

# DEMOGRAPHIC SURVEILLANCE SYSTEM— MATLAB

VOLUME TWENTY SIX

1993 POPULATION  
CENSUS

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Abdul Mazid Sarder  
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Md. Khayrul Alam Khan

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October 1996



INTERNATIONAL CENTRE FOR DIARRHOEAL  
DISEASE RESEARCH, BANGLADESH

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## What is the Centre for Health and Population Research (ICDDR,B) ?



ICDDR,B, or "The Centre", was established in 1978 as the successor to the Cholera Research Laboratory, which was created in 1960 to study the epidemiology, treatment, and prevention of cholera. The Centre is an independent, international, non-profit organization for research, education, training, and clinical services. Located in Dhaka, the capital of Bangladesh, the Centre is the only truly international health research institution based in a developing country. The results of research conducted over the years at the Centre provide, today, guidelines for policy-makers, implementing agencies, and health professionals in Bangladesh and around the globe. Researchers at the Centre have made major scientific achievements in diarrhoeal disease control, maternal and child health, nutrition, and population sciences. These significant contributions have been recognized worldwide.

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The **Clinical Sciences Division** has three principal functions in addition to providing care and treatment to the patients with diarrhoeal disease at the Clinical Research and Service Centre in Dhaka: (1) implementation of clinical research in diarrhoeal diseases and related areas of nutrition and operations research; (2) training of health care providers (both Bangladeshi and international) in the clinical management of diseases as well as in clinical and operational research methodology; and (3) preventive health activities directed toward children and their mothers.

The **Community Health Division**, staffed with public health professionals, epidemiologists, social scientists, and economists, focuses on the evaluation of population-based interventions to improve reproductive and child health. The Division is responsible for the primary health care services in rural Matlab where there is a population of about 210,000 under demographic surveillance. The Division also runs: Maternal, Child Health and Family Planning; Health and Demographic Surveillance; Social and Behavioural Sciences; and Health Economics programmes.

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The **Training and Education Department** coordinates efforts to provide a broad-based training programme that aims at contributing toward the development of global human resources in child survival and population programme research, planning, and implementation.

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*(see inside of the back cover...)*

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**CENTRE**

For Health and  
Population Research

International Centre for  
Diarrhoeal Disease Research, Bangladesh

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## PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic, non-profit centre for research, education, training, and clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). Its aims and objectives are to undertake and promote study, research, and dissemination of knowledge in diarrhoeal diseases and the directly related subjects of nutrition and fertility, with a view to developing improved health care methods and to prevent and control diarrhoeal diseases and improve public health programmes, especially in developing countries.

The ICDDR,B issues an annual report, working papers, scientific reports, special publications, monographs, theses, dissertations, an international journal on diarrhoeal diseases, and a bi-monthly newsletter which demonstrates the type of research activities currently in progress. The views expressed in these publications are those of the authors, and do not necessarily represent the views of the ICDDR,B.

The Centre has two major objectives:

1. To undertake and promote study, research, and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility with a view to developing improved methods of health care and the prevention and control of diarrhoeal diseases and improvement of public health programmes with special relevance to developing countries.
2. To provide facilities for training to Bangladeshi and other nationals in areas of the Centre's competence in collaboration with national and international institutions.

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The 1993 Census was initiated and implemented under the leadership of Dr. Michael A. Strong who was at that time Project Director of DSS. Financial support for this census as well as publication of this report was made possible by grant number 514 "Updating the Demographic Surveillance System", by the Overseas Development Administration of the United Kingdom. The ICDDR,B is grateful for this generous grant which funded this census, including the provision of the services of Dr. John Blacker, who provided valuable suggestions to improve the content and accuracy of this report. Mr. Sentu B. Gomes, Project Office Manager, DSS, provided valuable assistance throughout the various stages of production of the report.

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## **ABSTRACT**

The Demographic Surveillance System (DSS) has two types of operations: one, continuous registration of vital events, marriages, divorces and migrations; two, cross-sectional censuses at different points in time. There were six censuses taken during the past 30 years in Matlab DSS. The number of villages covered was not equal for all censuses due to different reasons.

The 1993 Census was started on May 18, 1993 and lasted for 6 weeks. The present report analyses the 1993 Census in 6 chapters. The first two chapters describe the Demographic Surveillance System and its data collection and management procedures. The third chapter discusses procedures used in the 1993 Census and chapter 4 the results. The demographic developments over the past 20 years are discussed in chapter 5 and, finally, conclusions are drawn in chapter 6. This last chapter also contains a summary of the main findings.

## CHAPTER ONE

### INTRODUCTION

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been in operation since 1963 at Matlab, a rural area in Chandpur District. Since its inception the Centre has carried out a variety of research projects in the framework of the Matlab project in the areas of health and population (see e.g., ICDDR,B 1990).

The Matlab Demographic Surveillance System (DSS) consists of periodic censuses and socioeconomic surveys and a continuous registration of all vital events, marital union and dissolution, household division and household head change in the study population. It began in 1963 on a modest scale with 23 villages having a population of 28,000. The continuous registration of vital events, i.e., births, deaths and migrations expanded in 1966 to 132 villages with a population of 112,000. In 1968 101 villages with a population of 109,000 were added to the DSS area. The recording of marital union and dissolution started in 1975; inter-village movements in 1982 and household division and household head changes in 1993, just after the 1993 Census enumeration.

In October 1977, a Maternal and Child Health and Family Planning Programme (MCH-FP) was introduced in 70 villages with a population of about 80,000. This area called the MCH-FP area, was divided into four blocks, A, B, C and D, and intensive MCH activities were introduced in the Blocks A and C in 1982. However, the differential

in the interventions was eliminated in 1985. In the remaining villages of the DSS area, located in the so-called Comparison area, regular data collection was continued. In 1978, on the advice of a Technical Committee, the DSS area was reduced to 149 villages. Thus, only 79 villages constituted the Comparison area after 1978 with a population of about 90,000 at that time. The characteristics of the Matlab area and population in the 1970s and 1980s have been described in several earlier reports (Ruzicka and Chowdhury, 1978; Chowdhury, et al., 1981).

Six successive censuses and socioeconomic surveys have been held since its introduction. The first three censuses were partial while the rest of them covered the whole population. The first partial census was conducted in 1966 in 132 villages, the second one in 1968 at the time of the inclusion of 101 new villages, and the last one in 1970 covering those villages which were not covered in the 1968 census. Full censuses covering the entire population were conducted previously in 1974 (Ruzicka et al., 1978) and in 1982. However, the number of villages is different in each census. The first one was held in 228 villages (5 villages of the original 233 were excluded), the second one in 149 villages, while the one conducted in 1993 was held in 142 villages.

## CHAPTER TWO

### DEMOGRAPHIC SURVEILLANCE SYSTEM

#### 2.1. Field Data Collection Procedure

The Demographic Surveillance has a four-tier structure of data collection involving 166 workers. At the household level, detection of vital events is the task of the Community Health Workers (CHWs). These workers have at least eight grades of schooling and each of them is responsible for 600 households covering a population of 3,400 in the Comparison area and 250 households covering a population of 1,300 in the MCH-FP area. These CHWs visit their area twice per month. They inquire about births, deaths, migrations, marital unions and dissolutions, household divisions and household head changes, and record these events in a book.

The actual recording and reporting of the vital events on the various registration forms and in books is carried out by 16 Health Assistants. Each Health Assistant with 10 grades of education and a short-term field training, visits on average 2,400 households with a population of 13,000 once per month. The Health Assistant along with the CHW visit each household in their area and check the completeness of the registration and record the vital events on standard registration forms. They also update the Family Visiting Cards which are posted in each bari in the areas assigned to them. The Health Assistants are, in turn, again checked by eight Senior Health Assistants who visit each household once in three months. Lastly, all workers are supervised by a team of supervisors

consisting of one Senior Field Research Officer, two Field Research Officers and an Assistant Supervisor. All data collection activities in Matlab are coordinated by the DSS Manager, stationed in Matlab.

The Health Assistants and Senior Health Assistants come to Matlab field station every two weeks to submit the accumulated registration forms. They review their forms in the light of previous records as well as Census Volumes which are available in the office and make additions and corrections, if necessary. At the end of the day, there is a meeting where workers raise problems related to their work and receive guidelines from the supervisors.

## **2.2. Data Edit Entry and Transfer**

The forms of the Health Assistants are edited and coded. The inconsistent forms are sent back to the respective workers for corrections. There are two Personal Computers in the Matlab Field Station for data entry and checking for inconsistencies. The causes of death of the death forms are coded by a Paramedic on the basis of the verbal autopsy provided by the Health Assistants. Data are entered once coding is finished. The accumulated data are stored on diskettes. These diskettes and the forms are transferred to the DSS Office in Dhaka at the end of the year where all vital events are processed and forms are bound in volumes and preserved.

## **2.3. Data Processing and Preservation until 1982**

The censuses and vital registration data for the period 1966-1982

are preserved on computer tapes for each year separately. In addition, a comprehensive data file (YETI File), containing all vital events of 1974-1982, was created and preserved in the Data Archive Section to facilitate access to the relevant data to researchers at ICDDR,B, elsewhere in Bangladesh and abroad.

#### **2.4. DSS Data Base System**

A comprehensive relational Data Base Management System (DBMS) was set up with the 1982 census population as a base population, using Structural Query Language/Data Structure (SQL/DS). The DSS DBMS runs on a IBM/4361 mainframe computer. The system makes use of eight tables that are linked with each other. All vital events, marriages and migrations are placed in the DSS Data Base.

This is done annually on the basis of the forms on vital events, marriages and migrations which are sent to the DSS Office in Dhaka at the end of each year. A number of operations are carried out in the DSS Office in Dhaka. All the vital events are cleaned before they are loaded into the DSS Data Base. This process is known as Pre-Entry Edit. In the loading process, data are also cross-checked with the already existing Data Base information and this process is known as Entry-Edit. The corrected data are loaded into the Data Base System. However, events with inconsistent information are not accepted by the Data Base System. The inconsistent events are checked again and corrected. If necessary, field verification will also be done to correct the information. This loading and error cleaning process is continuing until all the events have correctly been entered and accepted by the Data Base System. Data in the

Data Base System are stored in a relational data base with several tables. These tables contain the person's basic information (PERS), the person's education and socioeconomic status (PSTA), the person's relation with head of household (RLHH), the location of the household head (information on heads of households) (LOCN), the person's marital status (SPOS), the pregnancy history of mothers (PHST) and birth table (BRTH). The information related to each table is automatically updated by the Data Base Management System. For example, if a live birth occurred to a mother in the DSS area, PERS, PSTA, RLHH, PHST and BRTH tables will be updated, but with a non-live birth, only the PHST and BRTH need to be updated.



## CHAPTER THREE

### METHOD AND PROCEDURES

#### 3.1. Objectives

With a system of accurate registration of vital events and migration, it is possible to determine the population size in different years after implementation of the baseline census and without conducting a new census at a later date. The size of the population at different times can be determined with the so-called demographic book-keeping equation which goes as follows: Present population = Base population + (births + in-migrations) - (deaths + out-migrations).

The DSS Data Base System has all this information since July 1982 and this allows to have all the necessary data on population sizes and composition on a particular time and on the number of births, deaths, in-migration, out-migrations, inter-village movements, marital unions and dissolutions in a particular year.

The first objective of the 1993 Census was, therefore, to validate the correctness of the information collected through the regular surveillance system. Such a validation is recommended to take place every 5 to 10 years.

In addition, two more objectives of the census have to do with the fact that some important variable were missing in the regular surveillance system.

First, the households may have been divided and new households created in the ten years prior to 1993. In the existing data collection system, such changes were not recorded for the population that continued to live in the same village. So the Data Base did not have information about household mergers or divisions.

Second, the data on relationship to household head had remained unchanged since 1982. The household heads could have died or migrated out or became too old and left the family without a head. It is impossible to have information on these two topics without a census. Thus a brief visit to each household can provide the necessary information on household divisions, assignment of new household heads and determination of relationship of members of the household to the head.

The above considerations led us to envisage the census update in two phases: First, updating of the Data Base at the DSS-Dhaka Office where information on variables such as name, registration number, bari name, bari number, village name, village code, age or date of birth, mothers registration number, spouse registration number, marital status, and religion is maintained and preserved. In the second stage, checking of these data takes place through a field visit together with collection of new information on household divisions and relationships to head of the household.

