74	22.63
Livestock Fisheries Forestry Products	2	-	-	26	4	-	-	-	-	-	-	32	9.79
Non agricul tural commodities	1	-	-	2	10	-	-	-	-	-	-	13	3.98
Construction materials	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6 (6)			277 (511)	42 (43)	2 (41)			0 (24)	0 (57)	0 (181)	327 (863)	100.0

Figures in parentheses are totals including passengers and traffic without load.

Table A.6.13 Transported by type of commodity, Sylhet
Bijnaghat - Bahubal

	Head/ shoul- der load	on back of animals	Bullock/ Fuffallo/ Horse cart	Pedal rick- shaw	Van	Bi- cycle	Auto rick- shaw	Truck	Motor cycle	Car/ Jeep	Bus Mini bus	Total ton mile	% of total
Food crops	28	-	-	50	-	3	-	-	-	-	-	81	28.83
Cash crops	9	-	-	27	-	1	-	-	-	-	-	37	13.17
Vegetables	19	-	-	29	-	9	-	-	-	-	-	57	20.28
Livestock, Fisheries Forestry Products	15	-	-	37	-	14	-	-	-	-	-	66	23.49
Non-agricultural products	5	-	-	18	-	9	-	8	-	-	-	40	14.23
Construction materials	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	76 (76)	-	-	161 (205)	0 (1)	36 (68)	-	8 (8)	0 (51)	0 (73)	0 (40)	281 (522)	100.00

Figures in parenthesis are totals including passengers and traffic without load.

Table A 6.14 : Distribution of Landownership of Transport Operators by mode of Transport

RANGPUR

Size of land ownership	Headload/Shoulderload		Bullock/ Buffallow Cart		Ricksha/ Van		Push Cart		Bus/Minibus/ Truck		Auto-Rickshaw	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Landless	12	20.0	1	7.7	7	18.9	1	16.67				
<0.50 acres	18	30.0	1	7.7	23	62.2	5	83.33	1	25.0		
0.50 - < 1.00	10	16.7	1	7.7	5	13.5						
1.00 - < 2.50	20	33.3	2	15.4	2	5.4			3	75.0		
2.50 - < 5.00	-	-	5	38.5								
5.00 +	-	-	3	23.0								
ALL	60	100	13	100.0	37	100.0	6	100.0	4	100.0		

20

Table A 6.15 : Distribution of Landownership of Transport Operators by mode of Transport

FARIDPUR

Size of land ownership	Headload/Shoulderload		Bullock/ Buffallow Cart		Rickshaw/ Van		Push Cart		Bus/Minibus/ Truck		Auto-Rickshaw	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Landless	3	10.0			11	31.4						
< 0.50 acres	7	23.3	4	44.5	20	57.2			2	22.22	1	14.3
0.50 - < 1.00	17	36.7			2	5.7			2	22.22	5	71.4
1.00 - < 2.50	9	30.0	2	22.2	2	5.7			1	11.11	1	14.3
2.50 - < 5.00	-	-	2	22.2					3	33.34		
5.00 +	-	-	1	11.1					1	11.11		
ALL	30	100.0	9	100.0	35	100.0			9	100.0	7	100.0

Table A 6.16 : Distribution of landownership of Transport Operators by mode of Transport

SYLHET

Size of land ownership	Headload/Shoulder load		Rickshaw/Van		Push Cart		Bus/Minibus/Truck		Auto-Rickshaw	
	No.	%	No.	%	No.	%	No.	%	No.	%
Landless	3	6.3	3	23.08	2	66.7			5	50.00
< 0.50 acres	10	21.3	7	53.85			12	70.60	2	20.00
0.50 - < 1.00	24	51.1	2	15.38	1	33.3	2	11.76	2	20.00
1.00 - < 2.50	10	21.3					1	5.88		
2.50 - < 5.00	-	-	1	7.69			2	11.76	1	10.00
5.00 +	-	-								
ALL	47	100	13	100.0	3	100.0	17	100.0	10	100.0

Table A 6.17 : Landownership by Nature of Transport Operator

RANGPUR

	Only Transport Operator		Trader-Cum-Transport Operator		Producer/Trader/Transport Operator	
	No.	%	No.	%	No.	%
< 0.50 acres	11	21.6	19	79.1	18	40.0
0.50 - < 1.00	4	7.8	1	4.2	11	24.5
1.00 - < 2.50	19	37.3			8	17.8
2.50 - < 5.00	-		-		5	11.1
5.00 +					3	6.6
Landless	17	33.3	4	16.7	-	
ALL	51	100.0	24	100.0	45	100.0

Table A.6.18 : Landownership by Nature of Transport Operator

FARIDPUR

	Only Transport Operator		Trader-Cum-Transport Operator		Producer/Trader/Transport Operator	
	No.	%	No.	%	No.	%
< 0.50 acres	24	68.6	9	60.0	1	2.5
0.50 - < 1.00	-	-	2	13.3	18	45.0
1.00 - < 2.50	-	-	1	6.7	14	35.0
2.50 - < 5.00	-	-	-	-	5	12.5
5.00 +	-	-	-	-	2	5.0
Landless	11	31.4	3	20.0	-	-
ALL	35	100.0	15	100.0	40	100.0

Table A.6.19 : Landownership by Nature of Transport Operator

SYLHET

	Only Transport Operator		Trader-Cum-Transport Operator		Producer/Trader/Transport Operator	
	No.	%	No.	%	No.	%
< 0.50 acres	14	56.0	13	65.0	4	8.9
0.50 - < 1.00	1	4.00	3	15.0	27	60.0
1.00 - < 2.50	-	-	1	5.0	10.	22.2
					4	8.9
5.00 +	-	-	-	-	-	-
Landless	10	40.0	3	15.0	-	-
ALL	25	100.0	20	100.0	45	100.0

