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GOVERNMENT OF BANGLADESH  
MINISTRY OF ENVIRONMENT AND FORESTS

STATISTICAL REPORT  
VILLAGE FOREST INVENTORY

# FORESTRY MASTER PLAN

ASIAN DEVELOPMENT BANK (TA NO. 1355-BAN)

UNDP/FAO BGD 88/025

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**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

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## INTRODUCTION

### Background

This report is a part of the Forestry Master Plan's documents and supplementary to the documents of the Forest Production and Management Team. The objective of the Master Plan is to prepare a long term plan for the protection and development of the country's forestry resources. This would provide a framework to optimise the contribution of forest resources from the reserved areas as well as from the homestead forests for environmental stability and economic and social development. This the report will deal with the methodology of the survey and presentation of inventory results.

✓ Bangladesh is a small, heavily populated, poor country with limited forestry resources. Of the total land area, 15% is classified as forest land making the country one of the poorest in forest resources. The forest land is mainly classified into two types, Government owned Reserve Forests, controlled and managed by the Forest Department\* and privately owned homestead forests in the villages. The area of Government forest today is 2.16 million ha including the Sundarban forest (the largest mangrove forest in the world) and the coastal afforestation belts as well as the Unclassed State Forest (USF) in the Hill Districts of Chittagong. This forms 88% of the forest area whereas the homestead forest is 0.27 million ha, or 12% of the forest area.

✓ Village homestead forests are very important in the economic life of the country, supplying the bulk of the wood and other forest products in the market. According to one study report, 80%-82% of the forest products in the country are supplied by the village homestead forests (Douglas, 1981).

In the past, village forests were neglected by the authorities who kept this important sub-sector alienated from the developmental efforts of the government. It is now felt by all concerned that this should be given priority and included under the planning activities of the Government as the Reserve Forests alone can not meet the demand.

Lack of updated and reliable data of village stock and flow as well as household consumption is a serious constraint in formulating any objective plan for development. Virtually little was known about the village supply and demand before the FAO/UNDP studies done in the early 1980's. These studies highlighted the importance of village groves for the first time. The FAO/UNDP studies attempted to quantify the forest resources available and household consumption of forest produces in rural areas for the first time. Two separate studies were done simultaneously during 1980-81, one for village inventory and the other for domestic consumption.

Hammermaster's (1981) study was limited to the survey of village groves and estimation of the growing stock of trees and bamboo in the village areas including the non-wood value trees. It did not attempt to quantify all forest resources available in Bangladesh, including RF and USF nor did it attempt to assess the consumption of forest products. As a result, the study does not provide any comments on comparative position of supply from the reserved forest versus homestead forest. The study supported the idea of Aliff, 1978, regarding the contribution of the village groves and mentioned that they provide 48% of the conversion log and 48% of the fuelwood which could be considerably higher if twigs and leaves are included. The report mentioned that 77% of the total bamboo supplies are coming from village forests.

\* For this abbreviation and other terms and conversion factors, see Appendix 1

The supply-demand study by Douglas 1981, and subsequent demand projection of wood and wood products by Byron 1981, show interesting findings which are still being widely discussed in the concerned circles. The study mostly concentrated on the consumption side of the forest products and undertook the survey of rural consumption. In his study, Douglas has estimated that 82% of forest products go for fuelwood and the remaining 18% for sawlogs with more than 80% of the total supply coming from the villages. One of the major contributions of the study is to highlight the importance of the village groves for the first time. His rural consumption estimates are the only reliable estimates done through a proper consumption survey. Many of his consumption estimates are based on earlier studies of Aliff and others or on the back calculations from estimated production to expected consumption, particularly for the highly processed goods.

The present survey incorporates methodology used in the studies of both Hammermaster and Douglas. The survey applies to rural areas and follows the approaches of the earlier studies by Douglas and Hammermaster. The previous two studies are basically different in nature and methodology and done separately. However, the team has adopted a combination of both and effectively managed to carry out the survey.

The basic differences in the two studies are as follows:

- The supply-demand study by Douglas was concentrated on the survey of rural consumption in great detail. Urban consumption was not surveyed and for that the previous estimates were accepted. Consumption of fuelwood was given more emphasis. For the supply side he had undertaken a survey of households for a rural inventory. For forest supply he depended on the historical and recorded data and information. Very little is known about his inventory survey results except from a summary. He mentioned the village inventory survey of Hammermaster in his report as a reliable study of village inventory.
- Douglas' inventory results show differences in per capita growing stock for different estimates. In one estimate, per capita standing volume was 20 cubic feet ( $0.56\text{m}^3$ ) and in another estimate it was 23 cubic feet ( $0.65\text{m}^3$ ). He also estimated the felling rate of standing volume to be 4% per annum.
- The Village Forest Inventory of Bangladesh by Hammermaster concentrated on quantifying the village stocks only. No mention of consumption was made. According to his study, per capita standing volume was 25.88 cubic feet ( $0.73\text{m}^3$ ) based on the 1980 population.
- Methodological differences are also found in the two studies as Douglas had considered the households as the tertiary sampling units for a survey while Hammermaster considered the villages. One interviewed the owners of the sample households with a pre-designed questionnaire while the other measured the village areas, counted and recorded the standing trees and estimated the per capita growing stock on the basis of the population of the village. One followed the method of both objective measurements as well as subjective judgements while the other has purely objective measurements without little subjective bias. Douglas adopted a three stage stratified sampling method while Hammermaster has a two stage.

### Objectives of the Survey

The purpose of the survey was to cross-check the previous results, reassess and update the availability of village stocks, rural consumption of forest products, and public attitudes towards tree plantation and environment preservation. Specific objectives of the present survey are:

- a. Update the previous estimates and cross check the consistency of the results of previous studies in respect of total growing stock, generation stock, new plantation, rate of harvesting and rate of depletion.

- b. Determine the existing stock of village groves and volume distribution of different species of trees both of wood and non-wood value. More specifically, estimate the following:
- total conversion log availability
  - total wood availability
  - total bamboo availability
  - total availability of other minor forest products of non-wood value
  - composition and components of the village forest by sizes of the trees ✓
- c. Determine the growth and change in per capita consumption of forest products in rural Bangladesh in terms of fuelwood, sawn timber, poles and posts in various uses.
- d. Determine the consumption of bamboo in different uses of building/ house construction, poles, fencing, agricultural implements including cottage industries.
- e. Learn the attitude of rural people regarding tree plantation, agro-forestry, social forestry, depletion of forest resources, and concerns over environment deterioration.
- f. Assess the consumption demand and annual output of minor forest products like cane, rattan, palm and others and determine their present stocks.
- g. Create an updated data base for rural supply and demand, and calculate a series of estimates to be used in the Master Plan.

### **Justification of the Survey**

The Reserved Forests are managed and controlled by the Forestry Department under the Ministry of Environment and Forest and all of the forest areas have been largely inventoried at different times by various consultants from home and abroad. Some of these inventories were done a long time ago while others are recent. The inventories highlighted the position of stock density at different stretches of forest, species of timber, bamboo and other products, extractable surplus, disease, rot, depletion, encroachment, etc. in great detail. Recent studies on the Sal Forest highlighted the problems of conservation, encroachment and existing stocks.

Moreover, the Forest Department has a regular up-dating programme of inventories through working plan activities which may provide recently updated and reliable information of forest resources in the reserved forests. Therefore, the secondary source of data can be used extensively in the case of Reserved Forests as well as for other organized sector of wood-based industries and private sector saw mills.

The village forests are the most significant contributor of fuelwood, timber and bamboo and should have a detailed inventory study to give exact knowledge about the forest resources available in the rural areas of Bangladesh. No such inventory has been attempted so far other than the sample survey of Hammermaster in 1981.

## **SURVEY APPROACH AND METHODOLOGY**

### **Approach**

Survey procedure constituted three parts, each one of which could be a separate study but was conducted jointly. They are as follows:

1. Village Inventory Survey ✓
2. Household Consumption Survey ✓
3. Public Attitude Survey ✓



The questionnaire survey method with adequate physical measurements and counting of trees was adopted. The survey team visited villages and households and interviewed the family members regarding the consumption of forest products and measured and counted trees and wooden implements used by the household.

Three separate questionnaires were developed. In view of maintaining consistency with previous studies and time limitations, it was initially decided to administer inventory questionnaires to all 6,000 sample households and the consumption and attitudinal questionnaire to a sub-sample of 1,200 households.

The village inventory survey was designed to count and measure the standing stock of trees on a household basis. As the survey team visited the household, they undertook the measurements of the standing trees. Sample households were selected randomly in the field and each fifth household visited was approached with the full length questionnaire for consumption and attitudinal survey.

In the household consumption survey, the stock taking of all items of poles/posts, furniture, agricultural implements, transport equipment and others were physically measured and recorded. In the case of fuelwood consumption, three alternative questions were asked regarding the consumption for a day, a week and the year so that actual consumption could be assessed.

The sample survey method adopted as the most appropriate to achieve the objectives of the survey was three stage, stratified random sampling. The primary unit was the upazila while villages and households are the secondary and tertiary sample units. Field survey with pre-designed questionnaires, objective counts and measurements of standing trees, wood and bamboo structures, furniture and implements, was done. The survey approach involved the following steps:

- a. Determination of survey objectives and definition of output both major and tertiary.
- b. Sample design, determination of sample frame and sample households.
- c. Questionnaire design and definition of measurement units to be employed.
- d. Recruitment and training of field staff and questionnaire supervisors.
- e. Field operation and data collection.
- f. Data processing and computer programming to determine the results.
- g. Presentation of results and review of objectives and output.

### Sampling Frame and Units

The design of the household survey for assessing village production, consumption and public attitudes is based on the administrative hierarchy of the country which is:

<u>Administrative Units</u>	<u>Nos</u>
1. Divisions	4
2. Districts (Zilas)	64
3. Upazilas*	460
4. Thanas	27
5. Municipalities	90
6. Union Parishads	4,400
7. Villages	68,000 approx.

\* Upazilas are now renamed as Thanas.

Districts (Zilas) are the focal point of administration and the headquarters are considered to be the urban centres and are excluded from the survey. Upazilas are upgraded thanas and located in the rural areas. The remaining 27 thanas are mostly under the metropolitan cities or under other urban centres.

## Stratification

The whole of rural Bangladesh was initially divided into six strata based on agro-ecological characteristics.

Stratum-I : Districts of greater Dinajpur, Rangpur, Bogra, Rajshahi and Pabna.

Stratum-II : Districts of greater Dhaka, Tangail, Jamalpur and part of Mymensingh.

Stratum-III : Districts of greater Kushtia, Jessore, Faridpur and part of Barisal and Khulna

Stratum-IV : Districts of greater Patuakhali, Barisal and part of Khulna.

Stratum-V : Districts of greater Noakhali, Chittagong and Cox's bazar and part of Comilla.

Stratum-VI : Districts of greater Sylhet, part of Mymensingh and Comilla.

Chittagong Hill Districts are outside the survey as well as of stratification but can be termed as the strata-VII. The areas excluded from the survey are the Chittagong Hill districts, Sundarban mangrove area, forest Estates of Sylhet, Chittagong and Cox's bazar, tea estates of Sylhet and Chittagong and metropolitan areas. This stratification is more similar to Hammermaster's study. Douglas used urban fringes of Dhaka, Chittagong and Khulna as a separate stratum. The distribution of strata can be seen in the Map, Figure-1.

## Sample Design

### 1. Sample Units

Initially, a sample of 6,000 households was accepted for survey to be selected randomly in the field from among 267 selected villages. The number of sample households initially determined was to vary from 20-25/village according to lower and upper ranges of the uni-population unit of the village. During the actual survey, 25 households were surveyed in each selected village to meet the fifth household condition and for uniformity and thus the number of sample households became 6,675. The distribution of sample Thana/Upazila, village and household by Stratum along with that of Douglas and Hammermaster is presented in Table 1.

Table 1 - Distribution of Sample Thana, Village and Expected Household by Stratum

Strata	Douglas 1980-81			Hammermaster, 1981		FMPP, 1992		
	Thana	Village	Household	Thana	Village	Thana	Village	Household
I	9	90	1320	14	67	14	67	1675
II	7	70	1020	13	61	13	64	1475
III	12	120	1680	15	44	15	44	1100
IV	5	50	780	7	24	7	24	600
V	7	70	900	8	43	8	43	1075
VI	3	30	300	9	28	9	30	700
Total	43	430	6000	66	267	66	267	6675

It was believed that this sample size would give a quite reasonable national estimate as compared to other household surveys. The same revised number of households were surveyed but during the actual field survey, the number of households changed in between the strata, but kept the total number of households the same. This was due to problems of finding households according to different land class as per design. Distribution of actual households surveyed by land class and by stratum is presented in Table 2.

**Table 2 - Actual Distribution of Sample Households by Land Class and Strata**

Land Size ha	Strata						Total
	I	II	III	IV	V	VI	
<0.2	431	327	225	122	205	165	1475
0.2-<1.0	689	549	416	237	435	307	2628
1.0-3.0	418	249	268	173	210	176	1494
>3.0	303	168	197	96	181	127	1072
Total	1841	1293	1106	628	1031	775	6674

From the table it is clear that the initially determined percentage of households could not be maintained in the field stratum-wise. For example, in Stratum I the original sample was 1,675 but the actually surveyed sample is 1,841. In the case of land holding groups it was also changed.

## 2. Sample Village

The names of sample villages in Hammermaster's reports were accepted for the survey. Identification of sample upazilas and villages was done using the small area atlas of Bangladesh (Zila Series). Where there had been a problem of identification i.e. name of the village was not found or the population did not tally with the previous figure or the name of the Union Parishad was missing, the nearby village having the nearest population was earmarked along with the original one. If the original village was not found during the field visit then the substitute village was surveyed. The list of villages is shown in Appendix 2. The population of villages has been adjusted and updated according to the 1981 census and duly shown on the maps. The big villages were divided into smaller areas representative of the original village population to have a consistent population sampling base.

## 3. Sample Household

Households in the selected villages constituted the final stage of sampling. The household is intended to be used as the unit of survey for production and consumption of forest products as well as for survey of attitudes and opinion. Households were selected randomly from the Union Parishad list in the Holding Tax Register collected from the local parishad office, wherever possible. Holding Tax is common to each household in the village irrespective of rich and poor, landlord and landless. After collecting the list, the survey team classified the households into four landholding classes through discussions with the local officials, elite and school teachers. Landholding categories in hectares are:

- <0.2 ha
- 0.2 to 1.0 ha
- 1.0 ha to 3.0 ha
- >3.0 ha

From the prepared list mentioned above, samples were drawn randomly from among the groups following the weights assigned to each group. From the BBS report, it is found that the majority of the rural families/households fall under the second category, owner of 0.50 acre to 2.5 acres. The distribution of weights follow the objective situation of land holdings in the country. Table 3 shows the distribution of households by land class.

**Table 3 - Distribution of Household by Land Class**

Land Size, ha	% of Household	Sample Households
<0.2	20%	1335
0.2 to 1.0	40%	2670
1.0 to 3.0	20%	1335
>3.0	20%	1335
	100%	6655

When the household is used as the unit of production, it is used in a different connotation than a consumption unit. For the inventory, household means homestead including vegetable garden, pond embankment, backyard and frontyard of the house. This also includes tree groves, gardens and scattered trees owned by the household situated away from the homestead. For consumption this means household proper i.e. group of people living together sharing meals from the same pot (khana). For the attitude and opinion survey, the response of the head of the family/ household was accepted as the view of the household.

## QUESTIONNAIRE DESIGN

### General

The main objective of the questionnaire used in the survey was to facilitate the two-way communication between the respondents and the enumerators so that the responses could be recorded as accurately as possible. The principle of clarity, simplicity and logical sequence was followed during the design of the questionnaire. Three different sets of questionnaires were developed to collect the information regarding production, consumption and attitudes of the household. Descriptions of the questionnaire are given below.

### Inventory Questionnaire

The first part of the questionnaire related to inventory. This was designed to solicit the general information regarding the household and provides the formats for recording the stock of standing trees (their species, sizes, heights etc), bamboo, palms, other trees of non-wood values, canes, murtas and thatch grass. The contents of the inventory questionnaire are:

#### 1. General Information

- a. Name of the head of household
- b. Name and population of village
- c. Name of upazila and district
- d. Monthly income
- e. Title of questionnaire
- f. Name of survey group, supervisor and date of survey.

## 2. Economic Status of the Household

- a. Main occupation.
- b. Ownership of land
- c. Monthly Income
- d. Family composition, adult, minor, total
- e. Livestock

## 3. Inventory of Bamboo and Trees

- a. Bamboo: local name, numbers of clums, mature and immature.
- b. Stocks of trees: local name (for about 23 species)  
Number of standing saplings for trees below 1.0 and 20 cm diameter  
Number of standing trees with measurement of girth and DBH.
- c. Stock of palm, types, and numbers of trees  
Local name (about 4 species)  
Number of trees by height
- d. Stock of trees (without/little wood value)  
Local name and number by height

The inventory of trees includes the counting and recording of all timber trees under 64 cm girth over bark at DBH, by species. Trees of 64 cm girth and above are recorded separately mentioning species, girth in inches and average heights.

## Household Consumption Questionnaire

The second part of the questionnaire was for the household consumption survey. This was designed to include and measure the quantity and volume of forest products consumed, including fuelwood proper, branches, twigs, agri-residue, cow dung, charcoal and other energies for domestic uses. This also includes the measurement of structural materials, furniture, implements and transport equipment made either of timber, cane or bamboo. The sale and purchase of forest products during last 12 months has also been incorporated. The team asked questions regarding the use of the type of fuelwood and time required for its collection, number of persons involved in collection of fuel and fodder. The fuel wood consumption questionnaire was filled in with the help of female field assistants wherever possible. The contents of the questionnaire are:

### 1. Consumption of Fuel Energy

- a. Quantity consumed yesterday, last week, last year
- b. Use of fuelwood during wet season
- c. Sources of major portion of supply i.e. own production, purchased, collected from elsewhere

### 2. Measurement of wood, bamboo and other forest products

- a. Building materials and fencing
  - volume of wood used in sawn and round
  - number of items and total running feet of round bamboo
  - quantity (in maunds) of thatch, sungrass, jute stick, golpata, etc.

- b. Doors, pillars and windows
  - quantity of wood in cft
  - quantity of bamboo in number
  - replacement during last 12 months
- 3. Furniture and Agriculture Implements
  - a. quantity of sawn wood, bamboo and cane used in standard unit
  - b. purchase or sale during the last 12 months
- 4. Transport Equipment (boat, cart, rickshaw, dulee and palki)
  - a. quantity of sawn wood (in cft)
  - b. bamboo (in no)
- 5. Sale and Purchase During Last 12 Months
  - a. timber, fuel wood, bamboo sold (last 12 months)
    - quantity sold
    - sold to whom
  - b. purchased forest produces (last 12 months):
    - quantity of timber and bamboo purchased
    - origins of supply
  - c. harvest of forest produces (last 12 months):
    - number of trees by species and girth
    - number of bamboo

### **Public Attitude Questionnaire**

Third part of the questionnaire was designed to solicit the views and comments of the villagers regarding tree plantation, protection, participatory forestry, role of the government, rate of forest depletion and environment deterioration. The questionnaire asked about the personal opinions of the respondents. The questionnaire include a series of socio-cultural queries regarding forestry and other related subjects. The contents are in Appendix 3.

## **OUTPUT OF THE SURVEY**

### **Output Required from the Inventory Survey**

The inventory survey includes:

- a. Number of sample households and sample areas population.
- b. Total stock of trees-big and small by species, stratum and landholding class.
- c. Total stock volume of wood including firewood and sawlogs by stratum and landholding class.
- d. Stock of bamboo by species maturity status, stratum and by land size, ha.
- e. Stock of other minor products-cane, palm, non-wood value tree and thatch grass by stratum and land size, ha.
- f. Annual harvestable volume of wood and timber.
- g. Annual harvestable volume of bamboo.
- h. Annual output of cane and murta.
- i. Per capita availability of stems, quantity of firewood, sawlogs from the village forest.
- j. Per capita availability of bamboo in the village clumps.

## **Output Required from the Consumption Survey**

The household consumption survey includes:

- a. Consumption of traditional energy and fuelwood by strata, and land size, ha on daily, weekly and annual basis.
- b. Consumption of wood and bamboo as building materials by stratum and by land size, ha.
- c. Consumption of wood and bamboo in furniture.
- d. Consumption of wood and bamboo in agriculture implements by stratum and land size, ha.
- e. Consumption of wood and bamboo in transport equipment by stratum.
- f. Consumption of bamboo for fencing.
- g. Sale and purchase of trees and bamboo for last 12 months by stratum and land size, ha.