### **3.2. Updating the Data Base in Preparation for 1993 Census**

The data processing was conducted in several stages. The Data Base had up to date information up to 1990. A special effort was then

made to update the Data Base with all events of 1991. The following tasks were carried out:

- (i) Individual records were made inactive if he or she had died or migrated out.
- (ii) New records were created if there were births or in-migrations.
- (iii) If there were inter-village movements, individuals were made inactive in the old village and active in the new village.
- (iv) Marital status was updated once the spouses had died, married, divorced or migrated out.

Second, the names of all births which had occurred between 1982 and 1991 were updated. The DSS Data Base System did not have such names because the birth forms were completed before the families had decided their babies' names. An ASCII file containing the registration number (RID) and sex of the babies without names was sent to Matlab where two Data Entry Technicians entered all names from the Matlab Census Volumes. This file was then brought to Dhaka and necessary arrangements were made to update the Data Base with those names. Once all the events up to 1991 and the names were updated, a special file was extracted from the Data Base with the necessary information mentioned earlier.

Third, all the vital events, migrations and marriages of 1992 were processed independently and matched with the special file mentioned above. The deaths and out-migrations were deleted and births and in-migrations were included in this file. The location of the individual was changed if there were inter-village movements, and marital status was changed if there were deaths or marital unions

and dissolutions. Fourth, one file for each village was created with the information derived from the special file.

### **3.3. Questionnaire**

A census form was designed where most of the existing data were printed and with blank spaces for the new information. The items of information printed in the questionnaire were: bari name and bari code, village name and village code, religion, registration number, current family number, mother and spouse registration number, date of birth and marital status. The blank spaces were for information on household formation and determination of the new household head and his/her relationship with the other members of the household when the previous head had died or migrated out. This form was used in the field to collect all information. (A printout of the census form is enclosed in Appendix B.)

### **3.4. Census Organization in the Field**

Sixteen teams of two people consisting of a Health Assistant and a newly recruited and trained worker appointed temporarily for census work were formed to conduct the census in the field. Each team was responsible for a defined geographical area covering approximately 13,000 people. The teams were given three days training. Prior to this work, pretests of the various stages of the operation like data extraction from the Data Base and of the census form was conducted. The process of adding information collected in the field to the final printout of households to be used in the census was also pre-tested.

### **3.5. Definition of the Study Population**

The 1993 Census covered the population of 142 villages. Originally, that is to say, during the 1982 Census there were 149 villages but 7 villages have disappeared since due to erosion caused by the Maghna river in the last ten years. These villages were Charputia (V37), Mohismari (V58), Naobanga (V69), South Joypur (V70), Ramanathgonj (VB9), North Joypur (D91), and West Joypur (D92). The population of these villages has mostly resettled in the nearby villages while some of them migrated out. A resident of the DSS area was defined, as in all other DSS censuses, as a person present in the DSS village for at least six months in a year or a person who returned to the village at least once in a month and stayed at least one night. A new household is said to be formed when a group of individuals within the household forms a separate unit with its own cooking and eating arrangements. The 1993 Census was enumerated using the De jure approach and the definition of resident at the census date was the determining factor for inclusion or exclusion from the enumeration. The actual census enumeration started on 18 May 1993 and lasted for six weeks. Some additions or deletions to the information on individuals were made so that the data referred to the first of June 1993 which was the reference date of the 1993 Census.

### **3.6. Field Procedures and Definition of Variables**

The individual information, such as sex, date of birth, relation to the head of household, date of household formation and assignment

of new head were the items of information collected in the 1993 census.

The following procedures were used for collection of information in the field:

- (i) A quick roll call of the household members to ascertain that the information listed in the printout is correct.
- (ii) Assignment of new current household identification numbers (Current ID) to each household.
- (iii) Deletion of deaths and out-migration that had occurred between January 1993 and the date of interview.
- (iv) Inclusion of births and in-migrations which had occurred between January 1993 and the date of interview.
- (v) Verifications were carried out to ascertain whether a person had been wrongly included or excluded or assigned to any other household.
- (vi) Identification of split households, the assignment of new current location numbers and the determination of the new head for each household and the assignment of new relationships.
- (vii) Identification of the new head of the household and the determination of the new relationships of the household members to the new head if the previous head had died or out-migrated or become disabled due to old age.

Usually the locations of heads of the households were closed in the Data Base (during computer data processing), if they had died or migrated out between July 1982 and December 1991. Thus, the task of the enumerators was to assign a new head in those cases. However, in many other cases heads of households were present, and in these cases the enumerators had to determine whether the head of the household was the same as in the 1982 Census or not. If the head of the household had not changed, it was also checked whether the existing head was disabled due to old age. If the head of household had died or migrated out or had become disabled due to old age, a

new head was selected. If there was any confusion about the answers provided, the enumerators probed further. Usually they asked who took important decisions about marriage, education, treatment, and cultivation. Once the head was designated, the relationships with other household members were ascertained.

Splitting of households needed careful treatment. If the household splitted after the 1982 Census, the first task was to determine the head of each of the new household and then to ascertain the relationship with each individual member. Household numbers, i.e., current identification numbers of all households, were provided by the Census Team. In case of presence of a new person who was not included in the printout, information on sex, date of birth, relation to head of household, etc. was collected.

A detailed set of relationships was worked out and used in the census. These were self (head), wife, son, daughter, daughter-in-law, daughter's husband, grandson, grand daughter, father, mother, brother, sister, uncle, aunt, cousin, etc. Lists of such relationships are enclosed in the Appendix D.

The individual's relationship to the head of household was used to classify the household in a certain category. The following household types were identified:

1. Single person household.
2. One generation households
  - a. Head and wife/husband
  - b. Head, brothers and sisters.

- c. Head, wife/husband, brothers and sisters.
3. Two generation households:
    - a. Head, wife/husband and unmarried children.
    - b. Head, wife/husband, married and unmarried children.
    - c. Head, and unmarried children.
    - d. Head, wife, father, mother
    - e. Head, brothers, sisters, father, mother
    - f. Head, wife/husband, brothers, sisters, father, mother
    - g. Head, father, mother
  4. Three generation households:
    - a. Head, wife/husband, unmarried children, father, mother.
    - b. Head, wife/husband, and married and unmarried children, father, mother.
    - c. Head, wife/husband, and married and unmarried children, father, mother, son's wife, daughter's husband and grand children.
  5. Other households (including households with non-relatives (i.e. tutor, servant) and distant relatives like cousins, nephews, nieces, etc.)

The only location identity that did not change in the census was the bari code. The old code for each bari given before the 1993 Census was retained, but if there was a new bari, the enumerator allocated a new number following the last bari code used in the village to which the bari belonged.

### **3.7. Data Entry, Update and Printout**

Census forms were sent to the Dhaka office after completion of the field work. Data entry, cross checking for range and logical



consistency were done in the Dhaka Office. While the current identification number of the household was assigned in the field, the individual number within the household was generated by the computer on the basis of the following logic. The first number was given to the head, the second to the wife, the third to unmarried children in an ascending order according to the date of birth. Married children with their spouses and children were placed one after another in an ascending order according to the date of birth of the married children; other members of the household came last. When all possible errors had been checked, the household size was computed and the marital status of all members was updated. Finally, four print-outs were made for each village: one for household visiting cards which were posted in each household and will be checked and updated each month, the second one to be given to the respective Health Assistant for his subsequent registration work in the field, the third one was for the Matlab field station office: and the last one was for the Dhaka office.

## CHAPTER FOUR

### RESULTS

#### 4.1. Population Size

Table 1 presents data on the population size and composition by sex, and sex ratios in the 1993 Census. The population enumerated in the 1993 Census in 142 villages was 208,160 of whom 103,782 were males and 104,378 females, yielding a sex ratio of 99.4 males per 100 females. This sex ratio is consistent with the sex ratio of Matlab thana and Chandpur district found in the National Census 1991 (Bangladesh Bureau of Statistics, 1994). There was no difference in sex ratios between the MCH-FP and Comparison areas. Block B showed a lower and Block C showed a higher sex ratios than the sex ratios of the MCH-FP area.

The DSS villages varied in size ranging from 200 to more than eight thousand and the average population per village was 1,466 persons.

Table 1: Population by Area and Sex, 1993 Census

Area	Both sexes	Males	Females	Sex Ratio
Both areas	208,160	103,782	104,378	99.4
MCH-FP area	106,011	52,803	53,208	99.2
Block-A	29,475	14,622	14,853	98.4
Block-B	26,562	13,096	13,466	97.3
Block-C	27,657	13,969	13,688	102.1
Block-D	22,317	11,116	11,201	99.2
Comparison area	102,149	50,979	51,170	99.6

#### 4.2. Age and Sex Composition

The age structure and sex ratio of both areas are presented in Table 2. It shows that the sex ratios were different in the various age groups. The sex ratio of the youngest age group was 101. In the younger groups, that is, from 0-19 ages, there were always more males than females in this area. However, sex ratios were lower than 100 from the age group 20-24 and continued to be lower up to age 59. After that there was a reversal up to the highest age group. The lowest sex ratio was observed in the age group 25-29 years old followed by age groups 45-49 and 50-54. The trend of sex ratios by ages was consistent with the statistics computed for Matlab thana in the 1991 National Census (Bangladesh Bureau of Statistics, 1994). Detailed information on the composition of the 1993 population by area, sex and age in single year is given in Appendix A, Tables A-1, A-2 and A-3.

The proportion of the population in different broad age groups in the two areas is presented in Table 3. The population of both areas is young like those of all other developing countries. Thirty nine percent of the total population belonged to the age group 0-14 years. The proportion under 15 years in the MCH-FP area was 37 percent and in the Comparison area 42 percent. In the Comparison area the active population in the age group 15-49 years old constituted 45 percent while in the MCH-FP area it constituted 49 percent of the total population.

Dependency ratios were calculated and presented in Table 4. The dependency ratio, which is an indicator of the economic burden to be carried by a population, was calculated assuming

Table 2: Population by Sex and Age, 1993 Census

Age (years)	Number			Sex ratio	Percent		
	Both sexes	Males	Females		Both sexes	Males	Females
0-4	27,750	13,967	13,783	101.3	13.3	13.5	13.2
5-9	28,652	14,604	14,048	104.0	13.8	14.1	13.5
10-14	25,604	13,568	12,036	112.7	12.3	13.1	11.5
15-19	21,991	11,642	10,349	112.5	10.6	11.2	9.9
20-24	18,965	9,172	9,793	93.7	9.1	8.8	9.4
25-29	15,813	6,919	8,894	77.8	7.6	6.7	8.5
30-34	14,736	7,269	7,467	97.3	7.1	7.0	7.2
35-39	10,931	5,466	5,465	100.0	5.3	5.3	5.2
40-44	8,221	4,008	4,213	95.1	3.9	3.9	4.0
45-49	7,792	3,450	4,342	79.5	3.7	3.3	4.2
50-54	7,442	3,321	4,121	80.6	3.6	3.2	3.9
55-59	6,685	3,299	3,386	97.4	3.2	3.2	3.2
60-64	5,225	2,663	2,562	103.9	2.5	2.6	2.5
65-69	3,541	1,840	1,701	108.2	1.7	1.8	1.6
70-74	2,366	1,248	1,118	111.6	1.1	1.2	1.1
75-79	1,370	741	629	117.8	0.7	0.7	0.6
80-84	692	382	310	123.2	0.3	0.4	0.3
85+	384	223	161	138.5	0.2	0.2	0.2
Total	208,160	103,782	104,378	99.4	100.0	100.0	100.0

Table 3: Percentage Distribution of Population in Broad Age Groups by Area, 1993 Census

Age (years)	Both areas	MCH-FP area	Comparison area
0-14	39.4	37.2	41.8
15-49	47.3	49.2	45.2
50+	13.3	13.6	12.9
Total	100.0	100.0	100.0
N	208,160	106,011	102,149

that the adult population of age 15-64 years old is taking the burden of the young (0-14 years) and old (65+ years) population. Thus the dependency ratio consists of 0-14 years population plus 65+ years population divided by the 15-64 age groups. This dependency ratio was 76.7 for both areas. The total dependency ratio in the Comparison and MCH-FP areas were 84 and 70 per 100 adults, respectively. The ratio of young children was much lower in the MCH-FP area than in the Comparison area: it was 63 in the MCH-FP area and 77 in the Comparison area. The ratio of the old (65 years and older) was 7 in both areas.