25/1

QUESTIONNAIRE NO. 1

TRANSPORT INFRASTRUCTURE INVENTORY FORM

Name of the road _____
Name of the investigator _____
Date _____

1.0 Inventory of Road

1.1 Upazilas/places connected by the road :

From _____ to _____

1.2 Total length (miles) _____

1.3 Year of construction _____

1.4 When last reconstructed/maintenance work done ?

1.5 Unions through which the road runs:

1.6 Villages within one mile radius of the road

1.7 Hats covered by the road _____

1.8 Number of nodal points _____

1.9 Number of feeder roads along the roads

	<u>Number</u>	<u>Major type of construction</u>
0 - 1 mile from the UZ/District HQ	_____	_____
1 - 2 " -do-	_____	_____
2 - 3 -do-	_____	_____
3 - 4 -do-	_____	_____
4 - 5 -do-	_____	_____
5 - 6 -do-	_____	_____
6 - 7 -do-	_____	_____
7 - 8 -do-	_____	_____
8 - 9 -do-	_____	_____
9 - 10 -do-	_____	_____
10 + -do-	_____	_____

* earth, brick paved, concrete etc.

2.0 General condition of the road

2.1 Average width (in feet) _____

2.2 Maximum width (in feet) _____

Minimum width (in feet) _____

2.3 Minimum height of road above highest flood level (in feet) _____

2.4 Major type of construction _____
(earth, brick paved, concrete etc.)

2.5 Number of road gaps _____
(broken road)

2.6 Number of bridges/culvert _____
(type (in number))

Bamboo _____ Bakly _____

Wooden _____ Steel _____

Concrete _____ Others _____

3.0 Vehicles/modes of transport generally ply on
this road (Head Load, Shoulder Load, Bullock Cart,
Ass (horse) Load, Rickshaw, bicycles etc.)

Dry season _____

Wet season _____

QUESTIONNAIRE NO.2.1

Growth Centre/Market Survey

1. Name of the Growth Centre/Market _____
2. LOCATION _____ Village _____
Union _____ Upazila _____
3. District _____
4. Name of the road linked with _____
5. Number of nodal points around the Growth Centre/
Market _____
6. Physical Information
 - a) Area of the market _____ acres
 - b) Year of establishment _____
 - c) Nature of the Growth Centre/Market _____
 - d) Number of permanent shops :

Type of shops	Number
Grocery	
Stationery	
Rice	
Atta/Wheat	
Fuel wood	
Kerosine/Diesel	
Cooking utensils	
Pottery	
Cycle part/mechanic	
Mike service	
Laundri	
Radio mechanic shop	
Saloon	
Fertilizer/pesticide	
Cloth store	
Tailoring	
Medicines: a) Alopatic	
b) Homeopathic	
c) Others (specify)	
Hotels/Restaurants	
Bakery & Biscuits	
Other agricultural products	
Coldsmith/Blacksmith	
Garage/workshop	
Others (specify)	
Total	

- e) Number of temporary/kutchha shopshed/ehala: _____
- f) Number of temporary/kutchha shops by types :

Types	Number
Grocery _____	_____
Rice _____	_____
Wheat/Atta _____	_____
Fuel wood _____	_____
Pottery _____	_____
Cloth/(Lungi-Saree/Damchha) _____	_____
Meat _____	_____
Fish _____	_____
Vegetables _____	_____
Pan/bidi/cigarettes _____	_____
Poultry/EGG _____	_____
Other (specify) _____	_____
Total _____	_____

- g) Number of rice mills _____
- h) Number of Oil mills _____
- i) Number of flour mills _____
- j) Number of saw mills _____
- k) Number of small/cottage industries _____
(Engineering, etc.,)
- l) Others (specify) _____
- m) Whether connected with electricity supply,
power sources _____

7. Major commodity trading :

a) Commodity purchased and sold in a particular day/
that day

Sl.No.	Commodity	Approximate quantity purchased/sold

8. Storage facilities in the Growth centre/Market

Sl. No.	Ownership of storage	Capacity (mds)	Goods usually stored	Amount (kept) (mds) at the time of interview	Cost of storage per md. per month

Note : Ownership - Government owned
 Cooperatives godown
 Private godown/gola

9. Distance of the nearest and furthest market

Nearest _____ Mile

Furthest _____ Mile

10. i) No. of branches of commercial bank/krisshi/grameen bank located in this centre/market _____

ii) If no, distance of the nearest branch of such bank _____ Mile

iii) Number of fertilizer dealer _____

iv) Number of seed dealer _____

v) Distance of the nearest hospital _____

vi) Distance of the Rural Health Centre _____

vii) Number of doctors in and around the centre:

	<u>Number</u>
Alopathic	_____
Homeopathic	_____
Kabiraj/Hakim	_____
Trained Nurse	_____
Trained Midwife	_____
Dai	_____

viii) Distance of the nearest family planning clinic _____

ix) Distance of the nearest Post Office _____

x) Distance of the nearest telegraph office _____

xi) Number of primary school in and around the centre _____

xii) Distance of the nearest secondary school _____

xiii) Distance of the nearest Girls' school _____

xiv) Distance of nearest college _____

11. Access to Transport Service :

- a.i) Nearest point of paved road _____
- ii) No. of roads connecting the villages in and around the centre _____
- b) Distance of transport points
 - i) Bus station _____
 - ii) Railway station _____
 - iii) Steamer/Launch Ghat _____
- c) Nearest River
 - i) Navigable all the year round _____
 - ii) Navigable only in the rainy season _____

12. State the maximum distance from which people usually come to this growth centre/market to get the benefits of the of the services available ? _____ Mile

13. The distance from which people usually come to this centre/ market to procure the following:

Items	Distance in Mile
Food crops	
Cash crops	
Vegetables	
Fish	
Meat	
Medicine	
Grocery	
Others (specify)	