## **Output of Public Attitude Survey**

The attitude survey includes:

- a. Attitude of respondents regarding tree plantation - positive or negative in percentage.
- b. Reasons for growing trees in the rural areas.
- c. Problems of plantation and protection of trees in rural villages by categories.
- d. Role of government nurseries in promoting tree plantation and raising forest resource base in rural areas.
- e. Assistance needed for growing plantations.
- f. Attitudes regarding the removal of trees and environment deterioration.
- g. Role of the government in the promotion of plantation, protection and environment conservation.
- h. Attitudes towards agro-forestry, social and participatory forestry by percentage.

## **SURVEY TEAM AND SUPERVISION**

### **Recruitment and Selection**

Six survey groups were formed with one group leader and four small teams consisting of one enumerator and an equal number of assistants. For field operation and data collection there were 24 small teams of two persons consisting of one enumerator and one field assistant. For this purpose, 36 field personnel including six check crews were recruited, trained and deployed in the field. Field assistants, both male and female, were recruited from the sample villages. From each village five persons, four male and one female were recruited as field assistants. The group leader and the enumerator trained the assistants in the field. The field operation was designed so that all 6,675 sample household could be completed within a time of 2.5 months. Two senior researchers, one Ph.D in Forestry and the other a Masters in Sociology were employed as Field Manager and Survey Co-ordinator, respectively. They were constantly supervising and monitoring the field operations.

Field assistants were recruited from the sample villages for two-three days. Each team was provided with a transport vehicle, measuring tapes, calculators, maps, conversion tables and necessary stationery and logistics.

### **Qualification and Experience of the Field Staff and Co-ordinators**

The overall control of the survey was under the Deputy Team Leader and the senior most local consultant in the team, an experienced forester and Ex-Chief Conservator of Forest. Field Co-ordinators are also highly qualified personal. Both have good experiences in field survey of this nature. The Project Statistician was in charge of the overall operation of the survey.

Supervisors were either Diploma Engineers with several years experience in survey work or Agriculture Graduates, with three years experience in field survey and agriculture. Most of the enumerators are general graduates, some of them are also agriculture graduates. Only four of them are H.S.C. passed. Assistants were recruited from the sample villages, preference was given to H.S.C pass candidates but in some cases S.S.C pass were also accepted. In the case of female assistants, S.S.C. pass were preferred. Many of the field assistants are students of local colleges and institutes.

### **Training, Duration and Techniques**

All recruited personnel were given institutional training for three days and field training for four days. Each member of the survey team was trained to be acquainted with the Master Plan objectives, survey objectives and methodology, sampling techniques, techniques of measurements of trees and different household implements, furniture and construction materials. In the field they were given practical demonstrations on the method of random sampling, techniques of interview and recording. The enumerators and group leaders also participated in the pilot survey in Keraniganj and Dohar upazillas of Dhaka for four days.

## **DATA PROCESSING METHODOLOGY**

### **Data Processing Environment**

Data processing of the village survey was done with the help of micro computers. The hardware consisted of IBM compatible 80286 based micros, under DOS environment. As for softwares, the popular database management software: dBase III Plus was used for creating the database; while most of the programs were compiled using the faster Foxbase Plus. Some of the output tables were developed using Lotus 1-2-3. The entire database occupied six mega bytes of disk storage.

The following sections give a general description of data processing methods used to compile the survey. Full technical compiling details are part of the Systems Analysis Report (FMP 1992d).

### **File Structure**

The village survey questionnaire consisted of three parts. Part I contained general information, and supply information on distinct forest products which were listed separately. Similarly, Part II contained consumption information on distinct items, shown separately. For efficient and effective file maintenance, a file was created for each distinct item shown separately in Part I and Part II. All information in Part III was compiled in a single file. The database files and their contents are listed below:



<u>File Name</u>	<u>Content</u>
------------------	----------------

Part I:

PART101.DBF	General information, Cane (supply), and Thatch grass (supply)
PART102.DBF	Bamboo (supply)
PART103.DBF	Regenerating Trees (supply)
PART104.DBF	Trees (supply)
PART105.DBF	Palm Trees (supply)
PART106.DBF	Trees which have no wood value (supply)

Part II:

PART201.DBF	Fuel (consumption)
PART202.DBF	Building Material (consumption)
PART203.DBF	Furniture (consumption)
PART204.DBF	Agricultural Implements
PART205.DBF	Transportation
PART206.DBF	Sales and Purchase
PART206.DBF	Harvest

Part III:

PART301.DBF	Public Attitude
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In specifying field-types, where numeric calculations were not involved, character type was preferred over numeric type for greater efficiency. For example, the sample number consisted of an eight byte number. Yet it was declared as a character type, which facilitated efficient string manipulation during program compilation. For the purpose of matching records of separate files, a four byte key field was included in all the files.

### Data Entry

The data entry was done by engaging four operators over a period of eight weeks. The data entry program involved screen format files for individual database files. As far as possible, the data entry screen resembled the questionnaire layout, which ensured smooth data entry. Data entry was preceded by manual checking of each questionnaire. At that time a four-byte identification number was written on each checked questionnaire. This number ranged sequentially from 0001 to 6669. In effect it became a check on the questionnaire entered and stored. This number also became the matching key field in all files.

### Program Design and Editing

At the initial stage screen format programs were developed for each of the database files. Then a menu-type data entry program was developed for facilitating data entry for Part I of the questionnaire. It was followed by developing another data entry program for Part II and Part III. Finally, programs for generating output tables were developed.

All programs were thoroughly desk-checked and tested with small samples. Utmost care was taken to minimize data entry errors. dBase's built-in error checking facilities, viz., field type Mis-match, range checking, etc, were fully utilized. Wherever possible, the results from program compilation were checked with the results from command entered directly from the command mode.

## Methods of Result Calculation

### 1. Tree Volume Equations

The standing volumes of the growing stock have been calculated using the volume table formulae derived by the study team of Hammermaster in 1981. Three different equations were employed to calculate the standing volume. In the village groves, mango and jack fruit are dominant. Two separate equations are devoted for each of them. The third equation takes care all other species. The equations are:

Standing volume from 15 cm stump upwards. (stem volume)?

Mangifera indica (Mango)	$V_s = -11.30551 + .2175 D^2$	(1)	71
Artocarpus integrifolia (Jack)	$V_s = -7.79202 + .15401 D^2$	(2)	67
Other species	$V_s = -3.98753 + .15203 D^2$	(3)	72

Where :  
 $V_s$  = volume (true) in cft standing volume  
 $D$  = dia at breast height overbark in inches

For finding of  $V_f$ , felled volume to standing volume, the equation is for all species as under:

$$V_f = 2.3158 + 1.18435 V_s \quad (4)$$

By substituting  $V_f$  from equation (4) for  $V_s$  in equation (1), (2) and (3) the following total volume are felled volume relationship is derived.

Mangifera indica (Mango)	$V_s V_f = -11.0739 + .2576 D^2$	(1.41)	(5)	41%
Artocarpus integrifolia (Jack)	$V_s V_f = -6.9127 + .1824 D^2$	(1.49)	(6)	40%
Other species	$V_s V_f = -2.4068 + .1801 D^2$	(1.39)	(7)	39%

Where :

$V_f$  = Total volume under bark, including roots and twigs  
 up to 80-90% of stem volume  
 The branching % seems too low should be

For finding out timber sawlog the diameter under bark is determined from formulae

$$B = b_0 + b_1 d \quad (8)$$

where :

$B$  is 2 bark thickness  
 $d$  is diameter overbark in inches?  
 $b_0$  and  $b_1$  are constants

Mangifera indica (Mango)	$B = 0.54 + 0.039 d$	(9)
Artocarpus integrifolia (Jack)	$B = 0.79 + 0.025 d$	(10)
Other species	$B = 0.48 + 0.042 d$	(11)
All Species	$B = 0.60 + 0.034 d$	(11)

After determining the DDBH under bark the mid diameter of the bole (from bottom to 20 cm diameter) is calculated and then the volume of the bole found.

The above volume table formulae are used only in the case of trees with 20 cm or above DBHOB.

## 2. Calculation of Sawlog and Firewood Volume

- a. Sawlog volume was thus determined from the measurement of clean bole length from ground up to 20 cm diameter.
- b. Firewood volume was obtained from deducting the sawlog volume from the total volume.

### Adjustment and Calibration of Results

#### 1. General

The results of each item inventoried is compiled and calculated separately in terms of sample population. The sample population is 51,416. Though the unit of survey was household the results are calculated on a per capita basis by strata and land size, ha. Later, the sample results were calibrated for the whole country. The sample population, sample area and strata population are thus very important for processing the inventory results.

#### 2. Area population

The numbers of population and household in the sample area and strata are presented in Table 4.

Table 4 - Sample Population and Household, Inventory Survey, 1992

Land Class	1		2		3		4		5		6		Total
	H.H.	Pop.	H.H.	Pop.	H.H.	Pop.	H.H.	Pop.	H.H.	Pop.	H.H.	Pop.	
<0.2	431	2469	327	2157	225	1343	122	718	205	1470	165	1173	1475/ 9330
0.2-1.0	689	4529	549	4026	416	2777	237	1621	435	3574	307	2510	2628/ 19037
1.0-3.0	418	3236	249	2174	268	2057	173	1350	210	2063	176	1639	1494/ 12513
>3.0	303	2597	168	1742	197	1810	96	843	181	1915	127	1629	1072/ 10536
<b>Total</b>	<b>1841</b>	<b>12831</b>	<b>1293</b>	<b>10099</b>	<b>1106</b>	<b>7981</b>	<b>628</b>	<b>4532</b>	<b>1031</b>	<b>9022</b>	<b>775</b>	<b>6951</b>	<b>6674/ 51416</b>
<b>Sample Area</b>	<b>16062</b>	<b>84358</b>	<b>14404</b>	<b>78230</b>	<b>11336</b>	<b>66883</b>	<b>5250</b>	<b>26470</b>	<b>7898</b>	<b>49654</b>	<b>5842</b>	<b>35264</b>	
<b>Strata H.H. and Population</b>	<b>4923314</b>	<b>24128422</b>	<b>4438550</b>	<b>17541785</b>	<b>2774513</b>	<b>12767180</b>	<b>1960939</b>	<b>1050589</b>	<b>3049509</b>	<b>14771283</b>	<b>2277575</b>	<b>11675638</b>	

#### 3. Statistical Adjustment of Landless Class with the Survey

Initially the results of the survey were presented on a per capita basis for the sample population. These were then calibrated for the whole country. That required some statistical adjustment for using in the national level estimates. The adjustments were made in two aspects of sample households: (i) adjustment of pure/ absolute landless households to be included in the results and (ii) up-dating the distribution of households according to land class for 1991, to determine the weightage factor and percentage of population in each class. The adjustments were made in the following manner.

- a. Following the Census of Agriculture and Livestock, 1983-84, by Bangladesh Bureau to Statistics, the team has accepted the percentage distribution of households as the basis of

up-dating. There is little difference between the definition of land class between the BBS and the present study. According to the census, the households with less than .02 ha of cultivated area are treated as non-farm households and considered separately. The Master Plan survey did not make any distinction between farm and non-farm houses and treats them alike grouping them in the class <0.2 ha of land. Household distribution is shown by stratum in Table 5.

Table 5 - Household Distribution

Land Class,ha	% of all household	
Landless	-	27.30
<0.2	24.06	17.49
.2-1.0	46.28	33.64
1.0-3.0	4.72	17.97
>3.0	4.94	3.6
	100%	100%

Source: Census of Agriculture and Livestock, BBS, 1983-84.

Because the Census is more concerned with the agro-products and farm activities, the farm size is more important to it. Consequently they presented farm size by land class. However the percentage of all households according to land class irrespective of farm and non-farm households has been estimated, using data for 1984. Among all the households, the functionally landless was 27% of which 15% could be assumed to be absolute landless in 1984. This figure has definitely increased during the last five years. It is assumed that it could be at least 17% in 1991.

In the present household survey, no absolute landless household was surveyed. But the results must include the absolute landless as they share the national average. Therefore, the survey result for <0.2 ha is deflated by a factor of 85% since the landless have no land for growing trees.

- b. It is assumed that the distribution of households and population according to land ownership has changed from 1983-84. No such recent survey exists which could show the distribution of household and population by land class. The data are adjusted based on trends shown by the different reports and documents of the government.

#### 4. Household and Population Distribution by Land Size, ha

The distribution of households by stratum for 1983-84 and distribution of population by land class for 1991 have been constructed by the team and presented below in Table 6 and Table 7.

Table 6 - Strata Wise Distribution of Household by Land Class, 1983-84 ('000)

Strata	Household	%	<0.2 ha	0.2-1.0 ha	1.0-3.0 ha	>3.0 ha
I	3588	26.0	1603 (44.7)	1053 (29.3)	761 (21.2)	171 (4.8)
II	2590	18.7	1248 (48.2)	878 (33.9)	403 (15.6)	61 (2.4)
III	2041	14.8	822 (31.7)	671 (32.9)	450 (22.0)	98 (4.8)
IV	1419	10.3	596 (42.0)	515 (36.2)	251 (17.7)	57 (4.0)
V	2199	16.0	1064 (48.4)	867 (39.4)	240 (10.9)	28 (1.3)
VI	1833	13.2	809 (44.1)	631 (34.4)	322 (17.6)	71 (3.9)
VII	148	1.0	48 (32.4)	34 (22.9)	56 (37.8)	10 (16.8)
Total	13818	100%	6190 (44.8)	4649 (33.6)	2483 (18.0)	496 (3.6)

Source: Population census, 1981 and 1974 Census of Agriculture and Livestock, BBS, 1983-84

Table 6 is constructed on the basis of data provided by the census of Agriculture and Livestock, 1983-84. Total rural households are distributed according to strata considered by the FMP. Figures in parenthesis show the percentage distribution of households in the reference land class. Compared with the 1981 population census it is seen that there has been a small shift of households from strata-VI to strata-II. For all other stratum, household distribution remained the same. Considering the population census 1981 and 1991 and Agri-census 1983-84, Table 7 has been constructed to show the percentage distribution of population by land class and by strata for 1991.

Table 7 - Distribution of Rural Population by Land Holding Class, 1991

Strata	Rural Pop.	Land Class, Ha			
		<0.2	0.2-1.0	1.0-3.0	>3.0
I	24128422	12546779 (52)	6273389 (26)	4343116 (18)	965137 (4)
II	17541785	9624224 (55)	4899604 (28)	2624788 (15)	349972 (2)
III	12767180	6128246 (48)	3574810 (28)	2553436 (20)	510688 (4)
IV	10500589	5250294 (50)	3255182 (31)	1575088 (15)	420023 (4)
V	14171283	7794205 (55)	4959952 (35)	1275414 (9)	141713 (1)
VI	11675636	5954574 (51)	3385934 (29)	1984858 (17)	350269 (3)
VII	837551	351772 (42)	201012 (24)	226138 (27)	58628 (7)
Total	91578163	47648912 (52)	26549883 (29)	12582838 (16)	2796530 (3)

- \* Figures in parenthesis represent the percentage of rural population in the class.
- \* Based on the Bangladesh Census of Agriculture and Livestock: 1983-84, and Population Census of 1981 and 1991.
- \* Urban population is estimated at 15.2.% in 1991.

The results of the survey are adjusted with figures of Table 6.

## INVENTORY RESULTS

### Bamboo

#### 1. Presentation of Results

Full results of the bamboo inventory in the village areas are presented by strata and species in Appendix 4. The summary results are presented in Table 8.

The survey results are statistically adjusted with the population size of different land holding classes in the country following the updated BBS figures and weighted accordingly for each stratum. The weighted average is then calibrated for national average both for mature and immature culms.

The survey period was the middle of the bamboo harvesting. Immature culms were found more than mature ones. The results are consistent with general assumptions and experiences. The small land holding groups have less stock/capita than the higher land holding classes.

The availability of mature culms has increased from 2.5 culms in 1981 to 4.3 culms in 1991. Immature culms have dropped slightly from 7.5 to 7.0 culms/capita. Among the regions, strata-1 representing the Northwest of the country, has the highest per capita availability with 6.33 mature and 10.34 immature culms, followed by stratum-III representing the West and Centralwest of the country. The lowest availability was found in stratum-IV representing the Southeast, which was 2.5 for mature and 2.2 culms for immature, per capita. Per capita calculation is based on the number of culms actually counted during the survey.

The volume in tonnes has been calculated following the weight conversion table prepared by the Forest Inventory Study, 1981. Among the 13 species listed in the questionnaire and grown in the villages, barak, tarala and barua are the prominent ones. Barak is the highest with 30% of the total stock. The thin wall bamboo like muli, mitinga, katabash, bariala and kaliseri are also found in the villages, but in very small quantities. These are dominant species in the forests. The present mature culms in the country are 443.78 million and immature are 611.15 million of which 351.64 million can be harvested.

Table 8 - Bamboo Resources in Rural Bangladesh, 1991

Strata	Population	Per capita	Mat culms	Per capita	Imm culms
I	24,128,422	6.33	15,273,2911	10.34	249,487,883
II	17,541,785	3.48	61,045,412	6.57	115,249,527
III	12,767,180	7.3	93,200,414	6.27	80,050,219
IV	10,500,589	3.54	37,172,085	5.64	59,223,322
V	14,171,283	2.26	32,027,100	2.18	30,893,397
VI	11,675,636	5.79	67,601,932	6.53	76,241,903
All Strata	90,740,612	4.28	44,377,9854	7.00	611,146,252

## 2. Comparison with 1981 Survey

The comparative position of bamboo resources can be seen in Table 9 where it is shown that the situation has improved in the case of mature bamboo and slightly reduced in the case of immature bamboo. The big difference is marked in Stratum I, Stratum-III and Stratum-VI. In all these cases, per capita availability has improved for mature culms but reduced for immature culms, except in Stratum I.

Table 9 - Percapita Comparative Bamboo Resources in Rural Bangladesh, 1981 and 1991

Strata	Mature culms		Immature culms	
	1981	1991	1981	1991
I	3.3	6.3	9.0	10.3
II	2.4	3.5	7.2	6.6
III	2.8	7.3	9.0	6.3
IV	1.4	3.5	5.0	5.6
V	1.5	2.5	3.9	2.2
VI	2.9	5.8	9.2	6.5
Weighted average	2.5	4.3	7.5	7.0

## Trees

### 1. Presentation of Results

Complete results of the tree inventory are presented in Tables 14-24 both by strata and by land class. Sample results are statistically readjusted with the present population under different landholding classes. Young trees below 20 cm diameter are not considered for volume calculation and only their number has been presented. The calculations of standing total volume of wood, firewood and sawlogs were done using the formulae and conversion tables prepared and used in the Village Forest Inventory of Bangladesh, 1981.

### 2. Analysis of Results

There are differences in the standing stock of trees in different regions of the country. Stratum-I, which represents Northwest Bangladesh and stratum-VI, the Northeast of the country representing the haor areas, have fewer trees and per capita availability of timber and fuelwood compared to other regions. Stratum-IV representing part of Khulna and Barisal, has the highest per capita availability of trees. It can be assumed that the people in this area are more interested in tree plantation and protection than in other areas of the country. This area is a pioneer in developing private nurseries in the country.

The projected figures for national level are presented in Table 10, which show the total standing volume, sawlog volume and firewood volume by strata. From the table it is clear that some strata have more trees than others though the per capita volume is less. This is because of the different physical sizes of the areas of the strata. The stock in Strata-VI is the lowest. This strata has also the lowest per capita availability of wood.



**Table 10 - 1991 Stock Volume in Rural Bangladesh ('000 m<sup>3</sup>)**

Strata	Per capita	Total vol	Sawlog vol	Fuelwood
I	0.50	12,064.21	3,498.62	8565.59
II	0.59	10,349.65	3,001.39	7348.25
III	0.58	7,404.96	2,221.48	5183.47
IV	0.91	9,555.53	2,388.88	7166.65
V	0.73	10,345.03	2,586.25	7758.77
VI	0.41	4,787.01	1,196.75	3590.25
All Strata	0.60	54,470.93	15,251.86	39219.07

Note: - Volumes in thousand cubic meter  
 - This include trees above 20 cm diameter  
 - Figure may not add due to rounding

### 3. Comparison With Other Studies

When compared with previous studies the results are found to be consistent. The standing per capita volume has declined during the last 10 years. A comparative statement of the results is presented in Table 11.