Table 4: Dependency Ratios by Area, 1993 Census

Age (years)	Both areas	MCH/FP area	Comparison area
0-14	69.6 (82,006)	63.3 (39,390)	76.8 (42,616)
65+	7.1 (8,353)	7.1 (4,402)	7.1 (3,951)
Total	76.7 (90,359)	70.4 (43,792)	83.8 (46,567)

Note: Numbers in brackets is the number of "dependents" (0-14, 65 and more years old). Dependency ratio is calculated with formula  $100 P_x / P_{15-64}$  whereby  $P_x$  is the population in age group x.

#### 4.3. Religion

Table 5 presents the data on religion. About 87.3 percent of the total population had the Muslim religion and the others were Hindus. The two communities are used to live together in the same village. Only 42 of the 142 villages were entirely Muslim and 1 village had an entirely Hindu population. Twelve persons were reported as belonging to other religions and are included here in the Hindu population. More information on the composition of population of the DSS area by religion is shown in Appendix A, Table A-4.

Table 5: Population by Sex and Religion, 1993 Census

Religion	Both sexes		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
Muslims	181,695	87.3	90,293	87.0	91,402	87.6
Hindus	26,461	12.7	13,488	13.0	12,973	12.4
Total	208,156	100.0	103,781	100.0	104,375	100.0

Note: Four cases were not included due to missing information on religion in 1993 Census.

#### 4.4. Marital Status

The distribution of the population by marital status and sex is presented in Table 6. The table shows that 63 percent of the male and 49 percent of the female population had never married. The percentage of married males in 1993 census was 36 and the percentage of married females was 37. There is in the 1993 Census

for the first time additional information about the married population: namely, married but spouse absent. There were a few married males whose spouses were not present but 4 percent of females had spouses who were away from the DSS area most of the time. While the percent of widowers was small, widowed women constituted 9 percent of the total female population. The percent of the population which was divorced was small (less than 1 percent).

Table 6: Marital Status of Population by Sex, 1993 Census

Marital status	Both sexes		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
Never married	115,995	55.7	65,275	62.9	50,720	48.6
Married	75,892	36.5	36,946	35.6	38,946	37.3
Married but spouse absent	5,102	2.5	572	0.6	4,530	4.3
Widowed	10,095	4.9	761	0.7	9,334	8.9
Divorced	1,076	0.5	228	0.2	848	0.8
Total	208,160	100.0	103,782	100.0	104,378	100.0

The distribution of the population by age, sex and marital status is presented in Table 7. This table reveals that the proportion never married men and women decreases with increasing age, and in the highest age group there was virtually no one left never married. Ninety-five percent of the males aged 60-64 and 37 percent of the females aged 60-64 were found living in marital union in the 1993 Census. By age seventy-five, 88 percent of the males were in the same state and only 16 percent of the females were living in marital union. From age 50 onwards, widowhood among males started

to increase. In contrast, women's widowhood started at age 30 and increased with increasing age. So by the age 75, more than 80 percent of the women were widowed while only 11 percent were widowed at that age. By age 84 nearly all women were widowed and only 38 percent were widowers. The proportion divorced was higher among females than males in all the age groups. There was no substantial difference in the distribution of marital status by age between males or between females of the two areas. More information on this topic is provided in Appendix A Table A-5.

Table 7: Percent Distribution of Population by Marital Status, Age and Sex, 1993 Census

Age group	Males						Females					
	NM	PM	MSA	WID	DIV	TOTAL	NM	PM	MSA	WID	DIV	TOTAL
0-4	100.0	0.0	0.0	0.0	0.0	13,967	100.0	0.0	0.0	0.0	0.0	13,783
5-9	100.0	0.0	0.0	0.0	0.0	14,604	100.0	0.0	0.0	0.0	0.0	14,048
10-14	99.9	0.0	0.1	0.0	0.0	13,568	99.5	0.2	0.3	0.0	0.0	12,036
15-19	98.9	0.9	0.2	0.0	0.0	11,642	78.3	15.6	5.5	0.0	0.6	10,349
20-24	83.4	15.3	1.0	0.0	0.3	9,172	23.7	61.5	13.2	0.2	1.4	9,793
25-29	42.7	54.9	1.9	0.0	0.5	6,919	4.1	82.0	11.4	0.7	1.8	8,894
30-34	11.6	86.2	1.6	0.1	0.6	7,269	0.9	85.8	9.1	2.2	2.0	7,467
35-39	2.2	96.3	0.9	0.1	0.4	5,466	0.5	85.3	7.1	5.2	2.0	5,465
40-44	0.6	98.0	0.8	0.1	0.4	4,008	0.2	82.5	5.2	10.7	1.4	4,213
45-49	0.7	97.5	0.8	0.6	0.3	3,450	0.1	76.8	3.2	18.7	1.2	4,342
50-54	0.5	97.3	0.8	1.0	0.4	3,321	0.1	66.5	2.3	30.1	1.0	4,121
55-59	0.2	97.2	0.7	1.7	0.3	3,299	0.1	51.0	1.8	46.5	0.6	3,386
60-64	0.3	95.1	0.7	3.5	0.5	2,663	0.3	37.4	0.7	61.0	0.6	2,562
65-69	0.2	91.4	0.6	7.0	0.8	1,840	0.0	26.8	0.4	72.1	0.7	1,701
70-74	0.1	87.6	0.6	10.7	1.0	1,248	0.1	15.6	0.3	83.2	0.9	1,118
75-79	0.1	84.5	0.4	14.3	0.7	741	0.6	8.1	0.5	90.3	0.5	629
80-84	0.3	78.0	0.5	21.2	0.0	382	0.3	4.2	0.3	93.9	1.3	310
85+	2.2	58.3	0.9	38.1	0.4	223	1.9	2.5	0.6	94.4	0.6	161
Total	65,275	36,946	572	761	228	103,782	50,720	38,946	4,530	9,334	848	104,378

NM = Never married, PM = Presently married, MSA = Married but spouse absent, WID = Widowed, DIV = Divorced



The singulate mean age at marriage was calculated using the Hajnal Method and results are presented in Table 8. The singulate mean age at marriage for women in the 1993 Census was 20.3 years and for men 26.8 years. The singulate mean age at marriage of men and women in the MCH-FP area was a little higher than in the Comparison area. The singulate mean age at marriage computed for Hindus and Muslims shows that Muslim men married on average somewhat earlier than their counterpart Hindus and Muslim women married nearly a year earlier than their counterpart Hindus.

Table 8: Singulate Mean Age at Marriage by Sex, Area and Religion, 1993 Census

Area/religion	Males	Females
Both areas	26.8	20.3
MCH/FP area	27.0	20.5
Comparison area	26.6	20.0
Muslims	26.8	20.2
Hindus	27.1	21.0

#### 4.5. Household Size and Type

Tables 9-12 present details on household size and household structure. In the 1993 Census, a total of 38,429 households were enumerated of which 20,227 were in the MCH-FP area and 18,202 were in the Comparison area. Table 9 presents the percent of population and percent of households for each household type and the average household size. The table shows that most of the households consisted of two generations followed by the households categorised

as "others". There were 1,189 single-person households, while the average household size computed for both areas was 5.4 persons. The average household size of the one-generation households was 2.7 persons, while the average size of the two generation households was 5 persons.

Table 9: Type of Household, Population and Average Household Size, 1993 Census

Household type	Households		Population		Household size
	No.	Percent	No.	Percent	
Single person	1,189	3.1	1,189	0.6	1.0
One generation	1,615	4.2	4,294	2.1	2.7
Two generations	23,073	60.0	115,295	55.4	5.0
Three generations	4,457	11.6	31,830	15.3	7.0
Others	8,095	21.1	55,540	26.7	6.9
All households	38,429	100.0	208,148	100.0	5.4

Data on the percent of households by sex of the head of the household and area is presented in Table 10. The table shows that while only 0.7 percent of male-headed households consisted of single persons, the corresponding figure for female-headed households was 15 percent. Table 10 also shows that most of the three-generation families were headed by males. The percent of single-person female-headed household was higher in the Comparison area than in the MCH-FP area. The percent distribution of all other household type was more or less same between males and females and between MCH-FP and Comparison areas.

Table 10: Percentage Distribution of Households by Type of Household, Sex of Head of Household and Area, 1993 Census

Household type	Head of household		Area	
	Males	Females	MCH-FP	Comparison
Single	0.7	15.4	2.7	3.6
One generation	4.2	4.1	4.2	4.2
Two generations	60.2	59.4	60.6	59.4
Three generations	13.3	2.3	11.4	11.8
Others	21.6	18.3	21.2	20.9
All households	100.0	100.0	100.0	100.0
N	32,375	6,054	20,227	18,202

Data on the average household size by sex of the head of household and area are given in Table 11. The average size of the female headed households was 3.6 and of male-headed household was 5.8. The household size by area shows that the average household size in the MCH-FP and Comparison areas was 5.2 and 5.6 persons respectively. The reduction in household size occurred in the two or more generation households of the MCH-FP area compared to the Comparison area.

Table 11: Average Household Size by Type of Household, Sex of Head of Household and Area, 1993 Census

Household type	Head of household		Area	
	Males	Females	MCH-FP	Comparison
Single	1.0	1.0	1.0	1.0
One generation	2.5	3.3	2.7	2.7
Two generations	5.2	3.9	4.8	5.2
Three generations	7.2	6.2	6.8	7.5
Others	7.2	5.0	6.7	7.1
All households	5.8	3.6	5.2	5.6
N	32,375	6,054	20,227	18,202

Information on marital status and household type by sex of head of household is presented in Table 12. The table shows that 95 percent of the men in male-headed households were married while only 20 percent of the women were married in female-headed households. A total of 50 percent of the female-headed households were widows. Finally, eighty-four percent of the single-person female-headed households were widows compared to only 14 percent of the single-person male-headed households. Further details on the composition of households by area are shown in Appendix A, Table A-6.

Table 12: Percentage Distribution of Households by Sex of Head of Household, Marital Status and Type of Household, 1993 Census

Household type	Never married	Presently married	Married but spouse absent	Widowed	Divorced	Total
<b>Male heads:</b>						
Single person	33.3	25.3	21.8	13.8	5.8	225
One generation	2.6	95.5	0.5	1.2	0.2	1,368
Two generations	3.2	95.8	0.3	0.4	0.2	19,477
Three generations	2.0	96.9	0.2	0.8	0.1	4,319
Others	3.2	92.6	0.5	3.3	0.4	6,986
All households	3.2	94.8	0.5	1.2	0.3	32,375
<b>Female heads:</b>						
Single person	1.2	3.6	5.7	84.4	5.0	964
One generation	3.6	3.6	2.0	87.9	2.8	247
Two generations	0.2	28.6	37.2	32.2	1.9	3,596
Three generations	0.0	23.9	30.4	39.9	5.8	138
Others	0.6	11.6	16.0	69.9	1.9	1,109
All households	0.6	20.4	26.7	49.9	2.5	6,054

**CHAPTER FIVE**  
**DEMOGRAPHIC DEVELOPMENTS IN 1974-1993**

During the past decades Bangladesh has experienced profound economic, social and demographic changes. The Matlab DSS offers an excellent opportunity to document these changes and this holds in particular for the various censuses which have been conducted in the framework of DSS during the past 20 years. Since in the 1993 Census no data have been collected on social and economic topics, this chapter will for the most part be limited to a description and analysis of the demographic changes which have taken place in Matlab. We will do this by comparing results of the 1993 Census with those conducted earlier in 1974 and 1982.

**5.1. Population Growth**

The data from the censuses of 1974 and 1982 shown in Table 13 are recalculated figures. This was necessary because originally the DSS area comprised 228 villages which means that the 1974 Census covered 228 villages. The change from 228 to 149 villages took place in 1977 as we have seen in Chapter One. At that time the division of the DSS area in a MCH-FP area and Comparison area took place. It is also worth repeating that Chapter Three it was mentioned that in the 1980s 7 villages have disappeared as a result of erosion which means that the 1993 Census covered 142 villages.

Table 13 shows figures on population size in 1974 and 1982 for the 149 villages. These data, in combination with those of Table 1, show an increase of about 20,000 persons between 1974 and 1982 and another increase of about 20,600 persons in 1982-1993 (see Table 14). However, the average annual growth rate declined from 1.4 percent in 1974-1982 to 1.0 percent in 1982-1993. The growth rate was similar in MCH-FP and Comparison areas in 1974-1982, but decreased slightly more in the Comparison area in 1982-1993 than in the MCH-FP area. The single most important reason for this is the higher net out-migration rates in the Comparison area than in the MCH-FP area during the past decade as can be seen in various DSS Annual Reports (see e.g., ICDDR,B, 1996).