14. Pattern of Landuse

<u>Landuse category</u>	<u>Area in acres</u>	<u>Percentage</u>
1. Business and commercial		
2. Industrial		
3. Utility services		
4. Administrative uses		
5. Residential		
6. Open space		
7. Others		
Total		

15. Land price (Price per acre) situation within and around the centre

Location Type of land	Inside the centre	Within $\frac{1}{8}$ mile	Within $\frac{1}{4}$ mile	Within $\frac{1}{2}$ mile
Highland				
Medium				
Low				

QUESTIONNAIRE NO. 2.2

Growth centre/Market survey

TRADERS INTERVIEW FORM

Location _____
Name of the growth centre/Market _____
Village _____ Union _____ Upazila _____
District _____ Date _____
Name of the road linked with _____
Name of the Interviewer _____

1. i) Name of the respondent _____
- ii) Age _____ Education _____ Marital status _____
- iii) Primary Occupation _____
- iv) Secondary Occupation (if any) _____
- v) Working capital in Trading Tk. _____
- vi) Whether selling own products
- Yes
- No
- vii) Land owned _____ acres

i) How often do you visit this growth centre/market ?

- | | | | |
|---------------|--------------------------|-------------|--------------------------|
| Twice weekly | <input type="checkbox"/> | Fortnightly | <input type="checkbox"/> |
| Thrice weekly | <input type="checkbox"/> | Monthly | <input type="checkbox"/> |
| Weekly | <input type="checkbox"/> | Casually | <input type="checkbox"/> |

ii) What is the distance of this growth centre/market from your home ? _____ Mile

iii) Do you face any difficulty in getting the mode of transport from the growth centre/market ?

- Yes
- No

If yes, by what percentage you could increase the volume of trade, if transport is easily available ?

5. 1) Is this growth centre/market connected with other market ?

- Yes
- No

If yes, what is the distance of the nearest and furthest market ?

Nearest _____ Mile

Furthest _____ Mile

ii) Given the condition that there are many markets or huts in and around this locality, why do you select this centre ? Give reasons

6. What is the current price of land in this centre ?

Tk. _____/acre

7. Respondent's opinion about the transport situation:

a) Is the present facility of transport in the locality

Adequate Inadequate

Reasonable Poor

b) How the transport situation could be improved ?

c) What would be the effect on agricultural production if the transport situation is improved as you suggest?

d) What would be the effect on your business from the improvement ?

e) Do you think that the current price of land increased considerably in this area due to transport improvement ?

Yes No Don't know

If yes, by what percentage it is increased over the pre-improvement situation ? _____

8. Employment Situation

i) Average No. of days in a month devoted to this trade

ii) Monthly average income in Tk. _____

QUESTIONNAIRE NO.3.1

TRAFFIC COUNT FORM

Location _____	Sheet No. _____
Name of the road _____	
Place of counting _____	Date _____
Counting starts at _____	Ends at _____
Season _____	Hatday/Non hatday _____
Name of the interviewer _____	

Mode of transport	Load	Use tally marks only
Head Load/ Shoulder Load	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries Forestry Products	
	Non-agricultural commodities	
On back of animals (horse, ass etc.)	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries Forestry Products	
	Non-agricultural commodities	
Bullock cart/ Buffallo cart	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries Forestry Products	
	Non-agricultural commodities	
	Passanger Without Load	

3/10

Mode of transport	Load	Use tally marks only
Padal Rickshaw	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries	
	Forestry Products	
	Non-agricultural products	
	Passenger	
Auto-Ricksha	Without Load	
	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries	
	Forestry Products	
	Non-agricultural commodities	
Passenger		
Van	Without Load	
	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries	
	Forestry Products	
	Non-agricultural commodities	
Passenger		
Truck	Without Load	
	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries	
	Forestry Products	
	Non-agricultural commodities	
Construction material		
Bicycle	Without Load	
	Food crops	
	Cash crops	
	Vegetables	
	Livestock, Fisheries	
	Forestry Products	
Motor cycle	Non-agricultural commodities	
	Passenger	
Car/Jeep		
Bus/Minibus		

QUESTIONNAIRE NO. 3.2

TRAFFIC SURVEY

Location _____
Name of the Road _____
Village _____ Union _____ Upazila _____ Dist. _____
Name of the market (Near which interview takes place) _____
Interview starts at _____ Ends at _____
Date _____ Weather _____
Season _____ Hatday/Non-hatday _____
Name of the Interviewer _____

302

: 2 :

Sl. No.	Mode of transport	Capacity of the transport (Maunds)	Actual maund transported	Commodity	
				Name	Nature (Code) *
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

* Nature Code : Self-produced = 1
Purchased by self = 2
Purchased by traders = 3

Sl. No.	Point of origin			Distance covered on specific road	Transport charges (per mds/miles)	How frequently use this road in a month	
	Place	Code	Distance (Miles)			Dry season	Wet season
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Place Code : Accessible villages = 1, Medium accessible = 2,
 Remote village = 3, Interior village = 4,
 Interior Market = 5, Main Market = 6,
 Thana Centre = 7, Out of the Thana = 8,
 Other Districts = 9.