**Table 11 - Comparative Standing Volume/ Capita in Different Studies, m<sup>3</sup>**

Strata	1980 Douglas	1981 Hammer master	1991 Forestry Master Plan
I	0.50	0.68	0.50
II	0.48	0.53	0.59
III	0.81	0.79	0.58
IV	0.90	1.33	0.91
V	0.24	0.90	0.73
VI	0.65	0.42	0.41
All Strata Average	0.65	0.73	0.60

From Table 8 it is clear that both Douglas and Hammermaster had higher per capita availability of wood than the Master Plan Study. Except for stratum-II, in all other stratum per capita availability has been reduced. The rate of reduction ranges from 2.4% in stratum-VI to 31% in stratum-IV. The over all per capita reduction is 17.8%.

There has been only a minor change in the total stock volume. Table 12 shows the position of stocks in 1981 which can be compared with Table 10.

Table 12 - Stock Volume in 1981 (Hammermaster). ('000 m<sup>3</sup>)

Stratum	Total Volume	Sawlog Volume	Firewood Volume
I	13,114	2,412	10,703
II	8,510	1,470	7,040
III	10,083	2,032	8,051
IV	9,078	1,808	7,270
V	10,528	2,278	8,250
VI	3,509	547	2,962
All Strata	54,824	10,548	44,278

Note: - Volumes in thousand cubic meter  
 - This include only trees above 20 cm diameter  
 - Figure may not add due to rounding

From Tables 10 and 12, it can be ascertained that the total volume of growing stock in both the studies remained almost similar but the sawlog volume has increased.

#### 4. Stock of Trees

In considering the data in Tables 13-21, the following interpretations apply:

- Volumes in thousand cubic meter
- Number of stems in thousand
- Volume per capita based on 1991 population
- Figures may not add due to rounding
- Species in local name

Table 13 explains the comparative positions of tree stock between two studies.

Table 13 - Stock of Trees ('000)

Strata	Hammermaster, 1981		Forestry Master Plan, 1991	
	Nos. of stem above 20 cm diameter	Nos. of stems 0-20 cm diameter	Nos. of stem above 20 cm diameter	Nos. of stem 0-20 cm diameter
I	13018	60311	41983	66129
II	10522	56157	53180	49400
III	11413	70151	25044	37380
IV	11961	56378	31167	63251
V	15190	91118	45265	79233
VI	5094	31075	19424	28972
Total	67476	364733	197921	321714

For tree stock, the number has increased about three fold in 1991 but the sizes are smaller, which is evident from the stock volume. It indicates that the trees in 1981 were 3 times bigger than trees in 1991. The number of younger stems is less than in 1981. The number of trees in the rural areas actually reflect some success of government programmes for tree plantation and afforestation.

Table 14 - Stock Volume and Stand Table - Stratum I

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	10,860	4,854	0.201	1,434	3,420
Jack	6,133	1,491	0.062	632	858
Rain	599	248	0.010	77	171
Simul	1,769	720	0.037	303	417
Bat	224	194	0.008	71	123
Madar	126	29	0.001	4	25
Koroi	1,498	507	0.021	139	368
Chakua	11	3	0.000	1	3
Jam	979	259	0.011	67	192
Jiul	1,179	166	0.006	23	143
Gab	641	147	0.006	36	111
Tetul	735	297	0.012	79	218
Bel	429	91	0.004	21	70
Pitali	291	78	0.003	19	59
Chaatim	129	44	0.001	13	31
Kadam	666	189	0.008	55	134
Debdaru	120	19	0.001	6	13
Jarul	43	8	0.000	1	6
Sal	161	30	0.001	6	24
Segun	15	6	0.000	2	4
Garjan	15	2	0.000	0	2
Palash	15	4	0.000	0	4
Lichu	173	40	0.001	6	34
Others	15,164	2,624	0.108	498	2,127
Total	41,975	12,050	0.501	3,491	8,558

Table 15 - Stock Volume and Stand Table - Stratum II

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
			0.223	1,266	2,664
Mango	9,695	3,930	0.074	538	758
Jack	6,836	1,296	0.029	161	359
Rain	1,049	520	0.026	165	300
Simul	820	465	0.003	21	50
Bat	82	70	0.008	33	124
Madar	575	156	0.019	96	251
Koroi	1,006	347	0.000	1	1
Chakua	7	2	0.015	70	205
Jam	856	275	0.006	20	93
Jiul	706	113	0.012	45	170
Gab	958	214	0.008	44	113
Tetul	404	157	0.006	28	83
Bel	422	111	0.012	51	157
Pitali	745	207	0.001	9	19
Chaatim	78	28	0.007	36	86
Kadam	419	122	0.001	4	11
Debdaru	81	15	0.001	7	28
Jarul	162	35	0.000	2	6
Segun	37	8	0.000	0	0
Garjan	3	0	0.004	31	47
Lichu	213	78	0.131	454	1,848
Others	10,017	2,302	0.589	3,080	7,372
Total	35,171	10,452			

**Table 16 - Stock Volume and Stand Table - Stratum III**

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	4,735	2,237	0.175	724	1,513
Jack	4,083	1,294	0.101	540	754
Rain	1,162	495	0.039	146	349
Simul	1,177	532	0.041	159	372
Bat	96	63	0.005	10	53
Madar	259	50	0.004	9	41
Koroi	798	311	0.024	90	221
Chakua	1	0	0.000	0	0
Jam	579	165	0.013	42	123
Jiul	1,340	161	0.012	20	141
Gab	654	119	0.009	21	98
Tetul	384	137	0.010	33	104
Bel	405	82	0.006	13	69
Pitali	751	190	0.015	41	149
Chaatim	46	14	0.001	4	9
Kadam	230	50	0.004	14	37
Debdaru	166	32	0.002	8	24
Jarul	105	23	0.001	4	18
Sal	3	0	0.000	0	0
Segun	153	34	0.003	7	26
Garjan	7	0	0.000	0	0
Lichu	71	28	0.002	7	20
Others	7,823	1,472	0.115	293	1,179
<b>Total</b>	<b>25,027</b>	<b>7,487</b>	<b>0.581</b>	<b>2,187</b>	<b>5,300</b>

Table 17 - Stock Volume and Stand Table - Stratum IV

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	7415	2483	0.188	635	1848
Jack	2580	278	0.018	98	180
Rain	5420	3038	0.230	839	2198
Simul	573	222	0.016	66	156
Bat	59	67	0.005	5	62
Madar	1067	348	0.026	49	299
Koroi	1512	569	0.043	163	406
Jam	588	173	0.013	35	137
Jiul	128	13	0.001	0	13
Gab	2719	318	0.024	39	279
Tetul	507	191	0.014	51	139
Bel	331	65	0.005	10	55
Pitali	27	6	0.000	1	5
Chaatim	57	14	0.001	4	10
Kadam	196	43	0.003	10	34
Debdaru	20	3	0.000	0	3
Jarul	92	34	0.002	10	25
Sal	3	0	0.000	0	0
Segun	35	6	0.000	1	6
Garjan	14	2	0.000	0	2
Palash	2	1	0.000	0	1
Lichu	179	41	0.003	15	26
Others	7637	1743	0.132	344	1399
Total	31158	9657	0.724	2375	7283

Table 18 - Stock Volume and Stand Table - Stratum V

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	12916	3080	0.217	901	2179
Jack	3909	452	0.031	168	284
Rain	3275	1283	0.071	343	940
Simul	989	341	0.024	106	235
Bat	172	259	0.018	55	203
Madar	3685	845	0.059	76	769
Koroi	4332	1322	0.093	363	958
Jam	1451	334	0.023	76	258
Jiul	1411	215	0.015	29	185
Gab	1065	128	0.009	20	108
Tetul	412	101	0.007	23	78
Bel	197	34	0.002	6	28
Pitali	251	44	0.003	7	37
Chaatim	248	54	0.004	14	40
Kadam	866	134	0.009	25	109
Debdaru	479	64	0.004	11	53
Jarul	857	121	0.008	18	103
Sal	69	5	0.000	0	5
Segun	150	18	0.001	2	16
Garjan	50	14	0.001	6	8
Lichu	165	47	0.003	12	35
Others	8303	1474	0.104	274	1200
<b>Total</b>	<b>45251</b>	<b>10367</b>	<b>0.707</b>	<b>2535</b>	<b>7832</b>

Table 19 - Stock Volume and Stand Table - Stratum VI

Species	Stems (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	6,611	1,960	0.167	609	1,351
Jack	1,843	293	0.025	116	177
Rain	400	173	0.014	51	122
Simul	415	162	0.014	49	113
Bat	101	93	0.008	10	83
Madar	241	49	0.004	3	47
Koroi	722	177	0.015	44	133
Chakua	3	1	0.000	1	1
Jam	610	199	0.016	54	145
Jiul	14	1	0.000	0	1
Gab	298	78	0.006	15	63
Tetul	144	60	0.005	15	45
Bel	77	15	0.001	2	13
Pitali	538	118	0.010	20	98
Chaatim	234	60	0.005	16	43
Kadam	541	121	0.010	30	91
Debdaru	13	3	0.000	0	3
Jarul	875	173	0.014	33	140
Sal	45	8	0.000	1	6
Segun	15	3	0.000	0	3
Garjan	1	0	0.000	0	0
Lichu	43	8	0.000	0	8
Others	5,634	1,177	0.100	149	1,028
Total	19,414	4,930	0.414	1,217	3,713



**Table 20 - Stock Volume and Stand Table - All Strata**

Species	Stem (000)	Total Vol (000 m <sup>3</sup> )	Per Capita (m <sup>3</sup> )	Sawlog Vol (000 m <sup>3</sup> )	Fuelwood Vol (000 m <sup>3</sup> )
Mango	52,397	18,623	0.205	5,620	13,003
Jack	25,513	5,240	0.058	2,155	3,085
Rain	11,164	5,251	0.058	1,473	3,778
Simul	5,781	2,685	0.029	868	1,817
Bat	745	783	0.009	183	600
Madar	6,208	1,553	0.017	178	1,375
Koroi	10,101	3,365	0.036	940	2,426
Chakua	22	6	0.000	3	3
Jam	5,152	1,438	0.015	355	1,083
Jiul	5,003	725	0.008	103	622
Gab	5,887	954	0.010	170	784
Tetul	2,529	923	0.010	241	683
Bel	1,835	396	0.004	80	315
Pitali	2,729	671	0.007	145	526
Chaatim	820	223	0.002	65	159
Kadam	3,000	679	0.007	174	505
Debdaru	945	152	0.001	34	118
Jarul	2,275	414	0.004	76	337
Sal	283	44	0.000	8	36
Segun	435	83	0.001	18	65
Garjan	94	22	0.000	8	14
Palash	16	5	0.000	0	5
Lichu	836	243	0.003	71	171
Others	54,139	10,727	0.118	1,994	8,733
<b>Total</b>	<b>197,910</b>	<b>55,205</b>	<b>0.601</b>	<b>14,961</b>	<b>40,244</b>

Table 21 - Stock of Trees Up to 20 cm (DDBH) and Greater Than 1.5 m Height by Land Size (ha)  
All Strata

Species	<0.2	0.2-1.0	1.0-3.0.	>3.0	All
Mango	35,590	24,173	13,703	2,854	76,322
Jack	13,246	10,383	6,352	1,583	31,566
Rain	5,393	4,382	3,193	678	13,648
Simul	2,675	1,610	1,058	209	5,553
Bat	245	136	85	27	495
Madar	5,947	4,271	2,589	609	13,418
Koroi	4,279	3,210	2,479	520	10,489
Chakua	4	3	7	0	14
Jam	3,036	2,553	1,672	376	7,638
Jiul	4,150	3,608	1,654	488	9,902
Gab	8,868	6,849	3,887	1,166	20,772
Tetul	1,255	972	504	115	2,847
Bel	1,015	796	422	96	2,329
Pitali	1,518	1,035	628	159	3,341
Chaatim	314	297	186	52	850
Kadam	2,064	1,419	934	166	4,584
Debdaru	1,092	996	653	263	3,005
Jarul	1,195	792	630	256	2,874
Sal	30	218	63	25	337
Segun	155	201	131	199	687
Garjan	47	37	9	4	98
Palash	13	31	2	1	47
Lichu	253	289	199	47	797
Others	48,260	34,267	21,684	5,881	110,094
Total	140,644	102,529	62,724	15,773	321,705

## Palms and Other Minor Forest Products

### 1. Palm Trees

Palm trees, tal (*Borassus Flabellifera*), date (*Phoenix Dactylifera*), coconut (*Coconucifera*) and betelnut (*Areca Catechu*) were counted and recorded during the survey according to their height class. The results are presented in Table 14 and 15. The summary results show per capita availability by maturity class. Among palm trees, the stock/capita is highest for betelnut at 3.66 stems. The per capita availabilities are 0.19 stems for tal, 0.57 for coconut and 0.65 for date palms. These per capita estimates have been calibrated to estimate the national stock of palms. The national stock of the four types of palms for the year 1991 is presented in Table 22. Table 23 summarizes 1981 results. Description of each type is given in the following paragraphs.

From Table 22 it is clear that all types of palm are available in all regions of Bangladesh with some variation in per capita stock.

Table 22 - Palm Stand, 1992

Species with local name	Maturity Class	Stratum						Total
		I	II	III	IV	V	VI	
<i>Borassus flabellifera</i> (Tal)	Mature (nos)	4798.98	489.83	2847.46	6638.17	3366.11	366.18	17374.42
	Immature (nos)	2523.60	222.33	1911.64	4265.57	1971.29	285.55	10472.33
	Total	7322.58	712.16	4759.10	10903.74	5337.40	651.73	27846.75
	Total/percapita	0.199	0.028	0.223	0.632	0.238	0.031	0.191
	Mature no/percapita	0.105	0.013	0.150	0.406	0.139	0.024	0.115
	Immature no/percapita	0.094	0.015	0.073	0.226	0.098	0.007	0.076
<i>Phoenix Dactylifera</i> (date palm)/ (Khejor)	Mature (nos)	9217.06	3420.65	14477.98	13913.28	9395.56	186.81	49477.77
	Immature (nos)	2147.43	596.42	2413.00	2992.67	1842.27	105.08	9713.98
	Total	11364.49	4017.07	16890.98	16905.95	11237.83	291.89	59191.75
	Total/percapita	0.471	0.228	1.323	1.610	0.793	0.025	0.652
	Mature no/percapita	0.382	0.195	1.134	1.325	0.663	0.016	0.545
	Immature no/percapita	0.089	0.034	0.189	0.285	0.130	0.009	0.107
<i>Coconucifera</i> (Coconut)	Mature (nos)	4595.89	3081.41	7408.20	7849.95	9993.09	1555.41	34475.17
	Immature (nos)	2190.76	2098.27	1948.43	3366.58	4060.38	1170.76	14701.16
	Total	6766.65	5179.68	9356.63	11216.54	14053.48	2726.16	51902.49
	Total/percapita	0.281	0.295	0.733	1.068	0.992	0.233	0.573
	Mature no/percapita	0.190	0.176	0.580	0.748	0.705	0.133	0.380
	Immature no/percapita	0.091	0.120	0.153	0.321	0.287	0.100	0.162
<i>Areca Catechu</i> Mature (Betelnut)	Mature (nos)	24852.27	35241.45	15575.96	77704.36	56288.34	33310.60	233861.89
	Immature (nos)	9699.63	20067.80	4532.35	37497.60	22390.63	10309.59	99137.11
	Total	34551.90	55309.25	20108.31	115201.96	78678.96	43620.18	332999.00
	Total/percapita	1.432	3.152	1.575	10.971	5.535	3.737	3.668
	Mature no/percapita	1.030	2.009	1.220	7.400	3.972	2.853	2.576
	Immature no/percapita	0.402	1.144	0.355	3.571	1.580	0.883	1.092

Table 23 - Palm Stand, 1981

Species with local name	Maturity Class	Stratum						Total
		I	II	III	IV	V	VI	
Borassus flabellifera (Tal)	Mature (nos)	996	206	809	1444	838	77	4341
	Immature (nos)	3019	262	2399	3451	1465	119	10641
	Total	4015	468	3208	4895	2303	196	14982
	Total/percapita	0.05	0.01	0.06	0.21	0.07	0.01	0.06
	Mature no/percapita	0.16	0.02	0.19	0.51	0.13	0.01	0.14
	Immature no/percapita	0.21	0.03	0.25	0.72	0.2	0.02	0.2
Phoenix Dactylifera (date palm)/ (Khejor)	Mature (nos)	3309	1055	8208	5273	3672	71	21544
	Immature (nos)	11665	1894	18912	8145	4490	122	45187
	Total	14974	2949	27120	13418	8162	193	66731
	Total/percapita	0.17	0.07	0.65	0.78	0.31	0.01	0.29
	Mature no/percapita	0.61	0.12	1.5	1.2	0.39	0.01	0.61
	Immature no/percapita	0.78	0.19	2.15	1.98	0.7	0.02	0.9
Coconucifera (Coconut)	Mature (nos)	1435	599	3734	3714	3674	269	13373
	Immature (nos)	1066	895	3051	1940	2710	450	10102
	Total	2501	1494	6785	5654	6384	719	23475
	Total/percapita	0.08	0.04	0.3	0.55	0.32	0.03	0.18
	Mature no/percapita	0.06	0.06	0.24	0.29	0.23	0.05	0.14
	Immature no/percapita	0.14	0.1	0.54	0.84	0.55	0.08	0.32
Area Catechu Mature (Betelnut)	Mature (nos)	5970	11410	6983	12233	16494	7920	60801
	Immature (nos)	5135	11665	8304	10143	15076	7060	57269
	Total	11105	23075	15287	22376	31570	14980	118070
	Total/percapita	0.31	0.71	0.55	1.8	1.41	0.95	0.81
	Mature no/percapita	0.27	0.72	0.66	1.49	1.29	0.85	0.77
	Immature no/percapita	0.58	1.43	1.21	3.29	2.7	1.8	1.58

**Tal** - The survey results revealed that in 1991 there were more mature stems than immature ones. The per capita availability is highest in Stratum IV, representing the Southwest region followed by Stratum-V and III representing the West and South of the country. The national stock is 27.85 million stems of which 65% are mature and 35% are immature. Among the total, 26.7% is for stratum I, 2.5% for II, 17% for III, 39% for IV, 19% for V and 2.3% for VI. The stock of Tal has improved from 1981.

**Date palm** - The date palm survey results show that per capita availability is highest in Stratum-IV followed by Stratum-III, V and I respectively. Among the total stems, 83% are mature and only 17% are immature which indicates a declining trend in plantation. Comparative analysis shows that present stock is 59.19 million trees which is less than 1981's stock of 66.73 million.

**Coconut** - The coconut survey result shows that stratum-IV has the highest per capita number at 1.06 stems followed by Stratum-V and III respectively. Of the total, 66% are mature and 34% immature. Present stock is 51.9 million, more than twice the 1981 stock of 23.47 million stems.

**Betelnut** - The betelnut results show that Stratum-IV has the highest per capita number at 10.9 stems followed by stratum-V and VI respectively. The total stock of betelnut has improved to 332.99 million in 1991 from 118.07 million in 1981.

## 2. Canes

Stratum-VI is prominent for growing canes and promoting cane handicrafts. Among the canes, murta and jali are dominant. The results of the cane survey are presented in Table 24.

Table 24 - Cane Clumps/ Capita,1992

Items	1	2	3	4	5	6
Golla	.001	0	0	0	.01	0
Jali	.021	.009	.01	.04	.05	.04
Murta	0	.002	0	0	.05	.12
Total	.023	.011	.01	.04	.11	.16

According to the survey results the calibrated stock volume for the country has been calculated and is presented in Table 25. The stocks are mostly in Stratum-VI and V.

Table 25 - Total Numbers of Cane Clumps, 1992/ 1000

Types	1	2	3	4	5	6	Total
Golla	24.12	-	-	-	141.71	-	165.83
Jali	506.69	157.87	127.67	420.02	708.56	467.02	2387.83
Murta	-	35.08	-	-	708.56	1401.07	2144.71
Total	530.81	192.95	127.67	420.02	1558.83	1868.09	4598.37

A comparative study of cane could not be made with previous studies because the previous studies did not include cane. It is generally believed that the stock has reduced and supply has also dropped in the markets. Consequently, the small and cottage industries dependent on cane are facing a shortage of supply and struggling for survival.