Table 13: Population by Area and Sex, 1974 and 1982 Censuses

Area	Both sexes	Males	Females	Sex ratio
<b>1974 census</b>				
Both areas	167,641	85,082	82,559	103.1
MCH-FP area	84,771	43,007	41,764	103.0
Block-A	21,737	11,007	10,730	102.6
Block-B	21,543	10,878	10,665	102.0
Block-C	21,989	11,250	10,739	104.8
Block-D	19,502	9,872	9,630	102.5
Comparison area	82,870	42,075	40,795	103.1
<b>1982 census</b>				
Both areas	187,574	94,956	92,618	102.5
MCH-FP area	94,796	47,925	46,871	102.3
Block-A	24,563	12,491	12,072	103.5
Block-B	24,039	11,988	12,051	99.5
Block-C	25,090	12,746	12,344	103.3
Block-D	21,104	10,700	10,404	102.8
Comparison area	92,778	47,031	45,747	102.8

Table 14: Intercensal Increase and Average Annual Growth Rate (in percentages) during 1974-1993

Area	Population			Growth Rate		
	Both sexes	Males	Females	Both sexes	Males	Females
<b>1974-1982</b>						
Both areas	19,933	9,874	10,059	1.4	1.4	1.4
MCH-FP area	10,025	4,918	5,107	1.4	1.4	1.4
Block-A	2,826	1,484	1,342	1.5	1.6	1.5
Block-B	2,496	1,110	1,386	1.4	1.2	1.5
Block-C	3,101	1,496	1,605	1.7	1.6	1.7
Block-D	1,602	828	774	1.0	1.0	1.0
Comparison area	9,908	4,956	4,952	1.4	1.4	1.4
<b>1982-1993</b>						
Both areas	20,586	8,826	11,760	1.0	0.8	1.1
MCH-FP area	11,215	4,878	6,337	1.0	0.9	1.2
Block-A	4,912	2,131	2,781	1.7	1.4	1.9
Block-B	2,523	1,108	1,415	0.9	0.8	1.0
Block-C	2,567	1,223	1,344	0.9	0.8	0.9
Block-D	1,213	416	797	0.5	0.4	0.7
Comparison area	9,371	3,948	5,423	0.9	0.7	1.0

The addition of about 40,000 people in the study area in a period of about 20 years means that population density increased from 913 per sq. km in 1974 to 1130 per sq. km in 1993. The figure of an average annual growth rate of 1.0 percent in 1982-1993 corresponds well with figures calculated for each year separately as shown in the Annual Reports. These rates vary in the period 1982-1993 from 0.0 to 2.5 percent, and the average is also about 1.0 percent (ICDDR,B, 1996).

## 5.2. Age and Sex Composition

Changes in the age pyramid of the DSS population in the period between the middle of 1974 and 1993 are shown in Figure 1. This

Figure 1: Age Pyramid of Three Censuses

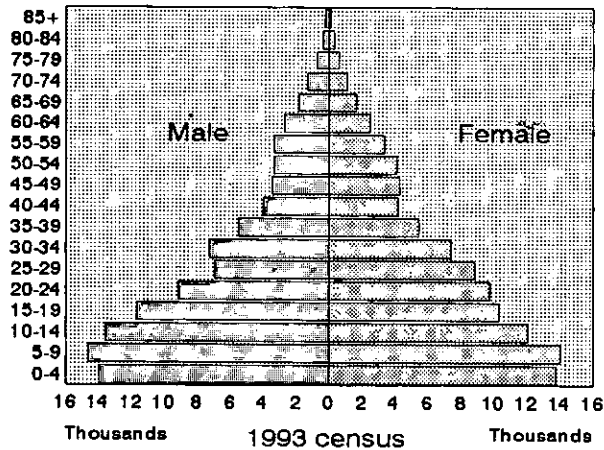
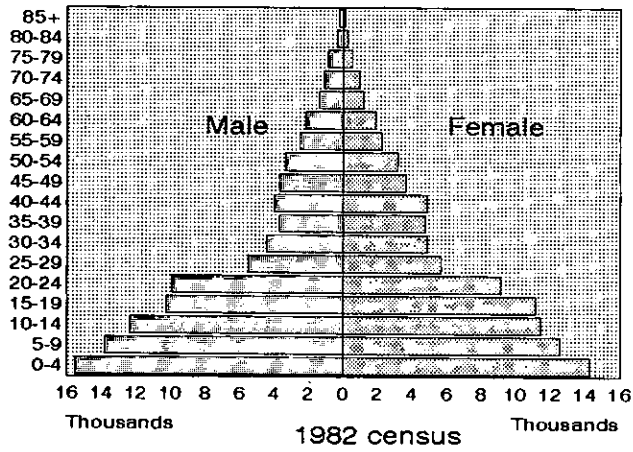
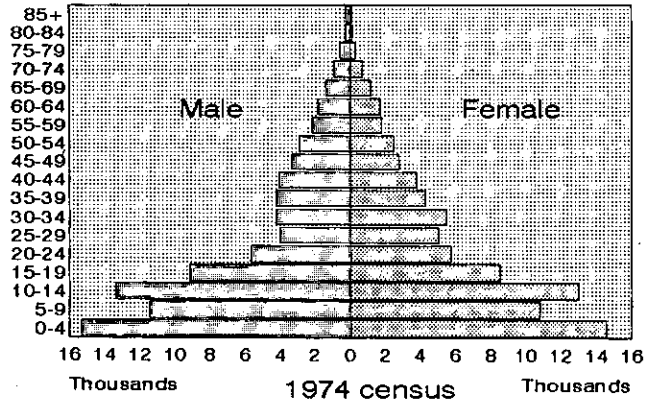




figure shows large numbers of children in the age groups below 15 years of age in 1974 and in 1982. A decline in the youngest age group is clearly visible between 1982 and 1993. More detailed figures are shown in Table 15. We see a steady decline in the percentage of the population 0-4 years of age followed by a less small decline in the ages between the ages 5-14 years old. At the same time gradual increases in the older age groups can be seen both in absolute numbers and as percentages of the total population. Similar figures as in Table 15, but limited to three broad age groups in the two areas are to be found in Table 16. We

Table 15: Percentage Distribution of Population by Age and Sex in Three Censuses

Age (years)	1974 census		1982 census		1993 census	
	Males	Females	Males	Females	Males	Females
0-4	18.0	17.6	16.4	15.4	13.5	13.2
5-9	13.5	13.1	14.6	13.6	14.1	13.5
10-14	15.7	15.7	13.0	12.4	13.1	11.5
15-19	10.8	10.3	10.8	12.0	11.2	9.9
20-24	6.7	6.9	10.4	9.9	8.8	9.4
25-29	4.7	6.1	5.8	6.2	6.7	8.5
30-34	5.0	6.7	4.7	5.3	7.0	7.2
35-39	5.0	5.2	3.9	5.1	5.3	5.2
40-44	4.8	4.6	4.2	5.0	3.9	4.0
45-49	3.9	3.4	3.9	4.0	3.3	4.2
50-54	3.4	3.1	3.5	3.4	3.2	3.9
55-59	2.5	2.2	2.6	2.4	3.2	3.2
60-64	2.2	2.0	2.3	2.1	2.6	2.5
65-69	1.6	1.4	1.5	1.3	1.8	1.6
70-74	1.1	0.9	1.1	1.0	1.2	1.1
75-79	0.6	0.4	0.7	0.6	0.7	0.6
80-84	0.3	0.2	0.4	0.2	0.4	0.3
85+	0.2	0.2	0.2	0.1	0.2	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	85,082	82,559	94,956	92,618	103,782	104,378

Table 16: Percentage Distribution of Population in Broad Age Groups by Area in Three Censuses

Age (years)	Both areas	MCH-FP area	Comparison area
<b>1974 Census:</b>			
0-14	46.8	46.9	46.7
15-49	42.0	42.1	42.0
50+	11.2	11.0	11.3
Total	100.0	100.0	100.0
N	167,641	84,771	82,870
<b>1982 Census:</b>			
0-14	42.7	42.1	43.2
15-49	45.5	45.9	45.2
50+	11.8	12.1	11.6
Total	100.0	100.0	100.0
N	187,574	94,795	92,779
<b>1993 Census:</b>			
0-14	39.4	37.2	41.8
15-49	47.3	49.2	45.2
50+	13.3	13.6	12.9
Total	100.0	100.0	100.0
N	208,160	106,011	102,149

see decreases in the percentages of children below 15 between 1974 and 1993 with larger declines in the MCH-FP area than in the Comparison area. This is very likely due to the operation of the MCH-FP programme in the MCH-FP area. Since the inception of this programme in 1977, the total fertility rate (TFR) declined from about 5.0 in 1978-1980 to 2.9 in 1992 and the percentage of married women practicing contraception increased during the same time from 19 percent to 61 percent (ICDDR,B, 1990; Koenig et al., 1994). However gratifying these figures are, it should be borne in mind that in terms of absolute numbers there was no decline in the number of children below 15 between 1974 and 1993. In the middle of 1974 there were about 39,400 children below 15 in the MCH-FP area and the corresponding figure in the middle of 1993 was about 39,750.

Another positive point which should be mentioned is that the dependency ratio declined in the DSS area. It was about 101 in 1974 which is very close to the 102 calculated by Ruzicka and Chowdhury for the DSS area with the boundaries prevailing at that time (Ruzicka and Chowdhury, 1978). We have seen in Table 4 that the dependency ratio declined to 77 in 1993.

Data on sex ratios (number of males per 100 females) in different age groups are shown in Table 17. In all the three censuses there were nearly always more males than females (sex ratio's are higher than 100) in the age groups below 20. This is probably due to a combination of higher male than female sex ratios at birth and higher female than male mortality in the age groups between 1 and 4 years old.

Table 17: Sex Ratios by Age in Three Censuses

Age (years)	Sex ratio		
	1974 census	1982 census	1993 census
0-4	105.2	108.8	101.3
5-9	106.3	109.9	104.0
10-14	103.0	108.1	112.7
15-19	107.3	92.2	112.5
20-24	99.8	108.0	93.7
25-29	79.1	96.3	77.8
30-34	76.7	90.7	97.3
35-39	98.7	77.6	100.0
40-44	108.1	85.1	95.1
45-49	118.5	101.2	79.5
50-54	114.5	104.9	80.6
55-59	121.2	112.8	97.4
60-64	109.6	115.0	103.9
65-69	114.4	118.5	108.2
70-74	128.3	113.6	111.6
75-79	171.2	123.1	117.8
80-84	156.0	158.1	123.2
85+	145.3	189.0	138.5
All	103.1	102.5	99.4
N	167,641	187,574	208,160

The age groups between 20 and 40 years old are in general characterized by more women than men (sex ratios below 100). This is undoubtedly due to the somewhat higher out-migration rates for men than for women in these age groups. In the age groups 40 to 60 years old we see in general high sex ratios in the 1974 and 1982 Censuses and much lower sex ratios in the 1993 Census. The low sex ratios in 1993 compared to 1974 and 1982 could be due to higher male than female out-migration rates in the early nineties compared to the early seventies and eighties.

In the age groups 60 years and higher we see in general an increase in sex ratios with age. The following three factors may have been responsible for this phenomenon: higher in-migration than out-migration of males at advanced ages in comparison with females, higher female than male mortality in the past and differences in the quality of age reporting by sex at the time DSS was set up.

### **5.3. Religion**

Data on the increase of population by religion are provided in Table 18. Growth rates of the Muslim versus Hindu population are quite different. The Muslim population increased on average by 1.6 percent per year in the period 1974-1993 while the Hindu population increased much less in 1974-1982 and actually declined by about 0.4 percent per year in 1982-1993. The difference between these two growth patterns is largely due to differences in migration patterns. Out-migration in particular is much more common in the Hindu population than in the Muslim population and in particular in 1982-1993. More details about the composition of the population by

Table 18: Intercensal Increase and Average Growth Rate (in percentages) by Religion during 1974-1993

Period	Population			Growth Rate		
	Total	Muslims	Hindus	Total	Muslims	Hindus
1974-1982	19,939	18,980	959	1.4	1.6	0.4
1982-1993	20,582	21,796	-1,214	1.0	1.6	-0.4

Note: There were 7 cases in the 1974 census and 4 cases in the 1993 census for which no information on religion were available and they were, therefore, not included in the 1974 and 1993 figures.

religion is given in Appendix A, Table A-7. From figures in this table it can be derived that the Hindu population as a percentage of the whole population declined from 15.9 percent in 1974 to 14.8 percent in 1982 and then to 12.7 percent in 1993.