250X

B. Socio-economic data

1. Occupation

1.1 Past occupation _____

1.2 Present occupation (tick the type of vehicle the respondent mainly drive/work on for hiring)

- a) Rickshaw b) Bullock cart c) Buffalo cart
d) Push cart e) Auto-Rickshaw f) Minibus/bus/truck
g) Others (specify) _____

1.3 In what capacity do you work as a transport worker ?

- Owner Helper/Conductor
Own & manage Driver
Manage Other (specify)

If not owned, who owns the vehicle ? _____
(tick owners' occupation)

- Big farmer Big businessman
Middle farmer Contractor
Poor farmer Others (specify)
Small & medium
businessman

1.4 Nature of Employment:

- a) Permanent b) Semi permanent c) Temporary

2.0 Income/Wage

2.1 Average monthly income in Taka _____

2.2 Schedule of payment

- Daily Fortnightly
Weekly Monthly

2/26

3.0 Migration

3.1 When did you come to this place ? _____

a. Without family

b. With family

3.2 Why did you come here ? _____

3.3 Did you come here directly from your own village/town ?

Yes

No

If no, where did you stay ? _____

3.4 Who insisted you to come here ? _____

3.5 What are the principal causes of your migration to this place ? Please specify according to your preference rank.

1. _____

2. _____

3. _____

4. _____

4.0 Expenditure

4.1 How do you spend your monthly cash on the following items ? (Give percentage)

a. Food _____

b. Clothing _____

c. Housing _____

d. Education _____

e. Health _____

f. Recreation _____

g. Others (specify)

4.2 Can you save after expenditure ?

Yes No

If the answer is No, then go to Question 4.3

If yes, what is the amount of savings ? _____ Tk.

4.2.1 Do you invest your savings ?

Yes No

If yes in which sector ? _____

(Please give details in the following table)

Year	Land		Cattle		Cart		Rickshaw		A. Rickshaw		M. Vehicle (Passenger)		Truck	Other
	Area	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value

4.2.2 Do you use bank facilities ?

Yes No

4.3 If you have taken any loan from these sources then give the following details

Sources	Amount taken	Use	Rate of Interest	Duration of loan	Amount Repaid
Bank					
RSS					
Other coops					
Friends and relatives					
Money lenders					
Others (specify)					

5.0 On Dependents Elsewhere

5.1 Do you have dependents in your own village/town ? .

Yes

No

If yes, how many ? _____

5.2 Do you send money to your village/town ?

Yes

No

If yes, how often ? Monthly/Yearly/Occasionally

Amount of money Tk. _____

5.3 Do you visit your village ? Yes No

If yes, how often ? Weekly/Fortnightly/Monthly/Yearly/
Occasionally.

6.0 Property/Assets

1) <u>Land</u>	<u>Nos/ Amount</u>	<u>Value</u>
a) Land (decimals)	_____	_____
b) Cultivable land (decimals)	_____	_____
ii) <u>Other farm assets</u>		
a) Cow	_____	_____
b) Bullock	_____	_____
c) Farm implements	_____	_____
d) Others (specify)	_____	_____
iii) <u>Non-farm assets</u>		
a) Cart	_____	_____
b) Rickshaw/Rickshaw Van	_____	_____
c) Bicycle	_____	_____
d) Boat	_____	_____
e) Bus/Truck/Auto-Rickshaw	_____	_____

7.0 Housing

7.1 Type of housing : Rented/owned

7.2 Location _____

8.0 Community participation

8.1 Are you a member of any Trade Union/Association ?

Yes No

If yes, when did you join ? _____

8.2 Do you get benefits out of your involvement with Trade Union/Association ?

Yes No

9.0 Traffic trends

9.1 Which particular road of this locality is of the greatest importance so far as your own livelihood is concerned ?

9.2 In which year did you begin to ply on this road ? _____

9.3 Please give some comparative figures for the year you began plying on this road and for the last year.

Particulars	Initial year	Last year
-------------	--------------	-----------

i) Passenger Vehicles

A) Peak Traffic period of year

- i) Average No. of daily trips ideally possible
- ii) Average No. of daily trips actually made
- iii) Average No. of passenger, carried per trip
- iv) Average gross daily revenue

20

Particulars	Initial year	Last year
v) Average operating and wage cost per day		
vi) Average No. of days worked per year		
B) <u>Slack Traffic period of year</u>		
1) Average No. of daily trips ideally possible		
ii) Average No. of daily trips actually made		
iii) Average No. of passenger carried per trip		
iv) Average gross daily revenue		
v) Average operating and wage cost per day		
vi) Average No. of days worked per year		
ii) Goods Carrying Vehicles		
A) <u>Peak Traffic period of year</u>		
1) Average No. of trips ideally possible		
ii) Average No. of trips actually made		
iii) Average carrying capacity		
iv) Average gross revenue per day		
v) Average daily operating cost		
vi) Average No. of days worked per year		

Particulars	Initial year	Last year
<u>B) Slack Traffic period</u>		
i) Average No. of trips ideally possible		
ii) Average No. of trips actually made		
iii) Average carrying capacity		
iv) Average gross revenue per day		
v) Average daily operating cost		
vi) Average No. of days worked per year		

10.0 Attitude and opinion

10.1 Do you think that your net earnings from plying this vehicle have risen over the past years ?

- Yes Remained the same
- No Don't know

If yes, then how much ?

- a. By a very great deal (above 50%)
- b. Sizeably (25 - 50%)
- c. Fairly (10 - 25%)
- d. Somewhat (upto 10%)
- e. Insignificantly

10.2 If you were to live here for a long time, what are the changes you would like to see occured due to transport improvement ?

3/2

QUESTIONNAIRE NO. 5

For Shopkeepers Temporary and Permanent

Location _____	Name of the Market _____
Name of the Road linked with _____	
Place of Interview _____	-Date _____
Name of Interviewer _____	

1. i) Name of the Respondent: _____

ii) Age _____ iii) Sex _____

iv) Education _____

v) Permanent residence :

Village _____ Union _____

Upazila _____ District _____

vi) If permanent residence in another village, do you regularly commute from your home or stay in this place?

Commuter Stay here

vii) Secondary Occupation (if any, specify) _____

2. i) Type of business _____

ii) When did you first begin this business (in this market) ? Year _____

iii) Number of workers when established _____

iv) Number of permanent workers at present _____

v) Number of casual workers _____

vi) Amount of working capital (Taka)

a) At the time of establishment _____ Tk.

b) At present _____ Tk.

vii) Do you have any other business elsewhere ?