## Other Plant Resources

Among the other less valued trees, horticultural trees are prominent like peara, lebu and banana. The results are presented in the Appendix 4. The results are presented in numbers by strata. Thatch grass was measured in terms of area covered in square feet. The results of the inventory of thatch is also presented in Appendix 4.

## **PUBLIC FORESTRY ATTITUDES**

### **General**

Public attitude survey results reflect the male or female head of sampled households based on data collected by interviews and a predesigned questionnaire. The questionnaire involved 28 questions regarding selected aspects of village forestry. The concerned aspects are:

- a. Attitude towards tree plantation and growing;
- b. Selection of species and location for plantation;
- c. Removal of trees and environment deterioration;
- d. Role of government in promotion of tree plantation, conservation and environment protection;
- e. Attitude towards social or participatory forestry.

Survey compilation separates attitude and opinion on the basis of land class and male-female sex. Appendix 3 has a full copy of the questionnaires used. Appendix 5 includes all the results summarized in the remainder of the section.

### **Results**

Respondants feel that there should be more government initiated plantation and afforestation programmes throughout the country. Because of lack of programmes the respondents could not participate in the past. Ninety five percent of the respondents gave their opinion that more tree should be grown, but among them only 10% planted tree last year. About 48% of the respondents have planted trees at least once in the life time, 52% of them have never planted any trees. This was because of absence of motivation work and support services by the in the rural areas.

Regarding the selection of species, 78% of the respondents prefer fruit trees and 20% timber trees and 2% other species. This result is very much consistent with the general practice in rural areas, because fruit trees provide fruits, fuel, fodder and finally timber. Fruit species generate higher more and a more regular income to the family than timber or other tree types. Most of the plantation raised by the respondents are on the vacant lands, 80% on non-agricultural vacant land and 20% on the embankments and pondside slopes.

Seventy four percent of the respondents would pay for seedlings if made available at a nearby location. Only 22% think government should provide them free of charge as a part of motivation programme. At present many villagers grow their own seedlings but there which are inferior in quality and productivity. Because of development of private nurseries in some parts of the country, 23% of the respondents said they purchased seedlings from private nurseries. Private nurseries could be popular in rural areas if promoted with improved and better quality seed and seedlings.

Availability of the right type and adequate quantity of the seedling is a major limitation to afforestation programme in rural areas. About 50% of the respondents did not get the type of seedlings they wanted, and 54% got fewer then the number wanted. Regarding seedling price, 36% think prices are fair, while another 40% regard it as too high. However, the rural people like to have nurseries in their areas where they can buy saplings of their own choice in sufficient quantity.

Regarding plantation advice and growing techniques, 40% said that extension workers give good advice. The remaining 60% received no advice from extension workers. For advice they mostly depend on their friends and neighbours, only 31% depended on extension worker. Advice is mostly needed on species selection (46%), land suitability (9%) and plantation method (35%). People rely more on printed materials and radio as their tree information source. Effective television was mentioned by few respondents, implying that access to TV is limited for the rural people.

Eighty percent of the respondents replied that national calamities like flood, drought, land deterioration and desertification are the consequence of denudation of villages because of over extraction of forest and trees. This is a good sign that rural people are recognize the environmental hazards caused by deforestation. Therefore, it will be easier for the government to motivate them towards tree plantation. Seventy seven percent believe that severity of natural calamities is lessened through tree plantation. The views and comments of 70% the respondents, imply that government past initiative was insufficient to arrest the problem, only 17% feel that government is taking necessary measures. All people feel that government programme are best if well dispersed throughout the country. Significantly, 64% of the sample villagers had no plantation programme either government or privately supported. Only 7% of responding villagers take part in programme run by the Forest Department, and 10% have other government department programmes for afforestation.

Regarding participatory programme, villagers think they suit implementation on government land, road and rail side strips as well as on flood control embankments. Only 38% know the provisions of benefit sharing arrangements. A full 66% are unaware and do not expect benefits from plantations on the government land. About benefits, 69% of the respondents do not know who gets the benefit. However, 7% mentioned benefit shared by the government with the local bodies and 5% mentioned that village influentials received the major benefits from public plantations.

Responding to the question who should plant on government fallow or denuded land, 20% mentioned the Forest Department, 15% mentioned government agencies, 46% suggested landless poor and 8% said other local institutions. Eighty eight percent of the respondents favour benefit sharing provision with the government or local bodies, if the latter two agencies participated in the programme.

Farmers are found committed when they plant trees in their own land, where they said the tree survival rate is more than 66% and for bamboo about 80%. Respondants are infavour of farmer's group or community forestry to protect trees, otherwise the plantation by the government departments will have the same poor experience as in the past. Agricultural land is the most valuable asset to the farmers, they don't plant trees on agriculture land. So, any plantation programme should not target agriculture land.

According to 93% of the respondants, the growing stock in village trees decreased over the last 5-10 years. Only 4% said village stock increased and 3% said their villages maintain the status quo. This is valuable information for the decision makers and planners. The bamboo response was similar.

Regarding the prices of the forest products, 29% of the respondents replied that they get fair prices for their products while 38% said they don't. Those who do not get fair price said that improved road access and marketing facilities would ensure better price for their products. The remaining 33% did not sell any forest products recently.

**APPENDIX 1**  
**ABBREVIATIONS, TERMS AND CONVERSION FACTORS**



**PROJECT 372001/11-1**  
**FORESTRY MASTER PLAN**  
**BANGLADESH TA 1355-BAN**

**ASIAN DEVELOPMENT BANK**  
**MANILA PHILIPPINES**  
**DATE: AUGUST 31 1992**

**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

**APPENDIX 1**  
**ABBREVIATIONS, TERMS AND CONVERSION FACTORS**

**ABBREVIATIONS**

BCAL	=	Bangladesh Census of Agriculture and Livestock, 1983-84
BSS	=	Bangladesh Bureau of Statistics
BGD	=	Bangladesh Government
BEPP	=	Bangladesh Energy Planning Project
BCSIR	=	Bangladesh Council for Scientific and Industrial Research
BFIDC	=	Bangladesh Forest Industries Development
BCIC	=	Bangladesh Chemical Industries Corporation
BFRI	=	Bangladesh Forest Research Institute
CHT	=	Chittagong Hill Tracts
DBH	=	Diameter at breast height
DBHOB	=	Diameter at breast height over bark
DBHUB	=	Diameter at breast height under bark
DOS	=	Disk Operating System
FAO	=	Food and Agriculture Organization of the United Nations
FD	=	Forest Department
FMPP	=	Forestry Master Plan Project, 1991 ✓
FRM	=	Fibrous Raw Materials
GOB	=	Government of Bangladesh
GDP	=	Gross Domestic Products
GNP	=	Gross National Products
HSC	=	Higher Secondary Certificate
IBM	=	International Business Machine ✓
KNM	=	Khulna News Print Mills
KPM	=	Karnafuli Paper Mills Ltd
LC	=	Land holding Class
LPG	=	Liquified Petroleum Gas
MOP	=	Ministry of Planning
MOEF	=	Ministry of Environment and Forest
NBPM	=	North Bengal Paper Mills Ltd
PC	=	Planning Commission
PDB	=	Power Development Board
QCS	=	Quality Control Supervisors
RWE	=	Round Wood Equivalent
SPPM	=	Sylhet Paper and Pulp Mills Ltd
SSC	=	Secondary School Certificate
SV	=	Standing Volume
TOR	=	Terms of Reference
UNDP	=	United Nations Development Programme
USF	=	Unclassed State Forest

**APPENDIX 2**  
**SAMPLE VILLAGE DETAILS**

(Proj 372001/11-1, App 2)

**STATISTICAL REPORT  
VILLAGE FOREST INVENTORY**

**APPENDIX 2  
SAMPLE VILLAGE DETAILS**

**DINAJPUR (Stratum I)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100001	Dinajpur	Boda	Magura	Lakheraj Gumti and Islampur (1st 1/5th)	534 404 (2020)	831 700 (3518)	148 132 * (659)	25
100002	"	"	Maidandighi	Kismat Hariपुर	782	1611	284	25
100003	"	Pirganj	Begunbari	Bhopla	779	932	144	20
100004	"	"	" Saidpur	Purba Begunbari and Dewanpara	1148 181	1761 127	317 27	25
100005	"	"	Pirganj	Begungaon	538	1227	202	20
100006	"	"	Daulatpur	Ragunathpur 2nd 1/4th	142 (670)	1083 (4333)	165 (661)	20
100007	"	"	Hajipur	Karana	422	1623	294	25
100008	"	"	"	Baje Akannapur Malgaon Badnohali	99 488 162	174 767 243	33 107 43	20
100009	"	"	Pirganj	Saguni Noapara	572	669 493	120 104	20
100010	"	"	Sengaon	Harsua Hasimpur(3rd 1/4th)	515 469	862 469	164 85	20
100011	"	Khansama	Goaldihi	Dewda	445 (1782)	1123 (4491)	215 (863)	20
100012	"	"	"	Hasimpur (4th 1/4th)	445 (809)	1123 (2034)	215 (352)	25
100013	"	Dinajpur Sadar	Sundarban	Sundarban	648 (2594)	1452 (5807)	284 (1137)	25
100014	"	"	Fazilpur	Ranipur (1st 1/2 part)	436 (873)	1425 (2851)	273 (547)	25
100015	"	"	"	Uttar Harirampur	484	1412	243	25
100016	"	"	Shankarpur	Salki (2nd 1/2 part)	402 (905)	1206 (2413)	184 (368)	20
<b>Total</b>						21312	3783	360

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**RANGPUR (Stratum I)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100017	Rangpur	Mithapukur	Pairabond	Jatoshasti Khudromuradpur	196 332	459 1055	86 203	25
100018	"	"	Kafrikhal	Khorda Narayanpur	270	886	188	20
100019	"	"	Latifpur	Khosalpur Hetampur	135 131	468 1154	97 211	25
100020	"	"	Barabala	Barabala(3rd 1/3rd)	486 (1459)	1160 (3481)	209 (627)	20
100021	"	Gobindagonj	Kamdia	Bailgaon Rasiknagar Gayeswarpur	404 202 160	400 381 195	71 68 43	25
100022	"	"	Kamdia	Chiargaon	508	927	205	25
100023	"	"	Kamardaha	Chandpur 1st 1/2	120 (241)	970 (1943)	190 (380)	20
100024	"	"	Kochashahar	Arajishahapur	103	798	168	20
100025	"	"	Kochashahar	Habibpur Bhag Garib	169 336	389 1125	70 231	25
100026	"	Palashbari	Barisal	Dublagari	450	1688	293	25
100027	"	"	Harinathpur	Harinabari 1st 1/2	250 (499)	1116 (2232)	247 (493)	20
100028	"	"	Palashbari	Harinabari 2nd 1/2	252	1198	239	25
100029	"	"	Betkapa	Khamar Narail	351	1044	190	20
100030	"	"	Mohadevpur	Jhalingi	184	1170	209	20
Total						2583	3218	315

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**BOGRA (Stratum I)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population	Household	Household to be surveyed
100031	Bogra	Sherpur	Kusumbi	Bamia Gandail Kella Tunipara	135 310 262	186 605 413	34 125 94	25
100032	"	"	Qaridaha	Bangra	313	1066	193	20
100033	"	"	Khanpur	Bhimjani	243	691	125	20
100034	"	"	"	Bhatra	508	1533	273	25
100035	"	"	Bishalpur	Nandura Mandail Dobila	82 488 226	71 663 380	31 135 64	25
100036	"	"	Sughat	Arji Satara Gowaljani Satibari	159 179 132	280 454 378	62 83 75	25
Total						6720	1294	140

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

RAJSHAHI (Stratum I)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100037	Raishahi	Noagaon	Kirtipur	Tetulia	214	743	136	20
100038	"	"	Dubalhati	Sariipur	589	1305	243	25
100039	"	"	Harshaigari	Bhimpur 2nd 1/3rd	215 (645)	1162 (3425)	218 *(654)	25
100040	"	"	"	Kujagari	185	873	170	20
100041	"	"	Chak Prasad	Dariapur	192	908	159	20
100042	"	"	"	Ramraipur 1st 1/1	350 (701)	979 (1958)	196 (392)	20
100043	"	"	Tilakpur	Adam Durgapur 2nd 1/1	340 (680)	1072 (2145)	197 (394)	20
100044	"	Baraigram	"	Tepagari Ekartara	244 233 (466)	294 1048 (2096)	64 204 (408)	25
100045	"	"	Joari	Brikachutia Kella Mirzapur	222 351 48	420 630 285	58 109 45	25
100046	"	"	Baraigram	Baraigram 3rd 1/3rd	313 (939)	1064 (3193)	160 (481)	20
100047	"	"	Nagar	Baghat Baradaha	114 291	406 411	78 67	20
100048	"	"	Majgaon	Mahish Bhanga 1st 1/2	305 (611)	1065 (2130)	158 (316)	20
100049	"	Singra	"	Majhgaon 2nd 1/3rd	441 (1322)	768 (2303)	158 (371)	20
100050	"	"	Kalam	Jagatpur Ram Krishnapur	79 121	424 714	68 134	25
100051	"	"	"	Naiarpur	101	1372	221	25
100052	"	"	"	Nasirkandi 2nd 1/6th		1200 (7240)	201 (1206)	25
100053	"	"	Chamari	Mahis Mari 4th 1/4th	512 (2049)	1355 (5420)	231 924	25
100054	"	"	Hatiaandaha	Kazipura Chakparanpur Uttar Sajura Arkandi	159 51 94 157	489 130 214 406	74 16 38 76	20
100055	"	"	Lalore	Hazipur/ (2nd 1/3) Barasadrail	409 (1227)	1080 (3240)	181 (543)	20
100056	"	"	"	Uttar Dakdhar	424	1672	263	25
100057	"	"	"	Dakshindanga Para Rambati	105 31	705 120	182 16	25
100058	"	"	Chamari Singra	Ataikula Lalre 1st 1/2 part	343 276 (553)	733 846 (1693)	109 137 (275)	25
100059	"	"	Sharkol	Raninagar 5th 1/8th	109	1175	220	25
100060	"	"	"	Hata Singra parajoy Nagar	31	1281	173	20
100061	"	"	"	Parchak Ningain 1st 1/2	80 428 (848)	195 954 (1908)	31 1378 (273)	20
Total						28498	5852	560

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**PABNA (Stratum I)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
							200	25
						1124	*(1199)	
100062	Pabna	Kazipur	Tekani	Uttar Burungi 1st 1/3	735 (2214)	(6740)	200	25
100063	"	"	"	Dakshin Burungi 2nd 1/3rd	735	1123	200	25
100064	"	Tarash	Char Girish	Kumariabari	1251	1888	324	20
100065	"	"	Baruhash	Langalmaria Digharia	133 1021	284 1324	48 217	25
100066	"	"	"	Monoharpur Barapota	761 355	662 346	118 65	20
100067	"	"	Saguna	Kundail (2nd 1/3rd)	607 (1395)	1026 (2051)	154 (308)	20
100068	"	"	Noagaon	Kalidasniti Bhatra	331 320	704 773	106 137	25
100069	"	"	Madhainagar	Saruppur (Sherajpur)	696	1130	187	20
100070	"	Ullapara	Bangala	Biraekpur (1st 1/2)	448	910 (1971)	159 (318)	20
Total						11288	1915	200

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**TANGAIL (Stratum II)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100091	Tangail	Mirzapur	Fatehpur	Chakaleshwar	462	918	164	20
100092	"	"	"	Sutanari	221	953	184	25
100093	"	"	Banail	Bhushandi	333	867	143	20
100094	"	"	"	Bhabkanda (1st 1/2)	315 (630)	1540 (3080)	282 (564)	25
100095	"	"	Anaitara	Fatepur (3rd 1/3rd)	152 (457)	1087 (3253)	200 (599)	25
100096	"	"	"	Charbilsa (1st 1/2)	404 (808)	1541 (3082)	245 (490)	25
100097	"	"	"	Mandirpara (Datpara)	235	804 909	114	20
100098	"	"	Bahuria	Geramara	286	1085 (3255)	150	20
100099	"	"	"	Diglulia (3rd 1/3rd)	330 (990)		175 (525)	20
Total						9704	1657	220

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

## DHAKA (Stratum II)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100071	Dhaka	Dohar	Muksudpur	Muksudpur 2nd 1/4th	269 (1076)	1464 (5857)	265 (1063)	25
100072	"	"	Muksudpur	Muksudpur 4th 1/4th	269 (1076)	1464 (5857)	265 (1063)	25
100073	"	Manikganj	Putail	Boroghosta 1st 1/3rd	333 (999)	1015 (3044)	198 (594)	25
100074	"	"	"	Bhatti	165	1166	222	25
100075	"	"	"	Hijlain	789	1067	208	25
100076	"	"	Bhararia	Baruna	521	1171	131	25
100077	"	Sreenagar	Kukuria	Munsia	127	646	191	20
100078	"	"	"	Haria 1st 1/2 part	248 (496)	1001 (2002)	168 (336)	20
100079	"	Lohajanj	Medini Mondol	Jasaldia 2nd 1/3rd	195 (586)	1146 (3448)	217 (653)	25
100080	"	"	"	Medinimondol	404	2073	341	25
100081	"	"	Halidia	Uttar Haldia 2nd 1/3	255 (765)	1238 (3715)	203 (610)	25
100082	"	"	Lohajang	Dighlia	327	3687	543	25
100083	"	"	Khidirpara	Berikhola (Kholapar) Molni	78 83	573 583	72 74	20
100084	"	Bandar	Bandar	Lambardari Bibigaor		860 137	174 30	25
100085	"	"	Madanpur	Madanpur		1510	250	25
100086	"	"	Klagachia Fatehpur	Bara Baraikhali Balia Tarraria Naigoan (Naikahan)	71	453 336 131 419	85 61 22 76	20
100087	"	Araihazar	Duptara	Tingaon Palla	116 114	540 750	100 143	25
100088	"	"	Araihazar	Kamarangirchar 3rd 1/3	228 (686)	1268 (3803)	237 (713)	25
100089	"	"	"	Nagerchar Krishnapur	21 27	272 441	56 92	20
100090	"	"	"	Noapara	156	1598	311	25
Total						28498	5852	450

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

MYMENSINGH (Stratum II)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
						1181 (1789)	201 *(305)	25
200106	Mymensingh	Haluaghat	Amtail	Dhopaguchina 1st and 2nd 1/3rd	430 (644)	511 532	84 81	20
200107	"	"	Swadeshi	Gajipur Matikata	332 190	912 (1825)	170 (340)	20
200108	"	Dhobaura	Bildora	Koilati 1st 1/2 part	453 (906)	1973	359	20
200109	"	Phulpur	Rambhadrapur	Char Bahadurpur	710	525 413	103 79	20
200110	"	"	Phulpur	Madhonagar Kakra	193 189	1038	182	20
200111	"	Ishwargoni	Rajibpur	Mamreipur	553	723 511	138 103	25
200112	"	"	Jatia	Bijoypur Fatepur	141 107	1639	253	25
200113	"	"	"	Kumaruli	598	1639	280	25
200114	"	Nandail	Jahangirpur	Darilla	497	251 733	59 146 (292)	20
200115	"	"	Rajgati	Gatipara Ulahati 1st 1/2 part	220 272 (544)	634 869 (1739)	117 161 (323)	25
200116	"	"	Singrail	Alaboxpur Haripur 1st 1/2	150 309 (618)	1209 (4837)	214 (857)	25
200117	"	"	Achargao	Singdai 3rd 1/4th	397 (1591)	1165 (2330)	259 (438)	20
200118	"	"	Kharua	Moheshkhura 1st 1/2	145 (290)	1593 (9559)	259 (1554)	25
200119	"	"	Jahangirpur	Uttar Jahangirpur (Chandirpur) 3rd 1/6	358 (2310)	395 153 323 (646)	76 33 60 (120)	25
200120	"	Ishwargong	Barahit	Chandir Sathea Yusufabad Saoti 1st 1/2	89 23 110 (220)			
200121	"	Karimganj	Dehunda	Khamardohunda 2nd 1/	(570)	(3166)	(629)	25
200122	"	"	Nimatpur	Nimatpur 6th 1/8th	129 (1009)	983 (7868)	203 (1625)	25
200123	"	"	Joyka	Nansree 1st 1/7th	203 (1421)	1004 (7030)	210 (1472)	25
200124	"	"	"	Kandail 2nd 1/5th	170 (894)	1112 (5561)	230 (1193)	25
200125	"	Noabad		Ulokhola Baijpotdha	479 130	2342 798	456 170	20
200126	"	Jafarabad		Sadarejangal	188	1238	259	25
100127	"	"	"	Jofrabad	566	2436	501	25
100128		Tarail	Rauti	Mechhgaon		435	1160	221
Total						29995	5852	540

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.