#### 5.4. Marital Status

Changes in the population by marital status in a period of 20 years are shown in Table 19. Looking at the absolute numbers, we see that there have been increases everywhere. For instance, the number of widows and widowers has increased from 8,260 in 1974 to 10,095 in 1993 and the number of unmarried from about 96,000 to 116,000.

Looking at the percentage distributions, it can be seen that these have remained fairly constant between 1974 and 1993. The percentage of the population which was married increased from 37.4 percent in 1982 to 39.0 percent in 1993 (included in this last figure is the 2.5 percent who is married but with spouse absent).

Table 19 makes it further clear that there have been hardly any changes in the composition of marital status by sex. This means that important differences in marital status by sex are found in all three censuses. These differences have already been discussed in the preceding chapter. Here we will mention only that about 10 percent of the female population was widowed or divorced in all three censuses; this percentage was much lower in the male population (about 1 percent).

Table 19: Percentage Distribution of Population by Sex and Marital Status in Three Censuses

Marital status	Both sexes		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
<b>1974 census</b>						
Never married	95,649	57.1	54,074	63.6	41,575	50.4
Married	62,594	37.4	29,893	35.1	32,701	39.6
Widowed	8,260	4.9	808	1.0	7,452	9.0
Divorced	1,119	0.7	297	0.4	822	1.0
Total	167,622	100.0	85,072	100.0	82,550	100.0
<b>1982 census</b>						
Never married	106,595	56.8	60,548	63.8	46,047	49.7
Married	70,321	37.5	33,312	35.1	37,009	40.0
Widowed	9,183	4.9	797	0.8	8,386	9.1
Divorced*	1,475	0.8	299	0.3	1,176	1.2
Total	187,574	100.0	94,956	100.0	92,618	100.0
<b>1993 census</b>						
Never married	115,995	55.7	65,275	62.9	50,720	48.6
Married	75,892	36.5	36,946	35.6	38,946	37.3
Married but spouse absent	5,102	2.5	572	0.6	4,530	4.3
Widowed	10,095	4.9	761	0.7	9,334	8.9
Divorced	1,076	0.5	228	0.2	848	0.8
Total	208,160	100.0	103,782	100.0	104,378	100.0

\*Including 36 persons listed as "separated".

More details about marital status by age and sex in 1974 and 1982 are given in Appendix A, Table A-8. The data in these tables can be compared with those of 1993 as provided in Table 7. The results of this comparison will not be discussed here except to note that the age at marriage is increasing. This can be seen much more clearly in Table 20 dealing with changes in the singulate mean age at marriage (first and later marriages). Age at marriage for men has increased from 24.6 years in 1974 to 26.8 years in 1993 while corresponding figures for women were 17.0 and 20.3 years.

Table 20: Singulate Mean Age at Marriage by Sex and Religion in Three Censuses

Religion	Males	Females
<b>1974 census</b>		
Muslims	24.4	16.8
Hindus	25.5	17.9
Total	24.6	17.0
<b>1982 census</b>		
Muslims	24.9	18.4
Hindus	25.5	19.3
Total	25.0	18.6
<b>1993 census</b>		
Muslims	26.8	20.2
Hindus	27.1	21.0
Total	26.8	20.3

### 5.5. Household Size and Type

The number of households in the DSS area increased from 28,600 in 1974 to 31,846 in 1982 and further to 38,429 in 1993. The increase in households was, therefore, much larger during the period 1982-



1993 namely 6,583 than in the period 1974-1982 namely 3,246. Figures on these increases as well as on average annual growth rates are shown in Table 21. The household growth rate was 1.3 percent per year in 1974-1982 and 1.7 percent per year in 1982-1993. The increase in households was much faster in the MCH-FP area than in the Comparison area.

Table 21: Intercensal Increase in Households and Average Annual Growth Rate (in percentages) by Area during 1974-1993

Period	Households			Growth Rate		
	Both areas	MCH-FP area	Comparison area	Both areas	MCH-FP area	Comparison area
1974-1982	3,246	1,988	1,258	1.3	1.6	1.1
1982-1993	6,583	3,971	2,612	1.7	2.0	1.4

It is not clear why there was a much higher growth rates of households in the MCH-FP area throughout 1974-1993. One reason could be that the field staff in the MCH-FP area was more active in the splitting of households on time than in the Comparison area. This would mean that the size of households should diminish more rapidly in the MCH-FP area than in the Comparison area. As we will see further on this was not the case between 1974 and 1982. There is indeed such a decline in the expected direction between 1982 and 1993 but this is likely due to the effects of the family planning programme operating in the MCH-FP area.

Comparison of the household growth rates with the population growth rates of Table 14 shows about similar growth rates in 1974-1982 (1.3 percent increase per year in households versus 1.4 percent in

population) and higher household growth rates in 1982-1993 (1.7 percent increase per year in households versus 1.0 percent increase in population).

Table 22 shows the number of households at three points in time by whether the households were headed by men or women. It can be seen that the number of male-headed households has increased over a period of time of 20 years (from 25,285 to 32,375) and the number of female-headed households increased even faster (from 3,315 to 6,054). We see again that the number of households grew faster in the MCH-FP area than in the Comparison area.

From the above-mentioned figures it should not be concluded that female-headed households are characterized by the fact that husbands are not part of these households. This can be the case, but this does not have to be so. There are households where the husbands are working for long periods of time in other parts of Bangladesh or abroad. They rarely come home which means in DSS at intervals lasting more than 6 months. In these cases, they were after their departure registered as out-migrants and are, therefore, not part of the De Jure population anymore. Or it may be that they are still part of the De Jure population, but come home so infrequently that their wives are registered as the head of the household.

It is likely that especially the female-headed households are more vulnerable both economically and socially than the male-headed households. Unfortunately, no socio-economic variables were collected in the 1993 census and for this reason it is not possible

to describe the problems of this group in more detail. (This has, however, be done in the framework of the Matlab BRAC-ICDDR,B project. See, for instance, Hossain and Huda, 1995; Momen, Bhuiya and Chowdhury, 1995).

Table 22: Percentage Distribution of Households by Sex of Head of Household and Area in Three Censuses

Area	1974 census		1982 census		1993 census	
	No.	Percent	No.	Percent	No.	Percent
<b>Both areas</b>						
Males	25,285	88.4	27,646	86.8	32,375	84.2
Females	3,315	11.6	4,200	13.2	6,054	15.8
Both sexes	28,600	100.0	31,846	100.0	38,429	100.0
<b>MCH-FP area</b>						
Males	12,693	89.0	14,140	87.0	17,013	84.1
Females	1,575	11.0	2,116	13.0	3,214	15.9
Both sexes	14,268	100.0	16,256	100.0	20,227	100.0
<b>Comparison area</b>						
Males	12,592	87.9	13,506	86.6	15,362	84.4
Females	1,740	12.1	2,084	13.4	2,840	15.6
Both sexes	14,332	100.0	15,590	100.0	18,202	100.0

More details about the marital status of the heads of households in 1974, 1982 and 1993 are provided in Appendix A, Table A-9. It can be seen there, for instance, that the number of widows who are heads of households have increased from about 2,000 in 1974 to 3,000 in 1993.

Information on developments with respect to household size is given in Table 23. Parallel with the increase in the number of households

Table 23: Mean Household Size by Sex of the Head of Household, and Area in Three Censuses

Type of household	1974 census			1982 census			1993 census		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
Both areas	5.9	6.2	3.6	5.9	6.2	3.9	5.4	5.8	3.6
N	28,600	25,285	3,315	31,846	27,646	4,200	38,429	32,375	6,054
MCH-FP area	5.9	6.2	3.7	5.8	6.1	3.9	5.2	5.5	3.7
N	14,268	12,693	1,575	16,256	14,140	2,116	20,227	17,013	3,214
Comparison area	5.8	6.1	3.5	5.9	6.3	3.9	5.6	6.0	3.6
N	14,332	12,592	1,740	15,590	13,506	2,084	18,202	15,362	2,840

goes the decrease in average size. For the DSS area as a whole the decrease was limited to the period between 1982 and 1993 (from 5.9 to 5.4). In the 1980s, the decline was stronger in the MCH-FP area (from 5.8 to 5.2) than in the Comparison area (from 5.9 to 5.6). The decline in the MCH-FP area is probably the result of the MCH-FP programme implemented in this area (Fauveau et al., 1994; Koenig et al., 1994). Table 23 further shows, as expected, that the decline in household size in the MCH-FP area took for the most part place in male-headed households. In the MCH-FP area the size of these households declined from 6.2 in 1974 to 5.5 in 1993 and in the Comparison area from 6.1 to 6.0.

Data on changes by type of household in 1974-1993 are given in Table 24. Looking first at the columns with the percentage distributions, it can be seen that in particular one-generation households have increased in particular in 1982-1993 (from 2.8 percent to 4.2 percent) and that the number of three-generation

Table 24: Percentage Distribution of Households by Type of Household and Household Size in Three Censuses

Type of household	1974 census		1982 census		1993 census	
	%	HH size	%	HH size	%	HH size
Single person	2.8	1.0	2.6	1.0	3.1	1.0
One generation	2.8	2.1	2.8	2.0	4.2	2.7
Two generations	60.4	5.4	58.8	5.4	60.0	5.0
Three generations	15.3	7.6	16.5	7.8	11.6	7.0
Others	18.7	7.2	19.3	6.8	21.1	6.9
All households	100.0	5.9	100.0	5.9	100.0	5.4
N	28,600		31,846		38,429	

households has decreased (from 16.5 percent to 11.6 percent). Looking next at the columns containing data on household size, an increase in size of one-generation households is observed during the 1980s (from 2.0 to 2.7) and decreases in two-generations and three-generations households. More details on these aspects of household structure by sex of the head of household and by area are given in Appendix A, Tables A-10 and A-11.

We do not know what the reasons are for the increase in household size of one-generation households between 1982 and 1993. The decline in household size of two-generations and three-generations households is probably due to the already mentioned family planning programme in the MCH-FP area. That this is indeed to a large extent the case can be seen in Table 25 showing figures on trends in household size by type of household and area. We see here again the increase in size in one-generation households already referred to above in both the MCH-FP area and Comparison area (from 2.1 to 2.7). At the same time a much stronger decrease has taken place in size of two-generations and three-generations households in the MCH-FP area than in the Comparison area.

Table 25: Average Household Size by Type of Household and Area in Three Censuses

Type of household	1974 census		1982 census		1993 census	
	MCH-FP	Comparison	MCH-FP	Comparison	MCH-FP	Comparison
Single	1.0	1.0	1.0	1.0	1.0	1.0
One generation	2.1	2.1	2.0	2.0	2.7	2.7
Two generations	5.5	5.4	5.4	5.5	4.8	5.2
Three generations	7.6	7.5	7.8	7.8	6.8	7.5
Others	7.3	7.1	6.9	7.0	6.7	7.1
All households	5.9	5.8	5.8	5.9	5.2	5.6
N	14,268	14,332	15,256	15,590	20,227	18,202

## CHAPTER SIX

### CONCLUSIONS

The Matlab Demographic Surveillance System with its three decades record of accurate data collection and preservation provides ample opportunities for research in the field of population and public health. The DSS along with all the other special studies undertaken in Matlab produced a large amount of valuable data. The result accrued from the studies using the Matlab research site are specially useful in a country such as Bangladesh where the registration of vital events is incomplete.

The quality of the information stored in the DSS Data Base needs to be checked once every five to 10 years. In order to maintain this quality and to improve DSS further, the 1993 Census was conducted. Another objective of the 1993 Census was to collect information on household formation and household head changes. The introduction of a new system for collection of data on household division and household head changes was also made possible as a result of the 1993 Census.

The use of two identification numbers for each individual as well as special identification number for a mother (MRID) and spouse (SPRID) were maintained in the 1993 Census. The permanent identification number (RID) helps to link the individual to a variety of vital and other events and helps researchers to create special files. The mother's RID and spouse's SPRID will provide a



key to linking them to their children and this will make it possible to make other types of files which will be useful for research purposes.

A number of important findings came out of the 1993 Census and they gain in significance when considered together with result from the earlier censuses conducted in 1974 and 1982. The most important of these findings will now be summarized.