Yes No

If yes, what type of shops are these ?
(for hawkers ask only locations) Go to No. 7.

Type No. Place of shop (vill., union, upazila)

3. i) In this enterprise, are you

- a) the sole proprietor
- b) one of the partners
- c) Managing Partner
- d) Other (specify)

ii) If it is a partnership or only managed by the shopkeeper,

who are the other partners/owners

Occupation

Owner/Partner 1 _____

Owner/Partner 2 _____

Owner/Partner 3 _____

History of shop (average figures)

Indicators	Before market/ road construction	Now (i.e. last one year)
------------	-------------------------------------	-----------------------------

i) Place from which supply is procured

ii) Distance in miles of procurement place

iii) Travel time

iv) Travel cost

v) Frequency of procurement per month

vi) Average weight of procured goods (mts)

514

Indicators	Before market/ road construction	Now (i.e. last one year)
------------	-------------------------------------	-----------------------------

vii) Values of most important items sold

- Paddy
- Rice
- Wheat/atta
- Pulses
- Potato
- Gur/Sugar
- Chillies
- Edible Oil
- Salt
- Honey
- K. Oil
- Tobacco/bidi/cigerattas
- Jute/Jute goods
- Clothings
- Fertilizer
- Pesticides
- Agricultural implements
- Stationaries
- Others(specify)

viii) Name of the commodity sold more earlier, but only a little now

ix) Name of commodity sold little earlier, more now

x) Average yearly net revenue

xi) Total employment

- Partners
- Hired adult men
- Hired adult women
- Hired children

xii) Average wage paid per month

- Adult men
- Adult women
- Children

xiii) Total labour payment in average month.

iii) Reason for choosing the mode of transport in Question No. 6(i)

Sl.No.	Commodity	Reasons *

* Probable answer : Economic, Quick, Reliable etc.

iv) Is prior notice required for hiring transport ?

Yes No

If yes, indicate length of time Hrs. _____ days _____

8. i) If you have business elsewhere, how many hats do you usually go in for business ? _____

ii) What is the minimum and maximum distance between your residence and those hats ? _____

iii) Comparing 1980 and 1985, what among the following means of transport have you typically used to get to those hats from your home ?

In 1980

In 1985

a) Foot

a) Foot

b) Boat

b) Boat

c) Bullock Cart/Manual cart

c) Bullock Cart/Manual cart

d) Bus

d) Bus

e) Auto-Rickshaw

e) Auto-Rickshaw

f) Rickshaw

f) Rickshaw

311

iv) Do you think the time taken on average for you to travel to and from these hats has declined in recent times as compared with 3 or 4 years ago?

Yes

Remained the same

No

Don't know

→ Respondent's observation about the present state of transport

i) Is the present transportation system in this area generally better than; worse than; the same as the system obtaining 3 or 4 years ago?

Better than Worse than

The same

If better, go to Question No. 7(ii)

ii) Are you at present able to sell in more hats than was the case 3 or 4 years ago?

Yes

No

In the same No. of hats

iii) Compared to the pre-road/market situation, do you devote more time in a year to this business of yours on less or about the same?

More

Less

Same

8. Respondent's opinion about the transport situation

i) How in your opinion the transport situation could be improved?

- 1. _____
- 2. _____
- 3. _____

ii) How would you personally gain from this improvement?

- 1. _____
- 2. _____
- 3. _____

iii) How would the agricultural production in the locality be improved if transport situation is improved as you suggested?

- 1. _____
- 2. _____
- 3. _____

3/18

QUESTIONNAIRE NO.6

FARM HOUSEHOLDS

Name of the respondent _____
Village _____ Union _____
Upazila _____ District _____
Name of the road linked with _____
Name of the Interviewer _____
Date _____

1. Household size _____

2. Household structure :

Sl. No.	Age	Sex		Educa- tion	Marital status	Occupation		Living (in or out)	Relationship with the head of the family
		M	F			Pri- mary	Seco- ndary		

*Hired permanent labour to be included as a member of the HH

Occupation Code: Cultivator=1, Landlord=2, Petty Business=3,
 Shopkeeper=4, Large business/merchant=5,
 Agricultural Wage Labour=6, Fishing=7,
 Bontman=8, Carpenter=9, Blacksmith=10,
 Potter=11, Salary Service=12, Hair dresser=13,
 Rural Industry owner=14, Weaver=15, Rural
 Industrial Worker=16, Others(specify)=17

Contd..P/2.

30

c) Non-cultivable land owned by farmer:

i) Land Area under homestead area --- acre
 Value at present ----- Tk.

ii) Orchards : Area _____acre/value _____

iii) Ponds water bodies: Area _____acre/value _____

5. Assets other than land

A. <u>Housing/structure</u>	<u>No.</u>	<u>Present market value</u>
i) Dwelling house/structure	_____	_____
ii) Other structures (specify)	_____	_____

Note: Other structures - Cowshed, Poultryshed, Golashop/
 business premises etc.

B. <u>Livestock/Poultry</u>	<u>No.</u>	<u>Present market value</u>
i) Bullocks	_____	_____
ii) Cow	_____	_____
iii) Milk cow	_____	_____
iv) Buffalow	_____	_____
v) Breeding Bull	_____	_____
vi) Others (specify)	_____	_____

C. <u>Agricultural Implements</u>	<u>No.</u>	<u>Present market value</u>
i) Ploughing implements	_____	_____
ii) Scythe	_____	_____
iii) Thresher	_____	_____
iv) HTW	_____	_____
v) Irrigational implements (Doan/Swing Basket) LLP/STW/DTW	_____	_____
vi) Sprayer	_____	_____

Contd.. P/4.