**JAMALPUR (Stratum II)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
100100	Jamalpur	Sharishabari	Pinga	Barai Patal (1st 1/3)	360 (1077)	1200 (3627)	203 (608)	25
200101	"	"	"	Basuria (2nd 1/2 part)	293 (586)	1352 (2704)	254 (508)	25
200102	"	Jamalpur	Meshta	Chatiani Haribari Birfulbari	22 111 12	121 278 628	26 49 120	25
200103	"	"	Shahabajpur	Paiahtola 2nd 1/4th Saunia	326 621	1513 2034	308 407	25
200104	"	Nalitabari	Rajnagar	Baradubi 3rd 1/5th Dohalia	600 908	1263 3627	262 772	25
200105	"	Jhenaigati	Hatibandha	Malijhkanda 1st 1/5gh	243 (1215)	1016 (5082)	209 (1045)	25
Total						11519	2610	150

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**KUSHTIA (Stratum III)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
300129	Kushtia	Daulatpur	Pragpur	Mayrampur 1st 1/4th (Narayanpur)	315 (1262)	1396 (5584)	234 *(939)	25
300130	"	"	Boalia	Sahala (Teligangdi) 2nd 1/4th	402 (1930)	1385 (5543)	234 (939)	25
300131	"	"	Refayetpur	Khalisha Kundu	764	1439	224	25
300132	"	"	Moricha Hogolbaria	Barkapara 1st 1/2 Char (Sadipur) 2nd 1/2	373 (747)	670 (1340) 847 (1694)	108 (216) 133 (267)	25
300133	"	"	Mothurapur	Bagoan 3rd 1/4th	300 (1203)	1106 (4427)	187 (748)	20
300134	"	"	"	Majdhia 2nd 1/2 part	271 (543)	1117 (2234)	190 (381)	20
300135	"	"	Philipnagar	Chardiar (Poalbaria)	12	1091	173	20
300136	"	Meherpur	Kutubpur	Teragharia	1062	1427	247	25
300137	"	"	Buripota	Kamdebpur	634	1194	182	20
300138	"	"	"	Harirampur 2nd 1/2	637 (1275)	1099 (2198)	183 (367)	25
Total						2771	2095	230

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**JESSORE (Stratum III)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
300139	Jessore	Moheshpur	Pantapara	Manikdighi Mothura Nagar	647 940	657 715	97 118	25
300140	"	"	Nepa "	Hudapara Kanchanpur	246 411	400 829	56 128	20
300141	"	"	"	Bauli	1140	1045	156	20
300142	"	"	Kazirber	Samanta Gopalpur 3rd 1/5th	667 (3338)	1496 (7484)	* (1189)	25
300143	"	"	Bansbaria	Basbaria	1115	1662	257	25
300144	"	Chudanga	Sukpukhuria	Makapur	325	1171	185	20
300145	"	"	Narayanpur "	Mangirpara Barakanpur	176 627	204 1252	33 201	25
300146	"	Jhenaidah	Naldanga "	Dakhin Durgapur Bhitar 1st 1/2	372 360 (737)	569 675 (1351)	97 106 (213)	25
300147	"	Harinakundu	Harinakundu	Chithulipara	742	843	140	20
300148	"	"	Kapashatia	Dariapur	439	931	143	20
300149	"	"	Harinakundu	Kulbaria 2nd 1/2	590 (1180)	1670 (3341)	254 (509)	25
300150	"	"	Raghunathpu r	Raghunathp ur 1st 1/2	316 (633)	985 (1971)	173 (347)	20
300151	"	"	"	Porahati	730	1647	247	25
300152	"	"	"	Srifaltala	545	1370	202	25
Total						18130	2830	320

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**BARISAL (Stratum IV)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
300169	Barisal	Uzirpur	Harta	Natharkandi 2nd 1/3rd	415 (1247)	1108 (3326)	288 *(576)	20
300170	"	"	Otra	Kesabkathi 6th 1/6th	227 (1362)	1048 (6290)	195 (1171)	20
300171	"	"	"	Chakman	264	1542	280	25
300172	"	"	Sholak	Dattasar	515	1544	301	25
300173	"	"	"	Andharmanik Baharkathi	160 100	722 617	140 105	25
Total						6581	1309	115

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**FARIDPUR (Stratum III)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
300153	Faridpur	Shibchar	Dattapara	Uttar Chartajpur 2nd 1/2 part	355 (710)	1105 (2211)	206 *(413)	25
300154	"	"	Kutubpur	Kutubpur 7th 1/8th	270 (2167)	1082 (8663)	210 (1748)	25
300155	"	"	"	Kutubpur 8th 1/8th	270	1083	218	25
300156	"	"	Shibchar	Nalgora 1st 1/3rd	149 (449)	1015 (3046)	205 (616)	25
300157	"	"	"	Keranirbat	344	1167	210	25
300158	"	Faridpur Sadar	Krishna Nagar	Chilarkandi Nayarpur	249 283	671 510	102 182	25
300159	"	"	Greda	Dhuldi Nikhurdi	157 196	283 1096	42 187	25
300160	"	"	"	Keshab Nagar 1st 1/2	476 (953)	1106 (2213)	190 (381)	20
300161	"	"	Aliabad	Aliabad 4th 1/5th	419 (2095)	897 (4487)	153 (763)	20
Total						10015	1905	215

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**KHULNA (Stratum III)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
300162	Khulna	Dumuria	Bhandar Para	Durjonimohal (Dathinmehal)	76	235	31	20
300163	"	Kolaroa	Murarikati	Alaipur (Mirzapur)	954	1745	270	20
300164	"	Dumuria	Dumuria	Yousufpur (Katenga)	969	2058	326	20
300175	"	Terokhada	"	Adampur				20
300176	"	Terokhada	Sagladah	Nebudia	4635	8532	1353	25
300177	"	"	Kushadanga	Junari	926	2206	357	20
300178	"	Dumuria	Radughara	Kusia	2281	4604	860	25
300179	"			Samontosena				20
Total						19380	3197	170

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**KHULNA (Stratum IV)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
4001757	Khulna	Kaliganj	Bishnupur	Mukunda 2nd 1/3rd Madhusudanpur	148 (436)	268 (2150)	47 *(366)	20
400176	"	"	Kushlia	Kushlia 4th 1/4th	255 (1020)	793 (3173)	132 (528)	20
400177	"	Shyamnagar	Bhurulia	Chalta Ghata	222	807	162	20
400178	"	"	Koikhali	Koikhali 2nd 1/8th	603 (4825)	1166 (9334)	202 (1621)	25
400179	"	"	" " Symnagar	Kankerghata Murjapur Jadabpur	109 387 523	248 191 1000	57 35 157	25
Total						4473	792	110

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**PATUAKHALI (Stratum IV)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
400180	Patuakhali	Patuakhali Sadar	Marichbunia	Guabaria Tafal Baria Arazigerakhali	107 573 138	252 1301 195	48 220 38	25
400181	"	Bauphal	Kachipara	Mandarban	366	1076	182	20
400182	"	"	"	Karkhana 1st 1/4th	441 (1765)	1140 (4593)	190 *(762)	20
400183	"	"	Dhulia	Ghurchakati 4th 1/4th	335 (1343)	1216 (4867)	204 (816)	25
400184	"	"	"	Alokichandkati 1st 1/2 part	387 (775)	1116 (2233)	179 (358)	25
400185	"	"	Suryamani	Goaliabagha 2nd 1/2	419 (839)	116 (2320)	184 (368)	20
400186	"	"	"	Narayanpur 1st 1/2	462 (925)	1321 (2643)	213 427	25
Total						7733	1885	160

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

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COMILLA (Stratum V)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
500199	Comilla	Barur	Uttar Deora	Shusunda	341	1459	254	25
500200	"	"		Puran Kedba	384	1378	218	25
500201	"	"	Dakshin Shilmuri	Lagnassar 2nd 1/2	358 (716)	1416 (2833)	236 *(473)	25
500202	"	"	"	Balua 2nd 1/2 part	241 (483)	935 (1871)	175 (350)	20
500203	"	"	Uttar Payalgacha	Kazkanta Deorpal	158 44	799 231	132 50	20
500204	"	"	Dakshin Pavalgacia	Maisair Kalikapur	242 110	1104 410	191 68	25
500205	"	Chandpur	Mahishadi	Goal Nagar (Enayet Nagar)	265	1480	231	25
500206	"	"	Bishnupur	Monohorkhandi 4th 1/4	161 (647)	1014 (4056)	178 (714)	20
500207	"	"	Purba Ashikati	Raldia 1st 1/3rd	189 (569)	1132 (3396)	197 (593)	20
500208	"	"	Pashchim Ashikati	Dasdi 2nd 1/3rd	184 (552)	1177 (3533)	227 (682)	25
500209	"	"	"	Pathlia Kalayandia 1st 1/4th	102 160 (640)	475 1039 (4158)	74 179 (717)	25
500210	"	"	Uttar Rampur	Mandari	327	1473	272	25
500211	"	"	Dakshin Rampur	Kamranga 1st 1/2	181 (363)	1060 (2121)	198 (397)	20
500212	"	"	Mahishadi	Silindia 1st 1/2	127 (254)	888 (1776)	147 (294)	20
500213	"	"	Tarpur Chandipur	Gumrajdi 2nd 1/3rd	115 (346)	1281 (3844)	226 (678)	25
500214	"	"	Ibrahimpur	Jafrabad 6th 1/6th	177 (707)	987 (5927)	150 (904)	20
Total						19738	3403	365

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**BARISAL (Stratum IV)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
400187	Barisal	Babuganj	Agarpur	Ghoshkati (Ramjankati)	363	1545	267	25
400188	"	"	Dehargati	Bhirchar 1st 1/2 (Khandrakati)	347 (694)	1237 (2475)	212 *(424)	25
400189	"	"	Kedarpur	Pasheim 2nd 1/3rd (Bhutadia)	300 (902)	1138 (3415)	202 (606)	25
400190	"	Barisal Sadar	Chandpur	Chandpur 2nd 1/3rd	306 (1160)	1033 (3100)	186 (560)	20
400191	"	"	Tungibaria	Baraikandi (Chandramohan)	377	1098	207	25
400192	"	"	Chandramahan	Chagratum Char 2nd 1/3rd part	519 (1558)	1156 (3469)	184 (553)	20
400193	"	Jhalokati	Binoykati	Gagan	496	1224	226	25
400194	"	"	Keora	Sarangal	328	1307	265	25
400195	"	"	Kirtipash Binoykati	Mirakati (Baharampur) Bhoirashpur	186 323	551 594	121 90	25
400196	"	"	"	Bhikampur (Bajidpur)	334	929	158	20
400197	"	"	Shekherhat	Guatan 2nd 1/2	224 (448)	1001 (2002)	173 (347)	20
400197	"	"	"	Surjugpotappur 1st 1/2 part	407 (815)	1451 (2903)	282 (564)	25
Total						14264	2573	280

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

NOAKHALI (Stratum V)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
500215	Noakhali	Ramgati	Char Kadira	Char Pagla 6th 1/6th	208 (1729)	1195 (7173)	199 *(1192)	20
500216	"	"	Char Bedama	Char Shita 2nd 1/6th	303 (1821)	427 (2563)	69 (418)	25
500217	"	"	"	Char Kalakupa 1st 1/3	1311 (3935)	1564 (4693)	252 (765)	25
500218	"	"	Char Alexander	Dakshin Char 18 1/25 (Alexander)	523 (13098)	1556 (38904)	286 (7163)	25
500219	"	"	Char Abdullah	Char Abdullah 5th 1/5th	1229 (7646)	1067 (5336)	174 (873)	20
500220	"	"	Char Algi	Char Algi 10th 1/10th	199 (1998)	824 (8240)	140 (1407)	20
500221	"	"	Char Ramiz	Char Ramiz 2nd 1/8th (Char Jagalia)	366 (2935)	926 (7412)	160 (1284)	20
500222	"	"	Hazirhat	Ragunatpur 7th 1/15th	341 (5117)	1337 (20060)	145 (3680)	25
500223	"	"	Barakheri	Barakheri 5th 1/15th	306 (4603)	1355 (20336)	190 (2857)	20
Total						10251	1615	200

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

CHITTAGONG (Stratum V)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
500224	Chittagong	Mirsarai	Wahedpur	Wahedpur 8th 1/8th	277 (2216)	1200 (9603)	205 *(1640)	25
500225	"	Sitakundu	Bariyadala	Mohannagar	322	1467	282	25
500226	"	"	Saidpur	Syedpur 3rd 1/5th	452 (2261)	1273 (6369)	222 (1114)	25
500227	"	"	"	Kheaydarkheal 2nd 1/2	193 (386)	1076 (2153)	200 (400)	25
500228	"	"	Sitakundu	Mohadebpur 2nd 1/6th (Outside Upozila Centre)	172 (1033)	3997 (23986)	239 (1434)	25
500229	"	"	Sitakunda	Amirabad 2nd 1/2	124 (248)	1062 (2125)	189 (379)	20
500230	"	"	Muradpur	Chotowkumira 3rd 1/3rd	80 (240)	907 (2721)	150 (450)	20
500231	"	"	Sonaichhary	Modha 1st 1/6th part (Sonaichary)	202 (1217)	1088 (6531)	177 (1065)	20
500232	"	"	"	Modha 6th 1/6th part (Sonaichary)	202 (1217)	1088 (6531)	177 (1065)	20
500233	"	Satkania	Bajalia	Arntoli (Mahalia)	2639	1358	242	25
500234	"	"	Nalua	Padua (Nalua) 2nd 1/4th	263 (1055)	1266 (5065)	169 (876)	25
500235	"	"	"	Padua (Nalua) 3rd 1/4th	263 (1055)	1266 (5065)	169 (876)	25
500236	"	"	"	Padua (Nalua) 4th 1/4	265 (1055)	1267 (5065)	200 (876)	25
500237	"	Maheskhal i	Kalarmarchhara	Uttar Nabila 1st 1/3	472 (1417)	1207 (3621)	172 (516)	25
500238	"	"	Saflapur	Saflapur 1st 1/6th	271 (1630)	1277 (7664)	218 (1309)	25
500239	"	"	"	Dailarpara	215	950	142	20
500240	"	Cox's Bazar	Idgaon	Purba Boalkhali	512	1537	273	25
Total						19665	2880	400

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.



SYLHET (Stratum VI)

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
600248	Sylhet	Jagannathpur	Mirpur	Mirpur	216	890	139	20
600249	"	"	Mirpur	Jagatpur (Jaipur)	165	1381	242	25
600250	"	Bahudal	Putijuri	Adiryapur	602	192	213	25
600251	"	"	Bhadeshwar	Raghampur (Rashidpur) Ujirpur (Kashirampur)	320 290	431 704	96 122	25
600252	"	"	Satkapan Bahubal	Satkapan Karimpur	348 151	1010 602	193 136	20
600253	"	Jagannathpur	Jagannathpur	Shahapur (Bhabanipur) Bharatpur 1st 1/3rd	261 (446)	836 (3047)	110 *(450)	25
600254	"	"	Pailgaon	Ramanathipur 2nd 1/2 Hariharpur	(2062) 25	(2780) 140	(404) 17	25
600255	"	"	"	Bhabanapur 2nd 1/3rd	(446)	(3047)	(450)	20
600256	"	"	Raniganj	4th 1/4th part Brahmangaon (Balisri)	(229) 2298	(472) 3921	(69) 552	25
600257	"	Sylhet Sadar	Saidpur Shahapara Kandigaon	Galgaon (Gothgaon) Gopinathpur Balaura (Bilazour)	364 1592	658 656	100 82	25
600258	"	"	Hatkhola	Barokopal (Fakirergaon)	846	1480	269	25
600259	"	"	"	Lakhagaon	1009	1371	195	25
600260	"	"	Mogalgaon	Ausha (Rangaloti) 1st 1/2 part	(614)	(2174)	(334)	20
600261	"	"	Lamakazi	Raynagar (Dewanangar) Sunarpara Dewanbagh (Sunapur)	105 166	298 308	57 46	20
600262	"	"	Dasghar	Rustampur (Dashgar) 1st 1/4th part	624 (2135)	1684 (5403)	225 (818)	25
600263	"	Chunarghat	Shatiajuri	Daragaon	124	1648	270	25
600264	"	"	Chunarghat	Joarjikia (Jajhta)	239	495	83	25
			"	Karimpur	183	196	68	
			Chunarghat	Chhanua (Churta)	190	722	125	
600265	"	"	Ubahata	Raghurampur	84	215	45	25
			"	Haripur	176	451	74	
			Ranigaon	Kutirpur (Pachargaon)	290	1098	181	
<b>Total</b>						21488	3640	425

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**MYMENSINGH (Stratum VI)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
600241	Mymensingh	Astagram	Astagram	Astagram 9th 1/10	53 (532)	1242 (12427)	200 *(2007)	25
600242	"	"	"	Kirishnanagar 1st 1/3rd	415 (1245)	1072 (3218)	153 (460)	20
600243	"	"	Adampur	Vatua (Bhatura) 1st 1/2	363 (726)	984 (1969)	171 (342)	20
600244	"	"	Abdullapur	Abdullapur 1st 1/6th	886 (5318)	1393 (8360)	187 (1126)	25
600245	"	"	"	Abdullapur 4th 1/6th	281 (1687)	851 (5108)	118 (710)	20
600246	"	"	Nagar	Ikurdia (Tatia)	673	1147	176	20
600247	"	Nikli	Mitamain	Gorbond Mista	831 203	143 801	77 139	20
<b>Total</b>						7633	1221	150

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**COMILLA (Stratum VI)**

Sl. No.	District	Upazila	Union	Village	Area (Ha)	Population 1981	Household 1981	Household to be surveyed
600266	Comilla	Nabinagar	Shyamgram	Shabazpur 1st 1/3rd	302 (917)	1143 (3528)	162 *(585)	20
600267	"	"	"	Shayamgram 2nd 1/4th	333 (1300)	1110 (4442)	192 (771)	25
600268	"	"	Ibrahimpur	Shuhata Bhelanagar	250	942	159	20
600269	"	Bancharampur	Purba Tejkhali	Akanagar 3rd 1/3rd	333 (999)	1207 (3621)	212 (638)	25
600270	"	"	Devia Daulat	Santipur (Tatuakandi)	438	1741	256	25
<b>Total</b>						6143	981	115

\* Figures in parenthesis represented the whole village where part of the village is selected for the survey.

**APPENDIX 3**  
**SURVEY QUESTIONNAIRE**

**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

**APPENDIX 3**  
**SURVEY QUESTIONNAIRE**

District \_\_\_\_\_  
 Upazila \_\_\_\_\_  
 Village \_\_\_\_\_  
 Population of Village \_\_\_\_\_  
 Name of Household owner \_\_\_\_\_  
 \_\_\_\_\_  
 Income (monthly) \_\_\_\_\_

FORESTRY MASTER PLAN 1991-1992  
 SURVEY OF WOOD & BAMBOO IN VILLAGE FORESTS  
 A) AVAILABILITY  
 B) CONSUMPTION  
 C) PUBLIC ATTITUDES

Group \_\_\_\_\_  
 Enumerator \_\_\_\_\_  
 Supervisor \_\_\_\_\_  
 Date \_\_\_\_\_

Sample No 

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1. General  
 Number of family Member: Total \_\_\_\_\_ (Male \_\_\_\_\_ Female \_\_\_\_\_ Minors \_\_\_\_\_)

Main Occupation: 1) Farming 2) Fishing 3) Dairy/Poultry 4) Crafts   
 5) Labourer 6) Small trade 7) Service 8) Other.....

Land Ownership (acres): 1) Less than .50 2) .50 to <2.50   
 3) 2.50 to <7.5 4) 7.5 & above.....