First, the population in the DSS area increased from 160,000 to 200,000 in a twenty years time, an increase of 25 percent or roughly 1.2 to 1.3 percent per year. Population density increased from 913 to 1,130 per sq. kilometer.

Second, it was shown that the MCH-FP programme conducted in the MCH-FP area had long-term consequences for the age and household composition. The percentage of children below 15 was lower in the MCH-FP than in the Comparison area and household size was smaller in two-generations and three-generations households in the MCH-FP area. (Of course, the MCH-FP programme also had an impact on fertility, mortality and natural increase, but these effects could not be documented with data from the three censuses).

Third, the total growth rate (natural increase plus net migration) of the Muslim population was much higher than that of the Hindu population. The Hindu population actually decreased somewhat in size between 1982 and 1993.

Fourth, about 10 percent of the female population was widowed or divorced in all three censuses while for the male population this was only 1 percent. An increase in female-headed households was also observed between 1974 and 1993. It is likely that many widowed and divorced women form a vulnerable group both economically and socially, but no more information on this group could be obtained from the 1993 Census due to absence of socio-economic information.

Fifth, age at marriage has increased substantially, for men from 24.6 years in 1974 to 26.8 years in 1993 and for women from 17.0 to 20.3 years.

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APPENDIX-A

SUPPLEMENTARY TABLES

Table A-1: Population by 5-year and Single-year Age Groups and Sex, 1993 Census

Age (years)	Total	Males	Females
0	4,892	2,495	2,397
1	5,067	2,561	2,506
2	5,866	2,970	2,896
3	5,750	2,904	2,846
4	6,175	3,037	3,138
0-4	27,750	13,967	13,783
5	5,857	2,973	2,884
6	5,954	3,004	2,950
7	6,145	3,152	2,993
8	5,373	2,713	2,660
9	5,323	2,762	2,561
5-9	28,652	14,604	14,048
10	5,453	2,908	2,545
11	5,189	2,686	2,503
12	5,195	2,797	2,398
13	5,249	2,786	2,463
14	4,518	2,391	2,127
10-14	25,604	13,568	12,036
15	4,747	2,478	2,269
16	5,501	2,925	2,576
17	3,383	1,832	1,551
18	3,654	1,948	1,706
19	4,706	2,459	2,247
15-19	21,991	11,642	10,349
20	4,122	2,130	1,992
21	3,814	1,895	1,919
22	3,488	1,754	1,734
23	3,848	1,715	2,133
24	3,693	1,678	2,015
20-24	18,965	9,172	9,793
25	3,107	1,371	1,736
26	3,303	1,513	1,790
27	2,934	1,169	1,765
28	3,421	1,479	1,942
29	3,048	1,387	1,661
25-29	15,813	6,919	8,894

(continued)

Table A-1 (contd.): Population by 5-year and Single-year Age Groups and Sex, 1993 Census

Age (years)	Total	Males	Females
30	3,135	1,456	1,679
31	3,037	1,475	1,562
32	3,227	1,584	1,643
33	2,747	1,419	1,328
34	2,590	1,335	1,255
30-34	14,736	7,269	7,467
35	2,756	1,450	1,306
36	2,240	1,083	1,157
37	2,011	1,029	982
38	2,053	996	1,057
39	1,871	908	963
35-39	10,931	5,466	5,465
40	1,859	958	901
41	1,545	788	757
42	1,575	741	834
43	1,752	876	876
44	1,490	645	845
40-44	8,221	4,008	4,213
45	1,475	698	777
46	1,236	546	690
47	1,700	752	948
48	1,930	819	1,111
49	1,451	635	816
45-49	7,792	3,450	4,342
50	1,608	682	926
51	1,368	589	779
52	1,648	725	923
53	1,473	666	807
54	1,345	659	686
50-54	7,442	3,321	4,121
55	1,390	698	692
56	955	464	491
57	1,544	762	782
58	1,674	801	873
59	1,122	574	548
55-59	6,685	3,299	3,386

(continued)

Table A-1 (contd.): Population by 5-year and Single-year Age Groups and Sex, 1993 Census

Age (years)	Total	Males	Females
60	1,252	632	620
61	827	429	398
62	1,082	532	550
63	1,182	604	578
64	882	466	416
60-64	5,225	2,663	2,562
65	799	396	403
66	439	249	190
67	870	475	395
68	934	468	466
69	499	252	247
65-69	3,541	1,840	1,701
70	575	314	261
71	429	225	204
72	549	303	246
73	528	253	275
74	285	153	132
70-74	2,366	1,248	1,118
75	327	181	146
76	171	96	75
77	328	172	156
78	331	186	145
79	213	106	107
75-79	1,370	741	629
80	197	112	85
81	95	48	47
82	141	77	64
83	172	93	79
84	87	52	35
80-84	692	382	310
85+	384	223	161
<b>Total</b>	<b>208,160</b>	<b>103,782</b>	<b>104,378</b>

Table A-2: Population by 5-year and Single-year Age Groups and Sex in the MCH-FP Area, 1993 Census

Age (years)	Total	Males	Females
0	2,326	1,185	1,141
1	2,317	1,170	1,147
2	2,677	1,382	1,295
3	2,648	1,339	1,309
4	2,841	1,424	1,417
0-4	12,809	6,500	6,309
5	2,776	1,400	1,376
6	2,906	1,482	1,424
7	3,041	1,553	1,488
8	2,592	1,287	1,305
9	2,607	1,304	1,303
5-9	13,922	7,026	6,896
10	2,695	1,433	1,262
11	2,555	1,318	1,237
12	2,609	1,377	1,232
13	2,599	1,390	1,209
14	2,201	1,178	1,023
10-14	12,659	6,696	5,963
15	2,525	1,320	1,205
16	2,864	1,520	1,344
17	1,850	1,002	848
18	1,967	1,076	891
19	2,504	1,311	1,193
15-19	11,710	6,229	5,481
20	2,178	1,120	1,058
21	2,024	986	1,038
22	1,813	910	903
23	2,100	956	1,144
24	1,949	880	1,069
20-24	10,064	4,852	5,212
25	1,647	710	937
26	1,735	817	918
27	1,560	613	947
28	1,873	790	1,083
29	1,561	673	888
25-29	8,376	3,603	4,773

(continued)

Table A-2 (contd.): Population by 5-year and Single-year Age Groups and Sex in the MCH-FP Area, 1993 Census

Age (years)	Total	Males	Females
30	1,710	791	919
31	1,574	759	815
32	1,667	808	859
33	1,444	756	688
34	1,373	710	663
30-34	7,768	3,824	3,944
35	1,439	764	675
36	1,155	562	593
37	1,018	525	493
38	1,143	560	583
39	1,008	488	520
35-39	5,763	2,899	2,864
40	984	529	455
41	829	408	421
42	826	384	442
43	943	454	489
44	800	365	435
40-44	4,382	2,140	2,242
45	731	339	392
46	680	305	375
47	897	395	502
48	1,072	459	613
49	735	324	411
45-49	4,115	1,822	2,293
50	826	365	461
51	762	324	438
52	863	381	482
53	800	362	438
54	678	329	349
50-54	3,929	1,761	2,168
55	698	342	356
56	485	241	244
57	809	395	414
58	907	432	475
59	542	291	251
55-59	3,441	1,701	1,740

(continued)



Table A-2 (contd.): Population by 5-year and Single-year Age Groups and Sex in the MCH-FP Area, 1993 Census

Age (years)	Total	Males	Females
60	594	322	272
61	424	216	208
62	555	275	280
63	665	341	324
64	433	236	197
60-64	2,671	1,390	1,281
65	394	221	173
66	236	125	111
67	469	248	221
68	518	252	266
69	272	137	135
65-69	1,889	983	906
70	282	165	117
71	215	113	102
72	271	153	118
73	285	140	145
74	147	75	72
70-74	1,200	646	554
75	148	85	63
76	92	56	36
77	183	100	83
78	186	102	84
79	128	64	64
75-79	737	407	330
80	91	54	37
81	47	23	24
82	74	39	35
83	97	53	44
84	42	22	20
80-84	351	191	160
85+	225	133	92
Total	106,011	52,803	53,208

Table A-3: Population by 5-year and Single-year Age Groups and Sex in the Comparison Area, 1993 Census

Age (years)	Total	Males	Females
0	2,566	1,310	1,256
1	2,750	1,391	1,359
2	3,189	1,588	1,601
3	3,102	1,565	1,537
4	3,334	1,613	1,721
0-4	14,941	7,467	7,474
5	3,081	1,573	1,508
6	3,048	1,522	1,526
7	3,104	1,599	1,505
8	2,781	1,426	1,355
9	2,716	1,458	1,258
5-9	14,730	7,578	7,152
10	2,758	1,475	1,283
11	2,634	1,368	1,266
12	2,586	1,420	1,166
13	2,650	1,396	1,254
14	2,317	1,213	1,104
10-14	12,945	6,872	6,073
15	2,222	1,158	1,064
16	2,637	1,405	1,232
17	1,533	830	703
18	1,687	872	815
19	2,202	1,148	1,054
15-19	10,281	5,413	4,868
20	1,944	1,010	934
21	1,790	909	881
22	1,675	844	831
23	1,748	759	989
24	1,744	798	946
20-24	8,901	4,320	4,581
25	1,460	661	799
26	1,568	696	872
27	1,374	556	818
28	1,548	689	859
29	1,487	714	773
25-29	7,437	3,316	4,121

(continued)

Table A-3 (contd.): Population by 5-year and Single-year Age Groups and Sex in the Comparison Area, 1993 Census

Age (years)	Total	Males	Females
30	1,425	665	760
31	1,463	716	747
32	1,560	776	784
33	1,303	663	640
34	1,217	625	592
30-34	6,968	3,445	3,523
35	1,317	686	631
36	1,085	521	564
37	993	504	489
38	910	436	474
39	863	420	443
35-39	5,168	2,567	2,601
40	875	429	446
41	716	380	336
42	749	357	392
43	809	422	387
44	690	280	410
40-44	3,839	1,868	1,971
45	744	359	385
46	556	241	315
47	803	357	446
48	858	360	498
49	716	311	405
45-49	3,677	1,628	2,049
50	782	317	465
51	606	265	341
52	785	344	441
53	673	304	369
54	667	330	337
50-54	3,513	1,560	1,953
55	692	356	336
56	470	223	247
57	735	367	368
58	767	369	398
59	580	283	297
55-59	3,244	1,598	1,646

(continued)

Table A-3 (contd.): Population by 5-year and Single-year Age Groups and Sex in the Comparison Area, 1993 Census

Age (years)	Total	Males	Females
60	658	310	348
61	403	213	190
62	527	257	270
63	517	263	254
64	419	230	219
60-64	2,554	1,273	1,281
65	405	175	230
66	203	124	79
67	401	227	174
68	416	216	200
69	227	115	112
65-69	1,652	857	795
70	293	149	144
71	214	112	102
72	278	150	128
73	243	113	130
74	138	78	60
70-74	1,166	602	564
75	179	96	83
76	79	40	39
77	145	72	73
78	145	84	61
79	85	42	43
75-79	633	334	299
80	106	58	48
81	48	25	23
82	67	38	29
83	75	40	35
84	45	30	15
80-84	341	191	150
85+	159	90	69
Total	102,149	50,979	51,170

Table A-4: Population by Age, Sex and Religion, 1993 Census

Age (years)	Muslims		Hindus		Others and unknown		Percen. Distr. Hindus	
	Males	Females	Males	Females	Males	Females	Males	Females
0-4	12,341	12,138	1,625	1,645	1	0	12.1	12.7
5-9	12,864	12,424	1,740	1,623	0	1	12.9	12.5
10-14	11,950	10,590	1,617	1,446	1	0	12.0	11.1
15-19	10,175	9,081	1,466	1,268	1	0	10.9	9.8
20-24	8,004	8,504	1,167	1,289	1	0	8.7	9.9
25-29	5,901	7,722	1,018	1,168	0	4	7.5	9.0
30-34	6,128	6,437	1,141	1,029	0	1	8.5	7.9
35-39	4,598	4,732	867	733	1	0	6.4	5.7
40-44	3,397	3,706	611	506	0	1	4.5	3.9
45-49	2,959	3,818	491	524	0	0	3.6	4.0
50-54	2,872	3,599	449	522	0	0	3.3	4.0
55-59	2,868	2,932	431	454	0	0	3.2	3.5
60-64	2,332	2,239	331	323	0	0	2.5	2.5
65-69	1,605	1,506	235	195	0	0	1.7	1.5
70-74	1,101	999	147	119	0	0	1.1	0.9
75-79	653	558	88	71	0	0	0.7	0.5
80-84	339	273	43	37	0	0	0.3	0.3
85+	206	144	17	17	0	0	0.1	0.1
Total	90,293	91,402	13,484	12,969	5	7	100.0	100.0