321

	<u>No.</u>	<u>Present market value</u>
vii) Seed Drill	—	—
ix) Others (specify)	—	—

D. Other Professional Implements
 (Fishingnet/Fishing Accessories/
 Oil Press/Carpenter tools/Looms
 Masonry tools)

E. Transport

i) Boat	—	—
ii) Cart	—	—
iii) Rickshaw/Rickshaw Van	—	—
iv) Bicycle	—	—
v) Motor Cycle	—	—
vi) Bus/Truck/Auto-Rickshaw	—	—

F. Other Durable Assets (state value only) _____
 (Durable assets: Radio/Two-in-One, Sewing machine, Watches/clocks, Ornaments, Furniture etc.)

6. Area and cost of irrigation under different modes of irrigation

Modes	Diesel or Electricity operated	Paddy		Wheat		Vegetables	
		Area (acre)	Cost per acre	Area (acre)	Cost per acre	Area (acre)	Cost per acre
Deshi Method							
Shallow TW							
Deep TW							
Power Pump							

322

7. Cropping pattern yield & cost

Season	Crops	Area (acre)	N.Irri- Irrig.	O- type	Land type	Produc- tion (mds)	Value (Tk.)	Value of by pro- ducts	Seed/ Seed- lings Tk.	Input and material cost						Irrigation cost (Tk.)			
										Fertilizer		Manure	TSP		Urea		MP		
										Qty	Value		Qty	Value	Qty		Value	Qty	Value
Kharif I (Aus Season)																			
Kharif II (Aman Season)																			
Rabi (Boro Season)																			

10/1

3. Labor cost in crop production, 1958

105

Season	Crop	Area	Irri. - 1 N. Irr. 2	Land type code	Land preparation			Sowing/ transplanting		Seeding		Harvesting		Threshing/Retain.				
					Bullock hrs	F Va luc	HP hrs	F HP	HC No. of sa ge	F HP	HC No. of sa ge	F HP	HC No. of sa ge	F	HI	HC		
Kharif I (Aus Season)																		
Kharif II (Aman Season)																		
Rabi (Boro Season)																		

Land type code: Highland = 1, Medium = 2, Lowland = 3

9. Farm inputs used (last production year)

Items	Quantity used	Cost at purchase price	Place of purchase	Distance from home(miles)	Mode of transport	Transport charge (Tk.)
Fertilizer	TSP					
	Urea					
	MF					
	Others					
Manure (md)						
Pesticides(lbs)						
Seed (Seers)						
Seedlings						
Fuel for irrigation	Diesel					
	Mobil					

12. Consumption

i) What are your average rates of consumption of the following in your family ?

	Just after harvest (Agrahayan-Poush)		Sraban-Ashwin		Baisakh-Jaistha	
	Qty	Value (Tk.)	Qty	Value (Tk.)	Qty	Value (Tk.)
<u>In a day:</u>						
Rice						
Atta						
Chira/Muri						
<u>In a week</u>						
Pulses						
Potato						
Fish						
Meat						
Milk						
Vegetables						

ii) How you spend your total earnings on the following items ?

Food	..	Tk.
Clothing	..	Tk.
Housing	..	Tk.
Medical care	..	Tk.
Education	..	Tk.
Festival	..	Tk.
Recreation	..	Tk.
Others (specify)	..	Tk.

1/11

13. Can you save after expenditure ?

Yes No

If yes, state the amount _____ Tk.

If the answer is no, then go to question No. 15

14. Since you can save money, what assets you have bought/ improved upon during the last year?

	<u>Area/No.</u>	<u>Value</u>
i) Land purchase		
ii) Land improvement		
iii) Bullock/Buffalow		
iv) Agricultural tools		
v) STW, HTW/LLP		
vi) Sprayer		
vii) House repairing (cost) Tk.		
viii) Ornaments	Value	
ix) Others (specify)		

15. Credit obtained last year:

Source (code)	Amount taken	Rate of interest	Utilization of credit							
			Farm exp.	Agri. investment	Repair/ improvement of housing	Other investment	Marriage/Festival	Consumption	Others	

Source: Krishi Bank=1, BRDB Cooperatives=2, Commercial Bank=3, Friends and relatives=4, Mahajan=5, Others (specify)=6.

16. Cultivable land sold or purchased during the last five years:

Sale or purchase	Year	Area (decimai)	Land type (code)	N. Irri. -0 Irri. -1	Sold to whom or purchased from whom			
					Relationship (code)	Land owned by purchaser/seller (acres)	Occupation (code)	Reason for sale or purchase (code)

Relationship code: No relative	= 0	Reason code : Indebtedness	= 1
Wife's kin	= 1	Marriage Ceremony	= 2
Own kin	= 2	Illness	= 3
Friend	= 3	Survival	= 4
Samaj member	= 4	Others (specify)	= 5
Others (specify)	= 5		

Land type code: Highland = 1, Medium land = 2
Lowland = 3

17. Income from sources other than cultivation:

<u>Item</u>	<u>Own consumption</u>	<u>Sale</u>
1. Livestock: Milk Milk products		
2. Poultry		
3. Fishing		
4. Income from Bamboo and cane etc.		
5. Firewood		
6. Income from land <u>renting/</u> sharecropped out		
7. Income from Wage labour		
8. Salary		
9. Trade/Business		
10. Remittances from outside		
11. Others (specify)		

18. What is the distance of the nearest family planning clinic from your home ? _____ Mile

19. Have your house ever been visited by any family planning official ? Yes No

If yes, how often ? _____

20. How the family planning officials reach your home?(tick)

Bicycle Motor bike
Walking Others(specify)

21. Do you often visit a physician in case of your or any of your family member's illness ?

Yes No

If yes, what type of physician ?

MBBS/Homeopath/Palli Doctor/Others

22. What is the distance of the nearest doctor's dispensary/hospital/rural health complex from your home?

_____ Mile

23. How you reach there to get medical services ? (tick)

Walking

Rickshaw

Auto-Rickshaw

Bus

Cart

Bicycle

Motor cycle

Others(specify)

24. Do you think that the road facilities you and your neighbours in getting the services offered at hospitals/rural health centre?