2. Livestock (number): a) Cattle \_\_\_\_\_ b) Buffalo \_\_\_\_\_  
 c) Goat \_\_\_\_\_ d) Sheep \_\_\_\_\_ e) Others \_\_\_\_\_

**CONSUMPTION QUESTIONNAIRE**

**PART II**

1. Fuel Consumption  
 a) Quantity:

Item	Unit	Qty consumed				Total Annual	How obtained (1-5)*
		yester-day	Last 7 days	Dry season weekly	Wet season weekly		
Firewood Proper	seer						
Branches	seer						
Tree Waste**	seer						
Bamboo	seer						
Agri. Residue***	seer						
Cow dung	seer						
Charcoal	seer						
Oil, Gas, Electric	liter						

\* 1) Own production 2) Purchased 3) Collected from elsewhere  
 4) Part own, part purchased or collected 5) Don't know  
 \*\* Leaves, Twigs, Roots  
 \*\*\* Rice husk hay, jute sticks

- b) If collected who collects material? 1) Owner 2) Family members 3) Paid servants 4) Others(specify) \_\_\_\_\_
- c) How many days in each week is spent in collection?  
 1) One day per week 2) Every day 3) More than 1 but less than 3 4) 3 to 5 days 5) Don't know .....
- d) How far one has to go to collect fuel?  
 1) Less than a mile 2) 1 to 3 miles 3) More than 3 miles .....
- e) How long it takes to collect a week's fuel? \_\_\_\_\_
- f) How would you rank availability of fuel in your area?  
 1) Scanty 2) Ample 3) Abundant 4) Don't know.....
- g) How has availability changed during last 5 years?  
 1) Decreased greatly 2) Decreased slightly 3) Same 4) Increased slightly 5) Increased greatly 6) Don't know.....
- h) If any cowdung is burnt, would the farmer like to divert part burnt as manure? if so, how much?  
 1) All 2) Half 3) Less than half 4) Don't know.....
- i) how the data were collected \_\_\_\_\_
2. Fodder
- a) Do you grow or collect any fodder? 1) Yes 2) No.....
- b) If yes, mention what kind?  
 1) Agricultural waste 2) Fodder Crop 3) Tree.....
- c) Do you at times divert part of the fodder to fuel use? 1) Yes 2) No....
- d) If yes, at what season? 1) Winter 2) Summer 3) Rains.....
- e) If yes, at what proportion?  
 1) Less than quarter 2) Half 3) Three quarter or more.....
- f) How far one has to go to collect fodder?  
 1) Less than a mile 2) 1 to 3 miles 3) More than 3 miles .....
- g) How long it takes to collect a weeks fodder? \_\_\_\_\_
- h) How has availability changed during last 5 years?  
 1) Decreased greatly 2) Decreased slightly 3) Same 4) Increased slightly 5) Increased greatly 6) Don't know.....
- i) How would you rank availability of fodder in your area?  
 1) Scanty 2) Ample 3) Abundant 4) Don't know.....

3. Building Materials

- i) Main Buildings  
 a) Roofs, Ceilings & walls:

Member	External/ Cladding material	Quantity in Structural members			Replacement within last 12 months		
		Wood vol.(cft)		Bamboo	Others	material	qty/no
		sawn	round	number	name & qty		
Roofs							
Ceilings							
Walls							

- b) Doors, Pillars, Windows:

Member	Wood vol.(cft)		Bamboo number	Others Name & quantity	Replacement in 12 months	
	sawn	round			Material	Qty/number
Doors						
Pillars						
Windows						

ii) Other Buildings

	Wood vol.(cft)		Bamboo number	Others Name & quantity	Constructed in the last 12 months (number)
	sawn	round			
Kitchens					
Latrines					
Others					

Use the following relationship for calculating volume of timber/wood, number of whole bamboo, weight of jute stick/thatch under each category (i.e.Pillar, Window, Door, Wall, Roof etc.) as follows:

1 whole bamboo	= 25 rft	1 pillar of bamboo	= 10 ft
1 muli bamboo gives tarja	= 5 sft	1 standard pillar(wood)	= 3 cft
1 bundle of jute stick	= 2 seer	1 window (solid wood)	= 1 cft
1 bundle of Sun Grass	= 5 seer	1 wooden door (solid)	= 2 cft

iii) Fencing:

Type - Jute stick, Bamboo matting, others	Length	Material quantity used			
		Wood volume(cft)		Bamboo number	Others
		sawn	round		

4. Furniture

i) Wooden furniture

Item	Volume /unit (cft)	Total Number	No.obtained in the last 12 months	Remarks about special items
Bed cot (standard)	4.5			
Bed cot (decorated)	6.0			
Table with drawer(4'x3')	3.0			
Table - normal(3'x2')	2.0			
Chair(all wood)- armless	0.8			
Chair(all wood)-with arm	1.3			
Chair (cane seat)	0.8			
Almirah - no glass	5.0			
Almirah	4.0			
Bench - high	2.0			
Bench - seat	1.5			
Bench - arm & back	2.5			
Shelf	2.5			
Pira	0.5			
Box	5.0			
Alna	1.5			
Bed-stead(Chowki)	3.0			
Bed-stead(Chowki)-single	2.5			
Desk - standard	3.0			
Stool	0.5			

ii) Cane furniture

Item	Cane type	cane length /piece(rft)	Bamboo rft per piece	Total number	Number obtained in the last 12 month
Lawn Chair- single	Golla	75			
Lawn Chair- double	Golla	110			
Table - central	Golla	35			
Table - side	Golla	30			
Mura - round	Jali	80			
Mura - chair	Jali	250			
Suitcase	Jali	100			
Cradle	Golla	70			

5. Agricultural Implements

Item	Volume of wood per piece (cft)	Bamboo length per piece (rft)	Total number owned	Number obtained in the last 12 months
Plough	5			
Ladder	3			
Dheki	2.5			
Rice Pounder	5			
Spade/Axe handle	0.05			
Polo				
Topa				
Jhaka/Tukri/Jhuri				
Kholui/Mathal				
Grain Storage bin				

6. Transportation

Items	Wood volume per piece(cft)	Bamboo length per piece(rft)	Total number owned	Number purchased in the last 12 months
Boat-Below 15'				
Boat-15' to 30'				
Boat-Above 30'				
Cart				
Rickshaw				
Dulee				
Palki				
Others				

7. Sales and Purchase

a) Actual:  
If the householder bought or sold any wood or bamboo within the last 12 months, fill out this table.

	Qty sold (cft)	Sale price/unit	Sold to*	Qty purchased (cft)	Purchase price/unit	Purchased from*
Timber round						
Timber sawn						
Fuelwood						
Bamboo						

\* 1 - Person from same village      2 - Outsider from another village  
3 - Outsider from town/Market      4 - Don't know

b) Harvest:

If the householder harvested within last 12 months any tree over 24" girth BHOB, record if possible with species.

Species	Girth	Number



**APPENDIX 4**  
**SURVEY RESULTS**

(Proj. 372001/11-1, App. 4)

**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

**APPENDIX 4**  
**SURVEY RESULTS**

**I. BAMBOO GROWING STOCK**

**1a - Bamboo Resources by Species - All Strata Per Capita**

Species	Mature Culms	Immature Culms
Katabash	0.01	0.02
Bariala	0.12	0.11
Barua	0.63	1.11
Jai	0.52	0.83
Makhal	0.65	0.78
Orah	0.04	0.17
Kaliseri	0.05	0.12
Tarala	0.23	0.14
Barak	1.38	2.60
Mitinga	0.12	0.15
Muli	0.14	0.23
Others	0.39	0.76
Total	4.27	7.00

**1b - Stock of Bamboo Resources by Species - Stratum I**

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	0.00	0.00	205.09	0.01
Bariala	3486.56	0.17	6973.11	0.34
Barua	20919.34	1.02	27277.18	1.33
Jai	15792.05	0.77	26251.72	1.28
Makhal	39377.58	1.92	46145.61	2.25
Orah	410.18	0.02	1230.55	0.06
Kaliseri	1435.64	0.07	4101.83	0.20
Tarala	11690.22	0.57	20509.16	1.00
Barak	58040.92	2.83	113005.46	5.51
Mitinga	615.27	0.03	615.27	0.03
Muli	205.09	0.01	615.27	0.03
Others	820.37	0.04	2461.10	0.12
Total	152793.23	7.45	249391.36	12.16

1c - Stock of Bamboo Resources by Species - Stratum II

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	0.00	0.00	350.84	0.02
Bariala	149.11	0.01	350.84	0.02
Barua	6560.63	0.44	8770.89	0.50
Jai	5367.79	0.36	8420.06	0.48
Makhal	10288.26	0.69	14033.43	0.80
Orah	2087.47	0.14	5613.37	0.32
Kaliseri	1938.37	0.13	6665.88	0.38
Tarala	2982.10	0.20	10525.07	0.60
Barak	18339.94	1.23	27365.18	1.56
Mitinga	0.00	0.00	0.00	0.00
Muli	8051.68	0.54	14735.10	0.84
Others	5367.79	0.36	18945.13	1.08
Total	61133.12	4.10	115775.78	6.60

1d - Stock of Bamboo Resources by Species - Stratum III

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	0.00	0.00	0.00	0.00
Bariala	8937.03	0.70	255.34	0.02
Barua	10469.09	0.82	10979.77	0.86
Jai	4851.53	0.38	9703.06	0.76
Makhal	12767.18	1.00	12256.49	0.96
Orah	766.03	0.06	2170.42	0.17
Kaliseri	127.67	0.01	383.02	0.03
Tarala	9958.40	0.78	8937.03	0.70
Barak	37663.18	2.95	29364.51	2.30
Mitinga	383.02	0.03	255.34	0.02
Muli	0.00	0.00	0.00	0.00
Others	7149.62	0.56	5745.23	0.45
Total	93072.74	7.29	80050.22	6.27

1e - Stock of Bamboo Resource by Species - Stratum IV

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	0.00	0.00	105.01	0.01
Bariala	525.03	0.05	945.05	0.09
Barua	9135.51	0.87	21211.19	2.02
Jai	2625.15	0.25	2520.14	0.24
Makhal	0.00	0.00	0.00	0.00
Orah	105.01	0.01	420.02	0.04
Kaliseri	0.00	0.00	0.00	0.00
Tarala	10500.59	1.00	10710.60	1.02
Barak	4830.27	0.46	5565.31	0.53
Mitinga	0.00	0.00	0.00	0.00
Muli	0.00	0.00	0.00	0.00
Others	9450.53	0.90	17746.00	1.69
Total	37172.09	3.54	59223.32	5.64

1f - Stock of Bamboo Resources by Species - Stratum V

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	0.00	0.00	0.00	0.00
Bariala	5059.15	0.42	2288.66	0.19
Barua	2770.49	0.23	2409.12	0.20
Jai	4818.24	0.40	7347.81	0.61
Makhal	3613.68	0.30	2409.12	0.20
Orah	240.91	0.02	120.46	0.01
Kaliseri	722.74	0.06	602.28	0.05
Tarala	1806.84	0.15	963.65	0.08
Barak	8431.91	0.70	6625.07	0.55
Mitinga	361.37	0.03	120.46	0.01
Muli	2409.12	0.20	5420.52	0.45
Others	1806.84	0.15	1806.84	0.15
Total	32041.27	2.66	30113.98	2.50

1g - Stock of Bamboo Resources by Species - Stratum VI

Species	Mature Culms Number (in '000)	No/Capita	Immature Culms Number (in '000)	No/Capita
Katabash	198.49	0.02	595.46	0.06
Bariala	893.19	0.09	2084.10	0.21
Barua	11412.93	1.15	11115.20	1.12
Jai	9130.35	0.92	11909.15	1.20
Makhal	11412.93	1.15	11115.20	1.12
Orah	198.49	0.02	198.49	0.02
Kaliseri	0.00	0.00	0.00	0.00
Tarala	1389.40	0.14	1587.89	0.16
Barak	8634.13	0.87	11611.42	1.17
Mitinga	10916.72	1.10	9924.29	1.00
Muli	694.70	0.07	1488.64	0.15
Others	12703.09	1.28	14886.44	1.50
Total	67584.41	6.81	76516.28	7.71

## 2. TREE GROWING STOCK

2a - Stock Volume of Trees by Land Holding - Stratum I

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	3398	0.27	947	0.27	2451
.2 <1.0	3686	0.58	1047	0.28	2639
1.0 to <3.0	3609	0.83	1080	0.29	2529
>3.0	1561	1.61	466	0.29	1095
Total	12254		3540		8714

2b - Stock Volume of Trees by Land Holding - Stratum II

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	3719	0.38	1098	0.29	2620
.2 <1.0	3622	0.73	1021	0.28	2601
1.0 to <3.0	2608	0.99	829	0.31	1778
>3.0	518	1.047	141	0.27	377
Total	10467		3089		7378

2c - Stock Volume of Trees by Land Holding - Stratum III

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	2061	0.33	614	0.29	1446
.2 <1.0	2201	0.61	594	0.27	1606
1.0 to <3.0	2341	0.91	693	0.29	1647
>3.0	885	1.73	292	0.32	593
Total	7488		2193		5295

2d - Stock Volume of Trees by Land Holding - Stratum IV

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	2920	0.55	717	0.24	2202
.2 <1.0	3549	1.09	883	0.24	2666
1.0 to <3.0	2241	1.42	557	0.24	1683
>3.0	949	2.25	226	0.23	722
Total	9659		2383		7273

2e - Stock Volume by Land Holding - Stratum V

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	3758	0.48	872	0.23	2885
.2 <1.0	4763	0.96	1200	0.25	3562
1.0 to <3.0	1575	1.23	396	0.25	1178
>3.0	276	1.94	73	0.26	202
Total	10372		2541		7831

2f - Stock Volume by Land Holding - Stratum VI

Land holding (ha)	Total vol (000 m3)	Per capita (m3)	Sawlog vol		Fuelwood (000 m3)
			(000 m3)	(f)	
<0.2	1507	0.25	391	0.25	1115
.2 to <1.0	1750	0.51	427	0.24	1323
1.0 to <3.0	1394	0.68	324	0.24	1025
>3.0	327	0.93	82	0.25	244
Total	4933		1224		3709

### 3. OTHER PLANT RESOURCES

3a Total Growing Stock Volume by Land Holding - All Stratum, Million

Land Class ha	Peara No.	Peara PC	Lebu No.	Lebu PC	Banana No.	Banana PC	Others No.	Others PC
<0.2	7.15	0.15	6.19	0.13	166.30	3.49	12.39	0.26
0.2-<1.0	4.25	0.16	5.04	0.19	120.01	4.52	7.70	0.29
1.0-<3.0	2.26	0.18	2.64	0.21	65.79	5.23	3.90	0.31
>3.0	0.53	0.19	0.76	0.27	16.63	5.94	1.12	0.40
Total	14.19	0.15	14.64	0.16	368.73	4.03	25.11	0.27

3b - Thatch Grass Area, m2 (Sample)

Land Class ha	1	2	3	4	5	6	Total
<0.2	672	55	518	0	24	23	1295
0.2-<1.0	4441	13	5867	65	2659	573	13620
1.0-<3.0	2444	9	8588	566	1486	144	13239
>3.0	7395	59	19273	260	4559	55	31604
Total	14952	136	34246	891	8728	795	59758
Per capita	1.16	0.01	4.29	0.19	0.96	0.11	1.16
Total (million m2)	23.80	0.15	46.56	1.70	11.56	1.09	84.85



**APPENDIX 5  
PUBLIC ATTITUDE SURVEY RESULTS**

**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

**APPENDIX 5**  
**PUBLIC ATTITUDE SURVEY RESULTS**

**ATTITUDINAL SURVEY RESULTS**

**PART I VILLAGE PROFILE**

What were sexs of interviewer and interviewee ?

Strata	Male Male	Male Female	Female Male	Female Female	Total	Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
N-West	95	111	39	105	350		17	23	10	9	59
N-Centre	76	66	5	130	277	Male/ Male	41	104	72	55	272
West	47	118	0	50	215	Male/ Female	85	161	104	79	429
South	26	37	0	61	124	Female/ Male	8	22	13	6	49
S-East	50	45	4	107	206	Female/ Female	100	200	113	100	518
N-East	37	52	1	65	155						
<b>Total</b>	<b>331</b>	<b>429</b>	<b>49</b>	<b>518</b>	<b>1327</b>	<b>Total *</b>	<b>251</b>	<b>510</b>	<b>317</b>	<b>249</b>	<b>1327</b>

How many households in each strata sampled ?

Strata	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total	Strata	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
N-West	56	134	95	65	350	N-West	329	869	715	568	2481
N-Centre	62	122	51	42	277	N-Centre	404	918	412	479	2213
West	37	76	56	46	215	West	198	505	455	431	1589
South	22	40	40	22	124	South	135	265	279	194	873
S-East	44	79	45	38	206	S-East	304	649	464	414	1831
N-East	30	59	30	36	155	N-East	232	452	270	490	1444
<b>Total</b>	<b>251</b>	<b>510</b>	<b>317</b>	<b>249</b>	<b>1327</b>	<b>Total</b>	<b>1602</b>	<b>3658</b>	<b>2595</b>	<b>2576</b>	<b>10431</b>

What is total sampled population by landholding ?

Strata	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total	Strata	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
N-West	3.2%	8.3%	6.9%	5.4%	23.8%	N-West	5.9	6.5	7.5	8.7	7.1
N-Centre	3.9%	8.8%	3.9%	4.6%	21.2%	N-Centre	6.5	7.5	8.1	11.4	8.0
West	1.9%	4.8%	4.4%	4.1%	15.2%	West	5.4	6.6	8.1	9.4	7.4
South	1.3%	2.5%	2.7%	1.9%	8.4%	South	6.1	6.6	7.0	8.3	7.0
S-East	2.9%	6.2%	4.4%	4.0%	17.6%	S-East	6.9	8.2	10.3	10.9	8.9
N-East	2.2%	4.3%	2.6%	4.7%	13.8%	N-East	7.7	7.7	9.0	13.6	9.3
CHT	na	na	na	na	na						
<b>Total *</b>	<b>15.4%</b>	<b>35.1%</b>	<b>24.9%</b>	<b>24.7%</b>	<b>100.0%</b>	<b>Total *</b>	<b>6.4</b>	<b>7.2</b>	<b>8.2</b>	<b>10.3</b>	<b>7.9</b>

What is distribution of strata sample population by landholding ?

Strata	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total
N-West	13.3%	35.0%	28.8%	22.9%	100.0%
N-Centre	18.3%	41.5%	18.6%	21.6%	100.0%
West	12.5%	31.8%	28.6%	27.1%	100.0%
South	15.5%	30.4%	32.0%	22.2%	100.0%
S-East	16.6%	35.4%	25.3%	22.6%	100.0%
N-East	16.1%	31.3%	18.7%	33.9%	100.0%
<b>Total *</b>	<b>15.4%</b>	<b>35.1%</b>	<b>24.9%</b>	<b>24.7%</b>	<b>100.0%</b>

How many households ?