Table A-5: Percent Distribution of Population by Marital Status, Age, Sex and Area, 1993 Census

Age (years)	Males						Females					
	NM	PM	MSA	WID	DIV	TOTAL	NM	PM	MSA	WID	DIV	TOTAL
<b>MCH-FP area</b>												
0-4	100.0	0.0	0.0	0.0	0.0	6,500	100.0	0.0	0.0	0.0	0.0	6,309
5-9	100.0	0.0	0.0	0.0	0.0	7,026	100.0	0.0	0.0	0.0	0.0	6,896
10-14	100.0	0.0	0.0	0.0	0.0	6,696	99.4	0.3	0.3	0.0	0.0	5,963
15-19	98.9	0.9	0.2	0.0	0.0	6,229	80.1	14.4	4.8	0.0	0.6	5,481
20-24	83.2	15.6	0.9	0.0	0.3	4,852	26.1	59.2	13.2	0.3	1.1	5,212
25-29	44.8	53.0	1.8	0.0	0.4	3,603	4.6	81.7	11.2	0.8	1.8	4,773
30-34	12.8	84.9	1.6	0.0	0.6	3,824	1.1	85.0	9.5	2.4	2.0	3,944
35-39	2.3	95.9	1.2	0.1	0.5	2,899	0.6	84.8	7.2	5.6	1.8	2,864
40-44	0.5	98.1	0.9	0.1	0.3	2,140	0.2	81.1	5.8	11.3	1.6	2,242
45-49	0.7	97.3	0.7	0.9	0.4	1,822	0.0	76.6	3.7	18.3	1.4	2,293
50-54	0.6	96.9	1.0	1.1	0.3	1,761	0.1	66.4	2.5	30.3	0.7	2,168
55-59	0.1	97.2	0.8	1.6	0.3	1,701	0.1	50.4	1.8	47.0	0.6	1,740
60-64	0.3	94.7	0.7	4.0	0.3	1,390	0.2	36.5	0.5	62.5	0.4	1,281
65-69	0.2	90.8	0.5	7.9	0.5	983	0.0	29.0	0.2	70.4	0.3	906
70-74	0.0	87.6	0.3	11.3	0.8	646	0.2	15.3	0.2	83.4	0.9	554
75-79	0.2	83.0	0.5	15.2	1.0	407	1.2	8.2	0.0	90.0	0.6	330
80-84	0.0	76.4	0.5	23.0	0.0	191	0.0	4.4	0.0	93.8	1.9	160
85+	3.0	55.6	0.8	40.6	0.0	133	3.3	3.3	0.0	93.5	0.0	92
N	32,621	19,321	308	443	110	52,803	25,177	20,320	2,401	4,888	422	53,208
<b>Comparison area</b>												
0-4	100.0	0.0	0.0	0.0	0.0	7,467	100.0	0.0	0.0	0.0	0.0	7,474
5-9	100.0	0.0	0.0	0.0	0.0	7,578	100.0	0.0	0.0	0.0	0.0	7,152
10-14	99.9	0.0	0.1	0.0	0.0	6,872	99.5	0.2	0.3	0.0	0.0	6,073
15-19	98.9	0.9	0.1	0.0	0.1	5,413	76.4	16.8	6.2	0.0	0.6	4,868
20-24	83.6	15.0	1.0	0.0	0.4	4,320	21.0	64.0	13.1	0.1	1.8	4,581
25-29	40.4	57.0	2.1	0.0	0.5	3,316	3.5	82.4	11.7	0.6	1.7	4,121
30-34	10.1	87.6	1.5	0.1	0.7	3,445	0.7	86.6	8.6	1.9	2.1	3,523
35-39	2.2	96.3	0.5	0.1	0.4	2,567	0.3	85.8	7.0	4.7	2.2	2,601
40-44	0.6	97.9	0.7	0.2	0.5	1,868	0.3	84.0	4.5	9.9	1.3	1,971
45-49	0.7	97.9	1.0	0.3	0.1	1,628	0.2	77.0	2.7	19.1	1.0	2,049
50-54	0.4	97.8	0.6	0.8	0.4	1,560	0.2	66.7	2.0	29.8	1.4	1,953
55-59	0.3	97.2	0.6	1.7	0.3	1,598	0.2	51.6	1.8	45.9	0.5	1,646
60-64	0.2	95.5	0.6	2.9	0.7	1,273	0.5	38.3	0.9	59.6	0.9	1,281
65-69	0.1	92.1	0.7	6.0	1.2	857	0.0	24.3	0.6	74.0	1.1	795
70-74	0.2	87.5	1.0	10.1	1.2	602	0.0	15.8	0.4	83.0	0.9	564
75-79	0.0	86.2	0.3	13.2	0.3	334	0.0	8.0	1.0	90.6	0.3	299
80-84	0.5	79.6	0.5	19.4	0.0	191	0.7	4.0	0.7	94.0	0.7	150
85+	1.1	62.2	1.1	34.4	1.1	90	0.0	1.4	1.4	95.7	1.4	69
N	32,654	17,625	265	317	118	50,979	25,543	18,626	2,129	4,446	426	51,170

NM = Never married, PM = Presently married, MSA = Married but spouse absent, WID= Widowed, DIV = Divorced

Table A-6: Type of Household by Sex of Head of Household and Area, 1993 Census

Household type	MCH-FP area		Comparison area	
	Households	Population	Households	Population
<b>Male heads:</b>				
Single Person	113	113	112	112
One generation	716	1,809	652	1,663
Two generations	10,275	51,541	9,202	49,880
Three generations	2,241	15,224	2,078	15,755
Others	3,668	25,539	3,318	24,469
All households	17,013	94,226	15,362	91,879
<b>Female heads:</b>				
Single person	424	424	540	540
One generation	130	436	117	387
Two generations	1,980	7,526	1,616	6,352
Three generations	62	361	76	493
Others	618	3,038	491	2,498
All households	3,214	11,785	2,840	10,270

Table A-7: Population by Age and Religion in Three Censuses

Age (years)	1974 census		1982 census		1993 census	
	Muslims	Hindus	Muslims	Hindus	Muslims	Hindus
0-4	25,598	4,248	25,737	4,071	24,479	3,270
5-9	18,987	3,276	22,736	3,660	25,288	3,364
10-14	22,214	4,162	20,568	3,237	22,540	3,064
15-19	14,803	2,904	18,277	3,097	19,256	2,735
20-24	9,451	1,969	16,022	3,034	16,508	2,457
25-29	7,676	1,399	9,368	1,842	13,623	2,189
30-34	8,117	1,600	7,835	1,490	12,565	2,170
35-39	7,033	1,510	7,173	1,279	9,330	1,601
40-44	6,523	1,329	7,280	1,335	7,103	1,117
45-49	5,076	1,067	6,181	1,208	6,777	1,015
50-54	4,496	925	5,485	1,046	6,471	971
55-59	3,235	714	4,026	709	5,800	885
60-64	2,908	632	3,452	643	4,571	654
65-69	2,125	437	2,221	414	3,111	430
70-74	1,337	266	1,700	308	2,100	266
75-79	695	151	1,062	172	1,211	159
80-84	356	74	509	82	612	80
85+	289	53	267	48	350	34
<b>Total</b>	<b>140,919</b>	<b>26,716</b>	<b>159,899</b>	<b>27,675</b>	<b>181,695</b>	<b>26,461</b>



Table A-8: Percent Distribution of Population by Marital Status and Age and Sex in Two Censuses

Age group	Males					Females				
	NM	MAR	WID	DIV	TOTAL	NM	MAR	WID	DIV	TOTAL
<b>1974 census</b>										
0-4	100.0	0.0	0.0	0.0	15,297	100.0	0.0	0.0	0.0	14,546
5-9	100.0	0.0	0.0	0.0	11,471	100.0	0.0	0.0	0.0	10,792
10-14	100.0	0.0	0.0	0.0	13,381	96.7	3.0	0.0	0.3	12,992
15-19	96.8	3.1	0.0	0.1	9,165	41.0	55.8	0.3	2.9	8,540
20-24	68.1	31.0	0.1	0.8	5,704	2.7	92.9	1.0	3.4	5,714
25-29	23.6	75.0	0.2	1.1	4,008	0.3	96.1	1.8	1.7	5,067
30-34	3.8	94.8	0.3	1.0	4,219	0.1	94.4	4.3	1.2	5,498
35-39	0.5	98.3	0.5	0.7	4,243	0.2	89.2	9.9	0.8	4,300
40-44	0.5	98.0	0.8	0.7	4,079	0.1	82.7	16.3	0.9	3,773
45-49	0.4	97.4	1.7	0.6	3,331	0.1	71.4	27.8	0.7	2,812
50-54	0.4	97.0	1.8	0.8	2,894	0.2	59.3	39.1	1.3	2,526
55-59	0.1	95.5	3.6	0.8	2,164	0.1	45.9	52.4	1.6	1,785
60-64	0.2	93.9	5.3	0.5	1,851	0.4	31.8	66.7	1.1	1,689
65+	0.1	85.9	13.4	0.7	3,265	0.5	13.2	85.5	0.8	2,516
N	54,074	29,893	808	297	85,072	41,575	32,701	7,452	822	82,550
<b>1982 census</b>										
0-4	100.0	0.0	0.0	0.0	15,529	100.0	0.0	0.0	0.0	14,279
5-9	100.0	0.0	0.0	0.0	13,819	100.0	0.0	0.0	0.0	12,577
10-14	99.9	0.1	0.0	0.0	12,366	98.3	1.6	0.0	0.1	11,439
15-19	97.6	2.3	0.0	0.1	10,253	59.6	38.6	0.1	1.6	11,121
20-24	70.8	28.6	0.1	0.5	9,894	12.9	81.9	0.7	4.5	9,162
25-29	26.0	72.9	0.1	1.0	5,499	1.0	93.2	1.8	3.9	5,711
30-34	5.6	93.4	0.1	0.8	4,436	0.4	93.5	4.0	2.1	4,889
35-39	1.4	97.9	0.2	0.5	3,693	0.1	90.8	7.7	1.4	4,759
40-44	0.3	98.6	0.6	0.5	3,961	0.2	83.1	15.5	1.2	4,654
45-49	0.2	98.5	0.8	0.6	3,716	0.2	73.9	25.2	0.7	3,673
50-54	0.4	97.4	1.6	0.6	3,344	0.2	61.6	37.7	0.6	3,187
55-59	0.4	95.9	2.9	0.8	2,510	0.2	48.0	51.1	0.6	2,225
60-64	0.3	93.6	5.1	1.0	2,190	0.2	35.3	63.1	1.4	1,905
65+	1.3	85.2	12.9	0.6	3,746	1.4	17.1	88.7	0.7	3,037
N	60,548	33,312	797	299	94,956	46,047	37,009	8,386	1,176	92,618

NM = Never married, MAR = Married, WID = Widowed, DIV = Divorced

Table A-9: Marital Status of Head of Household by Sex of Household Head in Three Censuses

Marital status	Male Heads		Female Heads	
	No.	Percent	No.	Percent
<b>1974 census</b>				
Never married	771	3.0	14	0.4
Married	23,847	94.3	1,212	36.6
Widowed	519	2.1	2,001	60.4
Divorced	148	0.6	88	2.6
Total	25,285	100.0	3,315	100.0
<b>1982 census</b>				
Never married	982	3.5	31	0.8
Married	26,091	94.4	1,669	39.7
Widowed	440	1.6	2,399	57.1
Divorced	133	0.5	101	2.4
Total	27,646	100.0	4,200	100.0
<b>1993 census</b>				
Never married	1,046	3.2	34	0.6
Married	30,683	94.8	1,235	20.4
Married but spouse absent	161	0.5	1,616	26.7
Widowed	397	1.2	3,018	49.9
Divorced	88	0.3	151	2.5
Total	32,375	100.0	6,054	100.0

Table A-10: Percentage Distribution of Households by Sex of Head of Household, Household Type and Area in Three Censuses