Yes No

33

25. How many educational institutions in your locality ?

<u>Number</u>	<u>Distance</u>	<u>How to reach</u>
Primary School		
Junior High School		
Secondary		
College		
Madrasha		
Others(specify)		

26. Do you send your child to any of these institutions?

Yes No

If yes, state the number and level of education

27. Do you often visit to a Veterinary Surgeon in case of the illness of your cattle/livestock?

Yes No

If yes, what is the distance of the livestock/veterinary surgeon's office from your home ? _____ Mile

In your need to bring him (VS) to your home, is he available ? Yes No

If yes, how he reach your home ?

By walking By Boat

By bicycle By Cart

By Motor cycle By other transport (specify)

28. What is the usual mode of transport for family and business travel to Upazila HQ :

Type of travel	Usual mode of transport		Time required		Cost of transport	
	Dry season	Rainy season	Dry season	Rainy season	Dry season	Rainy season
Self without much load						
Self with a load more than one md.						
Family travel						

29.a) How in your opinion is the transport situation in the locality be improved ?

b) How would you personally gain from such improvement ?

30. If the transport cost of marketing is reduced to half:

a) Will it change the type of crop you practice ?

Yes No

If yes, what kind of change ?

b) By what population the quantity of sale will increase ?

113

PRICE LIST OF DIFFERENT COMMODITIES

Name of the Growth Centre/Market	_____
Upazila _____ District	_____
Name of the road linked with	_____
Place type (code) _____ Date	_____
Name of the interviewer	_____

PRICE OF DIFFERENT COMMODITIES

Food Grains:

Rice : Fine _____ Medium _____ Coarse _____
 Paddy: Fine _____ Medium _____ Coarse _____
 Wheat: Local _____ HYV _____

Cash Crops:

Jute : Deshi _____ Tosha _____ Mesta _____
 Tobacco: Local _____ Virginia _____
 Sugarcane: _____

Edible Oil Seeds and Products:

Mustard: Seeds _____ Oil _____ Oil-cake _____
Soyabean: Seeds _____ Oil _____
 Til : Seeds _____ Oil _____
 Tishi : Seeds _____ Oil _____
 Badam : Seeds _____ Oil _____
Pulses: Moshuri _____ Mug _____ Khesari _____
 Chhola _____ Kalai _____
Spices: Onion _____ Garlic _____ Ginger _____
 Termeric _____ Chilli (Green) _____
 Chilli _____
Potato: _____

Note: Place type code: Accessible market = 1, Remote market = 2
 Village = 3.

Commodity price: Price per unit of weight per annum
 (per maund/soor/kg/lbs).

<u>Vegetables</u>	<u>Name</u>	<u>Price per unit of weight</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

<u>Fruits</u>	<u>Name</u>	<u>Price per unit of weight</u>
Coconut (Green)	_____	Coconut _____
Papiya	_____	Orange _____
		Lemon _____
Guava	_____	Banana _____
		Mangoes _____
Pineapple	_____	Jack fruit _____
Bangee	_____	Water melon _____

Poultry, Cattle and Fish Products:

Chicken	Small _____	Medium _____	Large _____
Duck	Small _____	Medium _____	Large _____
Egg	Hen _____/dozen	Duck _____/dozen	
Meat	Beef _____/seer	Mutton _____/ seer	
Milk	Cow _____/seer	Buffalo _____/seer	Gont _____/seer
Fish	Name	Price per seer	
	_____	_____	
	_____	_____	
	_____	_____	
	_____	_____	
	_____	_____	

175

Fuel : Kerosine oil _____ Fire-wood _____
 Jute-sticks _____

Fertilizer & Pesticides:

Manure _____ TSP _____ Urea _____
 MP _____ DAP _____
 Pesticides(different brands) _____

House Building Materials:

Timber _____/cft Bamboo _____/piece
 Cane _____ Straw _____
 Cement _____/bag Rod _____/mts
 Bricks _____/thousand
 Corrogated sheets(tin) _____/bundle
 Asbestos sheet _____ bundle

Other Agricultural Commodities:

Maize _____ Barley(Jaab) _____
 Kaun _____

Wage Rate:

Category	Male		Female	
	With meal	Without meal	With meal	Without meal
1. Agricultural work				
2. Earth work				
3. Brick breaking				
4. Rice husking				
5. Oil pressing				
6. Masoury				
7. Transport worker				
8. Bamboo craft				
9. Shop attending				
10. Others				

37

BSS/MSS SURVEY

Name of the respondent _____			
Age _____	Sex _____	Marital status _____	
Village _____	Taluk _____	Upazila _____	Dist. _____
Distance of the respondent's residence from the			
nearest: Truck road _____		Project road _____	
Growth Cent./Market _____		Railway Station _____	
Distance between the respondent's residence and the			
location of the enterprise _____			
Name of the interviewer _____			Date _____

1. Family size _____

2. Characteristics of family members

Sl. No.	Age	Sex (M/F)	Educational	Marital status	Occupation (Pri-sec/mary/dary)	Income (Tk.)	Living in/out	Relationship with the family head

3. Description of landholdings

Ownership of land	Cultivable				Home stead	Ponds/Water bodies	Orchards/bamboo groves	Others	Total
	Own farming	Shared out/in	Rented out/in	Mortgaged out/in					
Own									
Other peoples land									
Khas									