Size	N-West	N-Centre	West	South	S-East	N-East	Total
NA	2	0	0	0	0	0	2
1-2	11	6	9	5	3	3	37
3-4	55	26	32	17	17	12	159
5-6	116	91	61	45	47	29	389
7-8	87	62	48	30	47	40	314
9-10	33	35	30	12	40	28	178
10+	46	57	35	15	52	43	248
<b>Total</b>	<b>350</b>	<b>277</b>	<b>215</b>	<b>124</b>	<b>206</b>	<b>155</b>	<b>1327</b>

What is household population ?							
Size	N-West	N-Centre	West	South	S-East	N-East	Total
NA	45	12	17	9	6	6	95
1-2	206	95	115	62	61	44	583
3-4	641	496	333	245	263	160	2138
5-6	648	459	356	227	355	301	2346
7-8	312	332	288	113	379	267	1691
9-10	652	819	480	217	767	666	3601
10+							
Total	2504	2213	1589	873	1831	1444	10454

What is average household population ?							
Size	N-West	N-Centre	West	South	S-East	N-East	Total
1-2	4.1	2.0	1.9	1.8	2.0	2.0	2.6
3-4	3.7	3.7	3.6	3.6	3.6	3.7	3.7
5-6	5.5	5.5	5.5	5.4	5.6	5.5	5.5
7-8	7.4	7.4	7.4	7.6	7.6	7.5	7.5
9-10	9.5	9.5	9.6	9.4	9.5	9.5	9.5
10+	14.2	14.4	13.7	14.5	14.8	15.5	14.5
Total *	7.2	8.0	7.4	7.0	8.9	9.3	7.9

What is main family occupation ?							
Occupation	N-West	N-Centre	West	South	S-East	N-East	Total
NA	1	0	1	0	0	1	3
Farming	293	185	158	60	127	117	940
Fishing	4	3	2	0	4	2	15
Dairy/Poultry	0	0	1	1	0	0	2
Crafts	5	3	4	5	1	1	19
Labour	19	30	20	10	9	8	96
Trade	6	27	15	17	19	15	99
Service	13	20	8	29	32	9	111
Other	9	9	6	2	14	2	42
Total	350	277	215	124	206	155	1327

How many livestock do you own ?							
Strata	N-West	N-Centre	West	South	S-East	N-East	Total
Cattle	926	534	458	272	363	482	3035
Buffalo	94	5	13	0	67	26	205
Goat	597	186	306	75	117	63	1344
Sheep	52	53	26	20	5	20	176
Other	4277	1934	1806	1953	2474	1405	13849
Total	5946	2712	2609	2320	3026	1996	18609

Livestock per household							
Strata	N-West	N-Centre	West	South	S-East	N-East	Total
Cattle	2.6	1.9	2.1	2.2	1.8	3.1	2.3
Buffalo	0.3	0.0	0.1	0.0	0.3	0.2	0.2
Goat	1.7	0.7	1.4	0.6	0.6	0.4	1.0
Sheep	0.1	0.2	0.1	0.2	0.0	0.1	0.1
Other	12.2	7.0	8.4	15.8	12.0	9.1	10.4
Total *	17.0	9.8	12.1	18.7	14.7	12.9	14.0

#### How many households ?

Family Size	>0.5				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	
NA	0	1	1	0	2
1-2	10	12	8	7	37
3-4	48	70	27	14	159
5-6	103	162	88	36	389
7-8	44	136	80	54	314
9-10	26	66	49	37	178
10+	20	63	64	101	248
Total	251	510	317	249	1327

#### What is total household population ?

Family Size	>0.5				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	
1-2	20	22	16	14	72
3-4	176	260	98	49	583
5-6	557	892	490	199	2138
7-8	327	1014	599	406	2346
9-10	247	626	464	354	1691
10+	275	844	928	1554	3601
Total	1602	3658	2595	2576	10431

#### What is average household size ?

Family Size	>0.5				Total #
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	
1-2	2.0	1.8	2.0	2.0	1.9
3-4	3.7	3.7	3.6	3.5	3.7
5-6	5.4	5.5	5.6	5.5	5.5
7-8	7.4	7.5	7.5	7.5	7.5
9-10	9.5	9.5	9.5	9.5	9.5
10+	13.8	13.4	14.5	15.4	14.5
Total	6.4	7.2	8.2	10.3	7.9

What is main family occupation ?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total
NA, Not answered	0	1	2	0	3
Farming	89	382	261	208	940
Fishing	2	10	2	1	15
Dairy/Poultry	0	1	1	0	2
Crafts	9	5	3	2	19
Labour	84	12	0	0	96
Trade	35	41	9	14	99
Service	17	42	33	19	111
Other	15	16	6	5	42
<b>Total</b>	<b>251</b>	<b>510</b>	<b>317</b>	<b>249</b>	<b>1327</b>

How many livestock do you own ?

Average livestock per household ?

Item	How many livestock do you own ?				Total	Average livestock per household ?				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Cattle	248	977	797	1013	3035	1.0	1.9	2.5	4.1	2.3
Buffalo	4	25	59	117	205	0.0	0.0	0.2	0.5	0.2
Goat	152	466	389	337	1344	0.6	0.9	1.2	1.4	1.0
Sheep	21	61	38	56	176	0.1	0.1	0.1	0.2	0.1
Other	1222	3993	4212	4422	13849	4.9	7.8	13.3	17.8	10.4
<b>Total</b>	<b>1647</b>	<b>5522</b>	<b>5495</b>	<b>5945</b>	<b>18609</b>	<b>6.6</b>	<b>10.8</b>	<b>17.3</b>	<b>23.9</b>	<b>14.0</b>

PART II FUEL AND FODDER

1b. Who collects the fuel for your house ?

Item	Men only					Women only					Total #
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	
NA, No collection	12.1%	20.1%	30.5%	28.6%	17.7%	8.1%	15.8%	19.8%	30.2%	12.8%	
Interviewee	15.2%	21.5%	14.7%	20.0%	17.2%	25.9%	21.3%	19.8%	16.2%	23.4%	
Family	65.2%	48.3%	48.4%	21.4%	56.3%	64.9%	57.3%	47.3%	30.2%	59.0%	
Servant	7.6%	10.1%	5.3%	30.0%	8.7%	1.1%	5.0%	12.2%	22.9%	4.5%	
Other	0.0%	0.0%	1.1%	0.0%	0.1%	0.0%	0.6%	0.9%	0.6%	0.3%	
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

1c. How many days per week is fuel collected ?

Item	Men only					Women only					Total #
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	
NA, Not collected	12.1%	18.8%	28.4%	31.4%	17.1%	7.0%	15.0%	19.4%	27.9%	11.8%	
One day	12.1%	21.5%	27.4%	27.1%	17.6%	9.2%	21.3%	23.4%	24.6%	15.4%	
1-2 days	22.7%	21.5%	17.9%	20.0%	21.6%	27.0%	28.0%	24.3%	22.9%	26.8%	
3-5 days	12.1%	12.8%	12.6%	4.3%	12.2%	10.8%	6.4%	7.7%	6.7%	8.9%	
Every day	39.4%	23.5%	13.7%	12.9%	30.1%	45.9%	29.1%	23.4%	16.8%	36.7%	
Don't Know	1.5%	2.0%	0.0%	4.3%	1.5%	0.0%	0.3%	1.8%	1.1%	0.4%	
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

1d. How far do you go to collect your fuel ?

Item	Men only					Women only					Total #
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	
NA, or Not Answered	12.1%	19.5%	28.4%	32.9%	17.3%	7.0%	14.7%	19.5%	28.5%	11.8%	
Less than one mile	72.7%	67.8%	64.2%	61.4%	69.7%	74.1%	70.1%	68.3%	62.6%	71.7%	
1-3 miles	15.2%	12.1%	6.3%	4.3%	12.6%	16.8%	13.9%	10.4%	7.3%	14.7%	
More than 3 miles	0.0%	0.7%	1.1%	1.4%	0.4%	2.2%	1.4%	1.8%	1.1%	1.3%	
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

1e. How long does it take to collect the fuels ?

Hours/Wk	Men only					Women only					Total #
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	
Nil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Less than 2	0.9%	0.8%	0.8%	0.5%	0.9%	0.0%	0.0%	0.0%	0.1%	0.0%	
2-4	1.1%	2.8%	1.0%	1.5%	1.6%	0.2%	0.7%	1.4%	0.8%	0.5%	
4-6	4.3%	5.3%	11.4%	8.5%	5.8%	0.4%	1.7%	0.6%	1.1%	0.9%	
6-8	8.7%	21.6%	25.5%	38.4%	15.9%	2.6%	3.9%	7.4%	4.1%	3.7%	
8-10	0.6%	6.4%	9.0%	12.1%	3.9%	3.9%	7.1%	7.4%	7.6%	5.5%	
10-20	29.6%	28.9%	18.9%	9.3%	27.3%	31.3%	39.8%	43.7%	47.3%	36.2%	
20-30	53.7%	32.4%	27.5%	29.7%	42.7%	49.7%	41.1%	37.9%	32.7%	44.9%	
30-42	1.1%	1.7%	5.9%	0.0%	1.9%	11.8%	5.7%	1.5%	6.4%	8.3%	
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	
<b>Aver hours/week</b>	<b>13.5</b>	<b>11.3</b>	<b>9.4</b>	<b>8.1</b>	<b>10.6</b>	<b>16.1</b>	<b>8.5</b>	<b>7.4</b>	<b>9.9</b>	<b>12.1</b>	

1f. How do you rank fuel availability in your area ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
NA, or Not Answered	3.0%	2.0%	4.2%	2.9%	2.9%	1.6%	1.1%	2.3%	2.8%	1.6%
Scanty	75.8%	68.5%	58.9%	72.9%	71.1%	75.7%	67.3%	57.7%	57.0%	70.0%
Ample	15.2%	23.5%	31.6%	17.1%	20.1%	20.5%	29.4%	34.7%	35.2%	25.7%
Abundant	4.5%	4.7%	5.3%	7.1%	4.8%	1.6%	1.7%	4.5%	4.5%	2.1%
Don't Know	1.5%	1.3%	0.0%	0.0%	1.2%	0.5%	0.6%	0.9%	0.6%	0.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1g. How has fuel availability changed during the last five years ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
NA, or Not Answered	3.1%	1.4%	4.4%	2.9%	2.8%	2.2%	1.4%	1.4%	2.3%	1.8%
Decrease										
Large	60.9%	53.7%	49.5%	52.9%	56.9%	65.2%	53.7%	46.6%	42.9%	58.3%
Slight	31.3%	38.8%	38.5%	33.8%	34.7%	30.9%	41.6%	44.7%	46.9%	36.6%
No Change	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Increase										
Slight	0.0%	2.0%	2.2%	1.5%	1.0%	0.0%	1.7%	1.8%	2.9%	0.9%
Large	3.1%	0.7%	2.2%	1.5%	2.2%	0.6%	0.0%	1.4%	0.0%	0.5%
Don't know	0.0%	0.7%	0.0%	0.0%	0.2%	0.6%	0.3%	0.0%	0.0%	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1h. If you burn cowdung, how much would you rather use as fertilizer ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
NA, Don't burn	48.5%	28.2%	29.5%	28.6%	38.9%	46.5%	35.7%	25.7%	30.2%	39.8%
All	16.7%	34.2%	38.9%	32.9%	25.7%	24.9%	28.8%	31.5%	34.6%	27.3%
Half	13.6%	21.5%	15.8%	22.9%	16.6%	13.5%	23.0%	29.7%	20.1%	18.9%
< Half	10.6%	10.7%	13.7%	14.3%	11.2%	5.9%	8.9%	9.9%	11.7%	7.6%
Don't Know	10.6%	5.4%	2.1%	1.4%	7.5%	9.2%	3.6%	3.2%	3.4%	6.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2a. Do you grow or collect fodder ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
Yes	71.2%	84.6%	74.5%	84.3%	76.2%	63.8%	80.6%	84.2%	90.5%	72.7%
No	28.8%	15.4%	25.5%	15.7%	23.8%	36.2%	19.4%	15.8%	9.5%	27.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2b. What kind of fodder do you grow or collect ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
Agric Waste	92.4%	92.6%	92.6%	91.4%	92.5%	94.6%	93.1%	94.1%	95.5%	94.1%
Fodder crop	6.1%	6.7%	7.4%	7.1%	6.5%	4.9%	6.4%	5.4%	3.4%	5.4%
Tree	1.5%	0.7%	0.0%	1.4%	1.0%	0.5%	0.6%	0.5%	1.1%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2c. Do you ever burn fodder as fuel ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
Yes	84.8%	74.5%	73.7%	81.4%	80.0%	78.3%	72.0%	70.3%	62.6%	74.7%
No	15.2%	25.5%	26.3%	18.6%	20.0%	21.7%	28.0%	29.7%	37.4%	25.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2d. What season do you burn fodder as fuel ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
Winter	83.3%	83.9%	81.9%	78.6%	83.2%	89.1%	83.9%	81.1%	79.3%	86.1%
Summer	3.0%	7.4%	5.3%	11.4%	5.0%	3.3%	6.6%	9.0%	6.1%	5.2%
Rains	13.6%	8.7%	12.8%	10.0%	11.9%	7.7%	9.4%	9.9%	14.5%	8.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2e. What proportion of the fodder do you burn ?

Men only Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	Women only				Total #
						>0.5	>0.5<2.50	>2.5<7.50	>7.50	
< 1/4	84.8%	82.6%	86.2%	81.4%	84.2%	90.8%	82.0%	80.2%	87.2%	86.5%
Half	7.6%	10.7%	9.6%	10.0%	8.9%	4.3%	9.7%	12.2%	10.1%	7.3%
3/4 +	7.6%	6.7%	4.3%	8.6%	6.9%	4.9%	8.3%	7.7%	2.8%	6.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2f. What distance do you travel to collect fodder ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
<1 Mile	90.9%	85.9%	89.4%	84.3%	88.9%	91.4%	79.5%	77.9%	80.4%	85.5%
1-3 Mile	9.1%	12.8%	9.6%	15.7%	10.5%	7.6%	19.4%	19.4%	19.0%	13.2%
>3 Mile	0.0%	1.3%	1.1%	0.0%	0.6%	1.1%	1.1%	2.7%	0.6%	1.3%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

2g. How many hours per week spent collecting fodder ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Nil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Less than 2	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2-4	0.0%	0.7%	0.8%	0.0%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%
4-6	0.0%	0.7%	0.5%	0.7%	0.3%	0.5%	0.4%	0.2%	0.5%	0.4%
6-8	3.2%	4.0%	2.9%	3.3%	3.4%	6.4%	5.1%	3.8%	3.0%	5.5%
8-10	10.9%	2.0%	5.5%	0.0%	7.1%	2.1%	1.8%	1.9%	4.0%	2.1%
10-15	19.4%	25.1%	21.1%	25.6%	21.6%	28.5%	23.2%	20.2%	16.8%	25.3%
15-20	24.4%	14.8%	13.8%	7.2%	19.4%	7.0%	16.2%	11.3%	5.7%	10.4%
20-30	42.1%	48.0%	52.5%	59.3%	45.9%	47.3%	47.4%	59.3%	62.3%	49.4%
30-40	0.0%	4.6%	3.1%	3.9%	2.0%	8.2%	5.8%	3.4%	7.8%	6.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
Aver Hours/Week	6.7	10.0	14.0	12.9	10.2	7.1	11.7	13.6	14.7	11.8

2h. How has the availability of fodder changed over the last five years ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
<b>Decrease</b>										
Large	77.3%	67.8%	69.5%	51.4%	72.5%	75.1%	69.3%	56.8%	62.0%	70.3%
Slight	12.1%	28.2%	20.0%	38.6%	19.0%	18.4%	23.8%	32.9%	32.4%	22.5%
<b>No change</b>										
Slight	3.0%	0.7%	4.2%	5.7%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Increase</b>										
Slight	1.5%	0.7%	3.2%	2.9%	1.5%	1.6%	2.2%	1.4%	1.7%	1.8%
Large	0.0%	1.3%	0.0%	0.0%	0.4%	0.0%	0.0%	0.5%	0.0%	0.1%
<b>Don't Know</b>										
Don't Know	6.1%	1.3%	3.2%	1.4%	4.1%	3.8%	1.4%	2.7%	0.6%	2.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

2i. How do you rank fodder availability in your area ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Scanty	84.6%	83.2%	72.6%	78.3%	82.3%	83.8%	77.6%	66.7%	72.6%	79.1%
Ample	10.8%	14.1%	16.8%	21.7%	13.0%	12.4%	17.7%	28.4%	24.6%	16.7%
Abundant	0.0%	1.3%	2.1%	0.0%	0.7%	0.0%	3.0%	2.7%	1.7%	1.4%
Don't Know	4.6%	1.3%	8.4%	0.0%	4.0%	3.8%	1.7%	2.3%	1.1%	2.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

### PART III ATTITUDES

1a. Would you have sold more trees/bamboo last year ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Incomplete answer	0.0%	0.7%	5.3%	2.9%	1.0%	2.2%	1.7%	0.9%	1.1%	1.3%
Yes	51.5%	55.7%	57.9%	68.6%	54.2%	64.3%	61.2%	58.1%	53.1%	62.2%
No	48.5%	43.6%	36.8%	28.6%	44.8%	33.5%	37.1%	41.0%	45.8%	36.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

1b. Why would you sell more ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA. or Not Answered	51.5%	51.0%	45.3%	35.7%	50.0%	36.8%	39.6%	43.9%	48.0%	39.0%
Extend farm	9.1%	24.2%	21.1%	27.1%	16.0%	22.2%	26.0%	28.1%	28.5%	24.4%
Expand house	10.6%	4.7%	8.4%	7.1%	8.4%	5.4%	5.8%	8.1%	6.7%	6.0%
Other	28.8%	20.1%	25.3%	30.0%	25.6%	35.7%	28.5%	19.9%	16.8%	30.7%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

1c. Why would you sell more ?

Item	Men only					Women only				
	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Good Market	51.5%	52.3%	45.3%	34.3%	50.4%	41.1%	42.9%	50.0%	50.8%	43.2%
Need Money	45.5%	45.0%	49.5%	58.6%	46.3%	56.8%	51.8%	45.9%	39.1%	53.2%
Need Wood	1.5%	2.0%	3.2%	5.7%	2.0%	1.6%	4.4%	2.7%	8.4%	2.8%
Other	1.5%	0.7%	2.1%	1.4%	1.3%	0.5%	0.8%	1.4%	1.7%	0.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

2. How many trees planted or regenerated per household in last 12 months on your land?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
			Fruit		
Planted	4.6	7.9	11.3	24.5	7.2
Survived	59.2%	73.8%	73.6%	74.5%	66.2%
Natural	0.8	1.4	1.8	1.9	1.1
			Timber		
Planted	1.4	3.4	8.1	14.9	3.4
Survived	68.1%	62.4%	71.6%	53.4%	66.4%
Natural	0.7	2.0	3.5	4.1	1.6
			Bamboo		
Planted	0.3	0.6	0.6	1.7	0.5
Survived	83.1%	76.4%	68.4%	64.1%	78.4%
Natural	0.1	0.4	1.5	1.3	0.4

Have you planted any trees in last year or earlier?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Yes	79.7%	87.6%	90.2%	93.2%	84.0%
No	20.3%	12.4%	9.8%	6.8%	16.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

3. Have you planted any trees last year or earlier (per household)?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
			Planted		
This Year	3.4	4.3	10.1	22.1	5.2
Last Year	7.0	10.5	14.1	23.0	9.6
Last 3 years	10.6	17.9	27.9	39.5	16.2
More 3 yrs ago	10.1	16.3	27.4	59.3	15.9
			Survived		
This Year	2.1	3.0	7.7	15.0	3.5
Last Year	4.2	7.0	9.2	14.7	6.1
Last 3 years	7.1	11.8	19.3	27.8	10.9
More 3 yrs ago	6.5	10.9	23.5	43.1	11.4

4a. What was major reason you planted?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Income	68.9%	57.8%	53.3%	48.6%	62.7%
Own Use	23.1%	33.1%	30.0%	39.8%	27.7%
Investment	3.6%	6.1%	12.6%	7.2%	5.7%
Protect Land	1.6%	1.6%	2.5%	2.4%	1.7%
Other	2.8%	1.4%	1.6%	2.0%	2.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

4b. What products do you want?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Pole/ Timber	59.4%	58.6%	67.8%	67.7%	60.6%
Fuel	10.4%	6.5%	6.0%	6.5%	8.4%
Fodder	0.4%	0.4%	0.6%	1.2%	0.5%
Others	29.9%	34.5%	25.6%	24.6%	30.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

4c. What locations did you plant?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Vacant Land	82.9%	76.5%	74.8%	71.5%	79.4%
Non farm area	10.0%	15.5%	18.0%	18.1%	13.0%
Pondsides	5.2%	7.1%	6.3%	9.6%	6.1%
Other	2.0%	1.0%	0.9%	0.8%	1.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

4d. Why do you plant in that location?