Type of household	1974 census		1982 census		1993 census	
	Males	Females	Males	Females	Males	Females
<b>Both areas</b>						
Single person	0.7	19.3	0.6	15.9	0.7	15.9
One generation	3.1	0.5	3.2	0.4	4.2	4.0
Two generations	60.7	57.6	58.8	58.6	60.2	59.4
Three generations	17.2	0.9	18.4	4.1	13.3	2.3
Others	18.3	21.5	19.0	21.0	21.6	18.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	25,285	3,315	27,646	4,200	32,375	6,054
<b>MCH-FP area</b>						
Single person	0.6	18.4	0.6	14.3	0.7	13.2
One generation	3.1	0.6	3.3	0.3	4.2	4.0
Two generations	60.4	58.1	59.8	61.3	60.4	61.6
Three generations	16.8	1.5	18.1	4.0	13.2	1.9
Others	19.1	21.4	18.1	20.1	21.6	19.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	12,693	1,575	14,140	2,116	17,013	3,214
<b>Comparison area</b>						
Single person	0.8	20.2	0.6	17.5	0.7	19.0
One generation	3.2	0.5	3.0	0.4	4.2	4.1
Two generations	61.0	57.2	57.8	55.9	59.9	56.9
Three generations	17.6	0.4	18.6	4.2	15.5	2.7
Others	17.4	21.7	20.0	22.0	21.6	17.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	12,592	1,740	13,506	2,084	15,362	2,840

Table A-11: Mean Household Size by Sex of the Head of Household, Household Type and Area in Three Censuses

Type of household	1974 census		1982 census		1993 census	
	Males	Females	Males	Females	Males	Females
<b>Both areas</b>						
Single person	1.0	1.0	1.0	1.0	1.0	1.0
One generation	2.1	2.3	2.0	2.6	2.5	3.3
Two generations	5.6	4.0	5.6	4.1	5.2	3.9
Three generations	7.6	7.1	7.8	7.4	7.2	6.2
Others	7.6	4.7	7.3	5.0	7.2	5.0
All households	6.2	3.6	6.2	3.9	5.8	3.6
N	25,285	3,315	27,646	4,200	32,375	6,054
<b>MCH-FP area</b>						
Single person	1.0	1.0	1.0	1.0	1.0	1.0
One generation	2.1	2.3	2.0	2.5	2.5	3.4
Two generations	5.6	4.1	5.6	4.0	5.0	3.6
Three generations	5.2	6.5	7.7	7.8	6.8	5.8
Others	7.6	4.9	7.2	5.0	7.0	4.9
All households	6.2	3.7	6.1	3.9	5.5	3.7
N	12,693	1,575	14,140	2,116	17,013	3,214
<b>Comparison area</b>						
Single person	1.0	1.0	1.0	1.0	1.0	1.0
One generation	2.1	2.3	2.0	2.7	2.6	3.3
Two generations	5.6	0.9	5.7	4.1	5.4	3.9
Three generations	7.5	8.9	7.8	7.1	7.6	6.5
Others	7.6	4.5	7.4	5.0	7.4	5.1
All households	6.1	3.5	6.3	3.9	6.0	3.6
N	12,592	1,740	13,506	2,084	15,362	2,840

APPENDIX-B.1

CENSUS FORM

Print date: 16/05/93

Page:

International Centre for Diarrhoeal Disease Research, Bangladesh  
Demographic Surveillance System, Matlab

Household Division and Household Head Change Information Collection Form, 1993

Date of Interview.....

Name of Interviewer.....

Vill..... Name..... Bari..... Name.....

Fam#..... Size..... Relgn.....

Ind	Name	New Fam number	New ReIn to HHHC	Date of Divn/HHHC	Sex	ReIn HHH	Mother REG NO.	Persons REG NO.	Date of birth	Respon- dent	Remarks

APPENDIX-B.2

FAMILY VISITING CARD

International Centre for Diarrhoeal Disease Research, Bangladesh  
Demographic Surveillance System, Matlab

Family Register

Print date:

Page:

Vill code..... Vill name.....

Family #.....

Bari code..... Bari name.....

Update date.....

Ind No.	Name	Sex	Mother's No.	Spouse's No.	Date of birth	Member's REG NO.	Report serial#	Remarks

APPENDIX-B.3

CENSUS VOLUME SHEET

Census date: 01/06/93

Page:

International Centre for Diarrhoeal Disease Research, Bangladesh  
Demographic Surveillance System, Matlab

Family Registration Book

Vill..... Name..... Old Fam..... Bari..... Name..... New Fam..... Size.... Relgn.....

Ind No.	Name	Sex	ReIn HHH	Old No.	Mother's No	Marital status	Member's No.	Date of birth	Date of death	Date of Mig-In	Date of Mig-Out	Date of Int-Vill	Remarks

**APPENDIX-C**  
**1993 CENSUS**  
**MANUAL FOR FIELD WORK**

Work to be done in the field:

1. Up-to-date all information on the basis of the date of interview.
2. Write your name and date of interview at the top of the sheet.
3. First, start work from a point of the village where you think it is appropriate to start. Please note that you are responsible for assigning Current Identification numbers (CID) of the households. Give special attention to it so that there will be no duplication of numbers or drop of any number. Give Current Identification numbers to each household member and fill up the form in the following way. Suppose a household gets number "25". Write number 25 in the column "new household number" to each member of the household. But do not put individual numbers. It will be given from Dhaka office later.
4. Please check the print out for each household. Make sure that no one is excluded or included wrongly. If you find some one died or migrated out but is present in the list, exclude him/her. On the other hand, if you find some one migrated in or there is a birth but not included in the printout include him/her and fill up all the information for him/her. Make a list of the persons you include or exclude during your field work because you will need this list for reporting vital events after census. Write down the causes of inclusions or exclusions in the remark column.

Please remember that this printout is not a complete one. On purpose, we excluded some individuals to evaluate the worker's performance. In addition, the inconsistent events of year 91 and unedited events of 92 are also included in the list. Make correction if necessary. Finally, we did not include or exclude any event that happened in 1993. So include or exclude any event that happened in 1993

5. Ask if the household is divided? If the household is divided, give number to those who are still in the old household in the column named "new household number" and write down the relationships to the head of household and date of division in the next two columns. In the same way, select the head of new household, separate the members of new household, assign and write down their household numbers and relationships to the new household head and date of separation in the respective columns. Please follow the list of relationship we supply to you.



6. You have to decide household head in two other conditions. If the household head migrated out or died you may not find them in the list. On the other hand, household head may be invalid or too old to do any headship function. In such cases you have to change the head. Consult the household members and select the new head and write down the changed household head and member's relationship with the new household head. You know what a household head usually does.

A man or woman who thinks, decides or takes responsibilities on important aspects of household affair, we call them head. For example: those who take decision about marriage, education, treatment during sickness and where to cultivate what crops etc. are household heads. Usually selection of head is not a difficult problem except if important male member resides outside or there is no adult son in the household when head died. In these cases you have to be careful. For example, a head died leaving his wife and children with eldest son of age 17 or 18 years. So make sure who really takes the responsibility. Usually son consults his mother before he takes any decision but you have to decide whether this is a nominal permission or a real decision. In another case, the responsible adult male lives outside our area but visit home once in a month. According to our definition of population he is a regular member. You have to decide whether he is head or not. Do not treat him head only because he is husband and a regular member.

7. Check the Bari name and Bari code. If there is a new Bari write down its name and assign next number to the last number. Please do not change the old Bari numbers.

8. Make a tick (✓) mark in front of the name of the interviewee.

9. Write down remarks if any.

APPENDIX-D

LIST OF RELATIONSHIPS

<u>Sl No</u>	<u>Relationship</u>	<u>Code</u>
01	Self	HEAD
02	Wife	WIFE
03	Mother	MOTHER
04	Daughter	DAUG
05	Adopted daughter	AD.DAUG
06	Sister	SISTER
07	Daughter-in-law	D.I.LAW
08	Mother-in-law	M.I.LAW
09	Sister-in-law (husband or wife's sister)	S.I.LAW
10	Brother's wife	B.WIFE
11	Niece	NIECE
12	Step mother	ST.MOTH
13	Step sister	ST.SIST
14	Grand mother	G.MOTH
15	Grand daughter	G.DAUG
16	Great grand daughter	G.G.DAU
17	Grand son's wife	G.S.WIF
18	Nephew's wife	NE.WIFE
19	Paternal aunt	P.AUNT
20	Maternal aunt	M.AUNT
21	Husband	HUSBAND
22	Father	FATHER
23	Son	SON

24	Adopted son	AD.SON
25	Brother	BROTHER
26	Daughter's husband	DAU.HUS
27	Father-in-law	F.I.LAW
28	Brother-in-law (Sister's hus)	B.I.LAW
29	Husband's brother	H.BROTH
30	Wife's brother	W.BROTH
31	Nephew	NEPHEW
32	Step brother	ST.BROT
33	Grand father	G.FATH
34	Grand son	G.SON
35	Grand grand son	G.G.SON
36	Grand daughter's husband	G.D.HUS
37	Niece's husband	NI.HUS
38	Paternal uncle	P.UNCLE
39	Maternal uncle	M.UNCLE
40	Cousin	COUSIN
41	Tutor	TUTOR
42	Servant	SERVANT
43	Others	OTHERS
44	Unknown	UNKNOWN
45	Step grand son	S.G.SON

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*(continued from inside of the front cover)*

**Computing Facilities:** The Centre operates an IBM 4361 mainframe computer with eight megabytes (MB) of real memory and an on-line storage capacity of 3,000 MB. It is connected to 25 terminals. This system provides the capacity to analyze large data sets and is complemented by over 300 personal computers and a few Local Area Network (LANs) throughout the Centre. New e-mail facilities have been established in the Centre. A new information technology (IT) strategy is in the process of implementation.

**Dissemination and Information Services Centre:** The Dissemination and Information Services Centre (DISC) provides access to the scientific literature on diarrhoeal diseases, nutrition, population studies, health, environmental, and behavioural studies in general by means of Current Contents (Life Sciences and Clinical Medicine), MEDLINE, AIDS and POPLINE databases, books, bound journals, some four hundred current periodicals, etc. DISC publishes the quarterly Journal of Diarrhoeal Diseases Research (and bibliography on diarrhoeal diseases within the Journal), two quarterly newsletters Glimpse (in English) and Shasthya Sanglap (in Bangla), a bimonthly bilingual staff news bulletin--the ICDDR,B News, working papers, scientific reports, special publications, and monographs.

**Staff:** The Centre currently has over 200 researchers and medical staff from more than ten countries doing research and providing expertise in many disciplines related to the Centre's areas of research. One thousand two hundred personnel are working in the Centre.

#### **What is the Centre's Plan for the Future ?**

In the 36 years of its existence, ICDDR,B has evolved into a busy cosmopolitan research centre whose scientists have wide-ranging expertise. Future research will be directed toward finding cost-effective solutions to the health and population problems of the most disadvantaged people in the world. The Centre's Strategic Plan: "To The Year 2000" outlines work in the following key areas:

**Child Survival:** Diarrhoeal diseases are responsible for deaths of 3 million children every year. Acute and persistent diarrhoea and dysentery will remain priority areas for research on strategies for prevention, including modifications in personal and domestic hygiene behaviours, provision of appropriate water supply to and sanitation for the households, and the development of effective vaccines. The Centre's scientists will contribute to the improvement of the case management of diarrhoea based on better understanding of basic mechanisms, and national and international responses to epidemics. Risk factors for low birth rate and potential interventions, acute respiratory infections, nutritional deficiency states (including micro-nutrients), and immunization-preventable infectious diseases will also be examined, particularly as they interact with diarrhoea.

**Population and Reproductive Health:** The Centre has a long history of conducting pioneering research in the areas of population and family planning. The Centre played a key role in raising the contraceptive use rate among women of reproductive age in Bangladesh to almost 45% through technical assistance and operations research. So much so that the 1994 Cairo Conference hailed Bangladesh as a family planning success story. Matlab is now the model for MCH-FP programmes throughout the world, and the Centre is poised to make important contributions to maternal health and safe motherhood. In addition to continuing work in these areas, the Centre has initiated community-based research on STD/RTI/HIV infections.

**Application and Policy:** The Centre will continue to play a major part in improving both supply of and demand for existing health technologies, and in replicating the successful interventions piloted in its projects through health systems research. The Centre will increase its communication, dissemination and training efforts to influence international and national health policies in the areas of its expertise. ICDDR,B recognizes, and has given a high priority to, the need to transform research findings into actions.

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**CENTRE**  
For Health and  
Population Research