*Income from Agricultural activities (Gross) last year _____

339

4. Assets other than land

a) Housing/structures	<u>No.</u>	<u>Present market value</u>
1) Dwelling house		
ii) Others (Cowshed, poultry shed, Golga shop, business premises etc.)		
b) Livestock/Poultry		
1) Bullocks		
ii) Cow		
iii) Milk cow		
iv) Buffaloes		
v) Breeding Bull		
vi) Calves-cow		
vii) Calves-Buffalo		
viii) Goat/Sheep		
ix) Chicken		
x) Ducks		
xi) Others (specify)		
c) Implements/tools		
1) Ploughing implements		
ii) HTW		
iii) Dhenki		
iv) Bee Frame		
v) Carpentry tools		
vi) Masonry tools		
vii) Fishing net		
viii) Oil press		
d) Transportation		
i) Cart		
ii) Rickshaw		
iii) Bicycle		
iv) Boat		
v) Others (specify)		
e) Other durable assets (state value only)		

6. For how long have you or any other members in your family been a member of BSS/MSS

<u>Member</u>	<u>Month/Year</u>
Respondent (Member 0)	
Member 1	
Member 2	
Member 3	

7. What activities have you undertaken through BSS/MSS to increase your family income ?

8. Credit obtained last year

Source (code)	Amount taken	Period (months)	Rate of interest	Utilization (code)	Time of payment	Amount repaid

Source Code : BSS = 1, MSS = 2, Krishi Bank = 3, Co-operatives = 4, Other common bank = 5, Mahajan = 6, Friends and relatives = 7, Other = 8

Utilization Code : Self farming = 1, Bee Keeping = 2, Pond fishing = 3, Rice husking = 4, Oil press = 5, Bamboo/cane crafts = 6, Cow fattening = 7, Pottery = 8, Sewing machine = 9, Weaving = 10, Poultry = 11, Blacksmith = 12, Carpentry = 13, Masonary = 14, Vending = 15, Consumption = 16, Marriage ceremony = 17, Others = 18

Contd...P/5.

11. Income from pisciculture (last 12 months)

	Income (Tk.)
--	--------------

Own ponds

Collectively owned ponds

Samity operated ponds

12. Paddy husking

i) Is paddy husking your main profession? Yes No

If yes, when did you start? _____ year

If no, what is your other profession? _____

ii) Who actually owns this business? _____

iii) How do you organize this activity (tick)

- a. Throughout the year
- b. More than 9 months but less than a year
- c. Less than 9 months but more than 6 months
- d. More than 3 months but less than 6 months
- e. Less than 3 months.

iv) Do you husk paddy yourself? Yes No

If no, state the number of person your engaged in husking. _____

v) Sources of obtaining paddy

Season	Self Product		Purchased				Obtained from other farmers	
	Qty.	Value	By own resource		By samity loan		Qty.	Value
			Qty.	Value	Qty.	Value		
Aus								
Aman								
Soro								

14

vi) Income out of the sale of husked rice (last 12 months)
Tk. _____

13. Bee-Keeping

i) When did you start this activity ? _____ year

ii) Initial capital

- a. Own saving _____ Tk.
- b. Borrowed from... _____ Tk.
- c. BSS/MSS _____ Tk.
- d. Relatives _____ Tk.
- e. Others (specify) _____ Tk.

iii) Income from bee keeping (last year) _____ Tk.

iv) Have you or any of your family members been trained
in bee keeping through the samity? Yes No

If yes, how many of you been trained ? _____

v) Do you think that the training has helped you getting
a higher income in bee keeping?

Yes

Not sure

vi) a. Average hours spent daily ... Male ... Female
... Children

b. Average number of days spent monthly: ... Male
... Female ... Children

Contd...P/9

14. After the construction of this road in your locality, what facilities did your family members receive ?

Received job (earth work, brick salling work, maintenance work etc.)

Received nothing

If received job, state number of days and number of persons employed _____

15. For how many months of a year you can meet your family requirements with income from all sources? (tick)

Have sufficiency throughout the year

Have deficit of months _____ Approximate amount of Tk. _____

Have surplus. Approx. amount _____ use of surplus _____

BSS/MSS SURVEY

Name of the respondent _____
Age _____ Sex _____ Marital status _____
Village _____ Union _____ Upazila _____ Dist. _____
Name of the interviewer _____
Date _____

1. Status of Women in landless/marginal farm families
(Addressed to Housewife/elder daughter of the family)

A. Decision making in the family.

a) Does your husband/father ask for your opinion regarding the following matter ? (Tick correct answer)

i) Sale/purchase of farm household products No Yes: Occn./Freq./Always
(sale/purchase of rice, paddy, veg., etc.)

ii) Sale/purchase of household assets (sale/purchase of land, ornaments etc.) No Yes: Occn./Freq./Always

iii) Nature of husband's work No Yes: Occn./Freq./Always

iv) Nature of work of other members of the family No Yes: Occn./Freq./Always

v) Choice of crops grown No Yes: Occn./Freq./Always

vi) Borrowing No Yes: Occn./Freq./Always

vii) Education of Children No Yes: Occn./Freq./Always

viii) Decision making in marriage of children No Yes: Occn./Freq./Always

ix) Decisions regarding litigation

No	Yes:Occa./Freq./Always
----	------------------------

x) Adoption of family planning methods

No	Yes:Occa./Freq./Always
----	------------------------

xi) Regarding voting in local elections

No	Yes:Occa./Freq./Always
----	------------------------

B. Self employment

a) Did you undertake any of the following activities of your own in order to increase family income?

- i) Poultry raising
- ii) Kitchen gardening
- iii) Cow/Goat/rearing/fattening
- iv) Bamboo/cane work
- v) Rice husking
- vi) Knitting
- vii) Handicrafts
- viii) Weaving
- ix) Spinning
- x) Bee-keeping
- xi) Others(specify)

b) Who gave you the idea of setting this ? _____
(Husband/Father/BSS/MSS/Gramin Bank/Social worker/others)

c) Who gave you financial support ? Husband/Father/BSS/
MSS/Gramin Bank/Others/Own help

d) Did your husband/Father encourage this?

Yes	No
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e) Does your husband/Father like this to continue

Yes	No
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If no, why _____