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Better land use	73.7%	77.1%	74.4%	76.2%	74.9%
Erosion protection	17.1%	15.3%	20.8%	17.3%	17.1%
Other	9.2%	7.6%	4.7%	6.5%	8.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

5a. Would you like to plant more trees ? All sexes					
Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA					
Yes	1.2%	0.2%	0.0%	0.8%	0.7%
No	93.2%	97.5%	98.1%	98.8%	95.4%
Incomplete answer	5.6%	2.4%	1.6%	0.0%	3.9%
	0.0%	0.0%	0.3%	0.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

  

5b. If you want to plant more, what species would you plant ? All sexes					
Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Fruit	80.1%	78.0%	70.7%	76.7%	78.0%
Fodder	0.0%	0.4%	1.3%	0.8%	0.3%
Fuel	3.2%	1.2%	2.2%	2.4%	2.4%
Timber	16.7%	20.4%	25.9%	19.7%	19.2%
Other ?	0.0%	0.0%	0.0%	0.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

  

5c. If you want to plant more, what is reason for planting ?										
Item	>0.5	>0.5<2.50	Men only		Total #	Women only				
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	Total
Income	71.2%	70.5%	54.7%	62.9%	68.4%	71.4%	73.1%	63.5%	59.2%	70.4%
Investment	15.2%	21.5%	33.7%	30.0%	20.2%	16.2%	19.7%	24.8%	29.1%	18.9%
Other	3.0%	4.0%	7.4%	4.3%	4.0%	5.4%	5.5%	9.5%	10.1%	6.2%
Incomplete answer	10.6%	4.0%	4.3%	2.8%	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

  

5d. If you want to plant more, would you pay for seedlings ?										
Item	>0.5	>0.5<2.50	Men only		Total #	Women only				
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	Total
Yes	6.1%	3.4%	1.1%	1.4%	4.4%	2.2%	1.1%	1.8%	1.7%	1.8%
No	63.6%	82.6%	87.4%	94.3%	73.7%	63.2%	73.7%	81.1%	87.2%	69.7%
Incomplete answer	30.3%	14.1%	11.6%	4.3%	21.9%	34.6%	24.9%	16.7%	11.2%	28.4%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.5%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

  

6. Do you want to plant more bamboo ?										
Item	>0.5	>0.5<2.50	Men only		Total #	Women only				
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	Total
Yes	75.8%	84.6%	82.1%	77.1%	79.4%	81.1%	84.2%	86.0%	82.7%	82.8%
No	22.7%	14.8%	16.8%	20.0%	19.4%	18.4%	15.2%	13.5%	17.3%	16.7%
Incomplete answer	1.5%	0.7%	1.1%	2.8%	1.2%	0.0%	0.0%	0.5%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

  

7. What kind of trees will you plant ?										
Item	>0.5	>0.5<2.50	Men only		Total #	Women only				
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	Total
NA, or Not Answered	4.5%	2.0%	3.2%	1.4%	3.5%	5.9%	1.1%	0.5%	0.6%	3.5%
Fruit	68.2%	74.5%	69.5%	77.1%	70.6%	65.4%	70.9%	64.9%	72.1%	67.2%
Timber	16.7%	14.1%	13.7%	14.3%	15.4%	11.9%	14.4%	15.3%	14.0%	13.2%
Fodder	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fuel	0.0%	0.7%	1.1%	1.4%	0.4%	1.1%	0.8%	0.5%	1.1%	0.9%
Multiple	9.1%	8.7%	12.6%	5.7%	9.4%	13.0%	11.9%	17.6%	12.3%	13.3%
Other	1.5%	0.0%	0.0%	0.0%	0.8%	2.7%	0.3%	1.4%	0.0%	1.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

  

8a. Where did you get your seedlings ?										
Item	>0.5	>0.5<2.50	Men only		Total #	Women only				
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	Total
NA, or Not Answered	9.1%	2.7%	1.1%	2.9%	5.8%	8.1%	2.2%	0.5%	1.1%	5.0%
Incomplete answer	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Own	42.4%	43.6%	38.9%	47.1%	42.5%	42.7%	43.8%	46.4%	43.6%	43.6%
Friend	3.0%	6.0%	5.3%	0.0%	4.2%	6.5%	3.0%	3.2%	4.5%	4.9%
Private Nursery	24.2%	20.1%	24.2%	24.3%	23.0%	14.1%	22.7%	23.9%	25.1%	18.4%
Forest Dept	6.1%	3.4%	7.4%	4.3%	5.4%	1.6%	5.0%	4.1%	5.6%	3.1%
Other Govt	0.0%	1.3%	1.1%	1.4%	0.6%	1.6%	0.8%	1.8%	1.7%	1.4%
Other	15.2%	22.8%	22.1%	18.6%	18.6%	25.4%	22.4%	20.3%	18.4%	23.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%





15. What media do you rely on for tree growing information ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
NA, or Not Answered	10.6%	2.0%	1.1%	1.4%	6.3%	4.3%	1.4%	1.4%	0.6%	2.9%
Printed matter	34.8%	40.9%	48.4%	40.0%	38.8%	49.2%	46.3%	49.5%	52.0%	48.4%
Radio	39.4%	36.9%	31.6%	44.3%	37.7%	30.8%	32.1%	34.7%	27.9%	31.7%
TV	3.0%	4.0%	2.1%	2.9%	3.2%	2.2%	2.5%	2.3%	7.8%	2.4%
Other	12.1%	16.1%	16.8%	10.0%	14.0%	13.0%	17.7%	11.7%	11.7%	14.2%
Incomplete answer	0.0%	0.0%	0.0%	1.4%	0.0%	0.5%	0.0%	0.5%	0.0%	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

16a. Do you think that large scale tree removal causes floods, land deterioration and desertification ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not Answered	0.4%	0.6%	0.6%	0.8%	0.5%
O	0.0%	0.0%	0.0%	0.4%	0.0%
Yes	78.9%	87.8%	87.7%	88.8%	83.2%
No	20.7%	11.6%	11.7%	10.0%	16.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

16b. If so, do you think Government is doing enough to arrest the change ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not Answered	16.3%	9.4%	10.1%	6.4%	13.0%
Yes	15.9%	20.0%	18.0%	17.7%	17.5%
No	67.3%	70.6%	71.3%	75.5%	69.1%
Incomplete answer	0.4%	0.0%	0.6%	0.4%	0.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

16c. What do think you can do to lessen the effect ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not Answered	12.0%	8.2%	7.6%	6.0%	10.0%
Plant more trees	74.1%	79.6%	82.0%	84.3%	77.2%
Better protection	3.2%	2.9%	2.8%	2.8%	3.1%
Reduce cutting	3.2%	5.1%	4.1%	2.0%	3.9%
Don't know	7.6%	3.5%	2.8%	4.0%	5.5%
Incomplete answer	0.0%	0.6%	0.6%	0.8%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

17a. Is there any planting on Government land in your village ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA	4.0%	0.6%	1.6%	1.6%	2.5%
Yes	35.9%	34.1%	36.6%	42.6%	35.6%
No	60.2%	64.9%	61.5%	55.0%	61.7%
Incomplete answer	0.0%	0.4%	0.3%	0.8%	0.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

17b. Where is the planting on Government land in your village ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
No planting	62.9%	64.5%	62.5%	55.0%	63.1%
Incomplete answer	0.4%	0.4%	0.0%	0.0%	0.3%
Canal banks	4.8%	5.9%	6.0%	6.8%	5.4%
Roadways	25.1%	24.5%	25.2%	30.9%	25.1%
Railways	0.0%	0.4%	0.9%	0.0%	0.3%
Forest land	1.2%	1.8%	1.9%	3.6%	1.5%
Other	5.6%	2.5%	3.5%	3.6%	4.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

17c. Who made the planting on Government land ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
No planting	63.7%	65.7%	61.8%	55.0%	63.8%
Forest Dept	6.0%	7.5%	8.8%	9.2%	6.9%
Other Govt	11.2%	7.1%	12.9%	12.9%	10.2%
Private leasees	1.6%	2.4%	3.2%	4.4%	2.1%
Other	17.1%	17.3%	12.9%	18.5%	16.6%
Incomplete answer	0.4%	0.2%	0.3%	0.0%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%



20b. If so, on what types of government land ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
NA, or Not answered	15.1%	9.4%	6.8%	9.7%	12.0%	11.9%	8.0%	5.0%	6.1%	9.6%
Canal bank	24.6%	18.9%	26.7%	22.4%	23.1%	15.1%	14.4%	19.8%	16.8%	15.6%
Roadside	53.2%	61.5%	58.0%	58.2%	56.6%	64.9%	68.4%	65.8%	65.9%	66.1%
Railside	0.0%	0.4%	1.1%	0.0%	0.3%	0.5%	0.3%	2.3%	0.6%	0.7%
Forest land	3.2%	3.4%	2.3%	2.2%	3.1%	4.9%	3.9%	4.5%	5.0%	4.5%
Other	4.0%	6.4%	5.1%	7.5%	5.0%	2.7%	5.0%	2.7%	5.6%	3.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

20c. If so, who should do the planting ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
Disagree planting	10.6%	10.1%	7.4%	12.9%	10.1%	10.3%	6.6%	6.3%	6.1%	8.5%
Forest Dept	12.1%	28.2%	34.7%	21.4%	20.5%	16.2%	23.3%	27.5%	29.6%	20.4%
Other Govt	13.6%	16.8%	16.8%	18.6%	15.2%	11.4%	15.0%	15.3%	11.7%	13.0%
Landless	12.1%	51.5%	42.3%	33.7%	38.6%	45.8%	57.8%	49.3%	44.1%	44.7%
Other	0.0%	2.7%	7.4%	8.6%	8.4%	4.3%	5.8%	6.3%	7.8%	5.2%
Incomplete answer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

21a. Do you plant trees on areas formerly used for agriculture ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Yes	8.0%	10.4%	16.7%	16.5%	10.2%
No	86.9%	88.0%	80.8%	82.3%	86.2%
Incomplete answer	0.0%	0.6%	12.0%	0.4%	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

21b. If so, what is the main reason ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
Don't plant crop lan	92.0%	86.5%	81.4%	82.3%	88.5%
Incomplete answer	0.0%	0.2%	0.6%	0.0%	0.1%
Labour shortage	0.8%	1.8%	2.8%	0.8%	1.4%
Natural hazard	2.0%	2.9%	4.4%	3.6%	2.7%
Low crop yield	2.4%	5.7%	8.5%	10.0%	4.5%
Protected land	2.4%	1.0%	1.3%	2.0%	1.8%
Other	0.4%	2.0%	0.9%	1.2%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

22. Who buys your tree products ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
Don't sell anything	37.9%	28.9%	24.2%	20.0%	32.6%	29.2%	26.9%	26.1%	23.5%	27.9%
Other villager	16.7%	10.7%	22.1%	22.9%	15.8%	19.5%	16.9%	13.1%	16.2%	17.7%
Local buyer	30.3%	35.6%	29.5%	35.7%	32.0%	31.4%	30.5%	32.9%	29.1%	31.2%
Town middddle men	4.5%	7.4%	12.6%	7.1%	6.6%	4.9%	7.2%	3.6%	5.0%	5.4%
Commercial user	9.1%	13.4%	10.5%	12.9%	10.7%	11.4%	16.3%	21.2%	24.0%	14.7%
Other	1.5%	4.0%	1.1%	1.4%	2.2%	3.8%	2.2%	3.2%	2.2%	3.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

23a. Do you get a reasonable price for your products ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
Don't sell	36.4%	31.5%	22.3%	21.4%	32.5%	30.3%	26.6%	24.8%	24.6%	28.2%
Yes	28.8%	28.9%	26.6%	37.1%	28.8%	29.2%	32.4%	27.9%	34.1%	30.2%
No	33.3%	39.6%	51.1%	41.4%	38.0%	40.5%	40.7%	46.8%	41.3%	41.5%
Incomplete answer	1.5%	0.0%	0.0%	0.0%	0.8%	0.0%	0.3%	0.5%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

23b. If not, what is needed to get a better price ?

Item	Men only				Total #	Women only				Total
	>0.5	>0.5<2.50	>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5	>7.50	
Don't sell	60.6%	57.7%	49.5%	54.3%	58.0%	56.8%	57.3%	49.5%	54.2%	55.9%
Better road	22.7%	18.8%	29.5%	27.1%	22.6%	17.3%	20.5%	25.7%	24.6%	19.7%
Better market	6.1%	14.8%	15.8%	11.4%	10.3%	16.2%	13.9%	15.3%	15.6%	15.3%
Credit facilitiy	10.6%	8.7%	3.2%	7.1%	8.9%	9.7%	8.0%	9.0%	5.0%	9.0%
Other	0.0%	0.0%	2.1%	0.0%	0.3%	0.0%	0.3%	0.5%	0.6%	0.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

24a. In your opinion, has the number of trees in your village during the last five years ?

Item	>0.5	>0.5<2.50	Men only		Total #	Women only			>7.50	Total
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5		
NA, or Not answered	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	0.0%	0.0%	0.4%
Increase	1.5%	4.7%	9.5%	7.1%	3.8%	4.9%	4.2%	5.0%	10.1%	4.8%
Decreased	95.5%	91.3%	85.3%	85.7%	92.4%	90.8%	91.4%	90.5%	89.4%	90.9%
No change	3.0%	2.7%	5.3%	7.1%	3.4%	3.2%	3.3%	3.6%	0.6%	3.2%
Don't know	0.0%	0.7%	0.0%	0.0%	0.2%	0.5%	0.6%	0.9%	0.0%	0.6%
Incomplete answer	0.0%	0.7%	0.0%	0.0%	0.2%	0.0%	0.3%	0.0%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

24b. In your opinion, has the number of bamboos in your village during the last five years ?

Item	>0.5	>0.5<2.50	Men only		Total #	Women only			>7.50	Total
			>2.5<7.50	>7.50		>0.5	>0.5<2.50	>2.5<7.5		
NA, or Not answered	0.0%	0.0%	1.1%	0.0%	0.1%	1.1%	0.3%	0.0%	0.0%	0.6%
Increase	3.0%	5.4%	10.5%	1.4%	4.8%	5.9%	2.8%	7.7%	5.0%	5.2%
Decreased	90.9%	87.2%	75.8%	90.0%	87.6%	89.7%	91.7%	84.2%	91.1%	89.6%
No change	3.0%	5.4%	11.6%	8.6%	5.1%	2.2%	4.7%	6.8%	2.8%	3.6%
Don't know	3.0%	2.0%	0.0%	0.0%	2.2%	1.1%	0.6%	1.4%	1.1%	1.0%
Incomplete answer	0.0%	0.0%	1.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

24c. If trees/bamboo decreased, what steps do you recommend ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	1.2%	2.7%	4.1%	2.0%	2.1%
Plant more trees	92.4%	87.1%	86.7%	89.2%	89.9%
Reduce waste	1.6%	2.7%	1.9%	3.2%	2.0%
Less cutting	2.8%	5.3%	5.4%	4.4%	4.0%
Don't know	2.0%	2.2%	1.9%	1.2%	2.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Would you observe the following to protect tree planting on government land ?

25a. Keep cattle out?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA	0.4%	0.8%	0.0%	1.6%	0.5%
Yes	92.8%	89.1%	90.9%	94.7%	91.4%
No	2.4%	2.8%	3.5%	1.6%	2.6%
Don't know	4.8%	7.7%	5.4%	3.7%	5.7%
Incomplete answer	0.0%	0.4%	0.3%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

25b. Prevent other people from causing damage ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	0.8%	0.8%	0.0%	1.6%	0.7%
Yes	92.4%	89.0%	90.2%	93.2%	91.1%
No	2.4%	2.4%	3.8%	1.6%	2.6%
Don't know	4.4%	7.5%	5.7%	3.6%	5.5%
Incomplete answer	0.0%	0.4%	0.3%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

25c. Report damage, if any to Forest Dept ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	1.2%	1.4%	0.0%	1.6%	1.1%
Yes	80.5%	80.6%	82.6%	81.5%	80.8%
No	8.4%	6.9%	9.5%	10.8%	8.1%
Don't know	10.0%	11.0%	7.6%	6.0%	9.8%
Incomplete answer	0.0%	0.2%	0.3%	0.0%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

25d. Remove weeds within young plantations ?  
All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	1.2%	1.2%	0.6%	1.6%	1.1%
Yes	83.3%	82.5%	81.7%	83.1%	82.8%
No	7.6%	6.9%	7.3%	8.4%	7.3%
Don't know	7.6%	9.0%	9.5%	6.4%	8.3%
Incomplete answer	0.4%	0.4%	0.9%	0.4%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

26. Given the choice, would you prefer to plant ?

All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	1.2%	0.2%	0.0%	0.4%	0.7%
Privately	35.1%	39.6%	44.3%	47.8%	38.1%
Village/Communal for	58.6%	57.6%	52.2%	50.2%	57.1%
Don't know	4.4%	2.4%	2.8%	1.2%	3.4%
Other	0.8%	0.2%	0.6%	0.4%	0.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

27. What do you think is the best method of protecting forest/plantations ?

All sexes

Item	>0.5	>0.5<2.50	>2.5<7.50	>7.50	Total #
NA, or Not answered	1.6%	0.4%	0.9%	0.0%	1.1%
Individual effort	16.3%	20.8%	26.2%	29.7%	19.5%
Small farmers	78.5%	74.5%	69.4%	65.9%	75.6%
Don't know	3.2%	3.1%	2.8%	2.0%	3.1%
Others	0.4%	1.2%	0.6%	2.4%	0.7%
Incomplete answer	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

**APPENDIX 6  
REFERENCES**

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**STATISTICAL REPORT**  
**VILLAGE FOREST INVENTORY**

**APPENDIX 6**  
**REFERENCES**

- Aliff International Ltd., 1978 : A study in the Forestry Planning Commission of Bangladesh. Ministry of Planning, Govt. of Bangladesh
- Aliff International Ltd., 1981 : Special Studies of Related Industries in Bangladesh. Prepared for BFIDC
- Aliff International Ltd., 1985 : Reports on the Inventory Poles, Anchor and Stabilizer logs available in Bangladesh, Prepared for BFIDC.
- Aleem. S.A., 1981 : Tariff on Village Trees and Bamboos, UNDP/FAO/BGD/78/020. Field Document No. 3
- BBS, 1992 : Preliminary Report of Population Census of Bangladesh, 1991
- BBS, 1991 : Statistical Year Book of Bangladesh, Statistics Division, Ministry of Planning, GOB
- BBS, 1991 : Statistical Pocket Book. Statistics Division, Ministry of Planning, GOB
- BBS, 1990 : Report on the survey of Farm Forestry, 1988, MOP, GOB
- BBS, 1989 : Small Area Atlas of Bangladesh: Dinajpur, Rangpur, Bogra, Rajshahi, Pabna, Kushtia, Jessore, Khulna, Faridpur, Barisal, Dhaka, Mymensingh, Jamalpur, Tangail, Sylhet, Comilla, Noakhali and Chittagong districts
- BBS, 1988 : Bangladesh Census of Agriculture and Livestock, 1983 - 84.
- Byron, R.N. 1981 : Future Consumption of Wood and Wood Products in Bangladesh. UNDP/FAO/BGD/78/010. Field Document No. 4
- Chaudhury, A.M., 1984 : A Study on the Supply and Demand of Bamboo and Canes in Bangladesh. FAO/UNDP/BGD/78/010. Field Document No. 9
- Douglas, J. 1981 : Consumption and Supply of Wood and Bamboo in Bangladesh. UNDP/FAO/BGD/78/010. Field Document No. 2
- Dereje, Asrat, 1981 : Household Survey of Rural Consumption of Wood and Bamboo in Bangladesh. A Review of the Survey Methodology. UNDP/FAO/BGD/ 78/010. Field Document No. 1
- FMP, 1992a : Bamboo, Forestry Master Plan, ADB TA 1355-BAN. Ministry of Environment and Forest.
- FMP, 1992b : Forest Products Demand Projection, Forestry Master Plan, ADB TA 1355-BAN. Ministry of Environment and Forest.
- FMP, 1992c : Non Wood Forest Products, Forestry Master Plan, ADB TA 1355-BAN. Ministry of Environment and Forest.
- FMP, 1992d : System Analysis, Forestry Master Plan, ADB TA 1355-BAN. Ministry of Environment and Forest.
- FMP, 1992e : Wood Energy, Forestry Master Plan, ADB TA 1355-BAN. Ministry of Environment and Forest.
- FRI, 1992 : Forest Statistics of Bangladesh, 1991, Forest Research Institute, Chittagong
- FAO, 1991 : FAO Year Book, 1989, Rome, Italy, 1991
- FD, 1990 : Department of Forest, Resource Information Management System, Data Bank. Ministry of Environment and Forests, GOB.
- FD, 1981 : Annual Progress Report of Forest Administration in Bangladesh, 1980-81, Ministry of Environment and Forests, GOB.



- Hammermaster,E.T.,1981 : Inventory Manuals. Village Forest Inventory of Bangladesh.  
UNDP/FAO/BGD/78/020. Field Document No. 2
- Hammermaster,E.T.,1981 : Inventory Results. Village Forest Inventory of Bangladesh.  
UNDP/FAO/BGD/78/020. Field Document No. 5
- Islam, M. N., 1980 : Village Resources Survey for the Assessment of Alternative Energy Technology,  
Chemical Engineering Department. BUET
- Islam, S.M.N, 1982 : Energy Supply and Use Pattern in Bangladesh, Seminar Paper on Energy.
- Montreal Engineering : Bangladesh Energy Study. ADB/UNDP/BGD/73/038, Planning Commission,  
Ministry of Planning, GOB.
- Planning Commission, 1990 : The Fourth Five Year Plan, Ministry of Planning. GOB, Dhaka
- Renes, G.J.B, 1984 : Results of the Village Forest Inventory Remeasurement. FAO/UNDP/BGD/79/017.
- Sven, W., 1981 : Final Data Processing Village Forest Inventory of Bangladesh.  
UNDP/FAO/BGD/78/020. Field Document No. 4