

HEALTH AND DEMOGRAPHIC SURVEILLANCE SYSTEM MATLAB

VOLUME THIRTY FOUR

**REGISTRATION OF HEALTH AND
DEMOGRAPHIC EVENTS 2001**

Scientific Report No. 90 - September 2003



ICDDR,B: Centre for Health and Population Research

Mohakhali, Dhaka 1212, Bangladesh

**HEALTH AND DEMOGRAPHIC SURVEILLANCE
SYSTEM - MATLAB
Volume Thirty Four
Registration of Health and Demographic Events 2001**



ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212, Bangladesh

Scientific Report No. 90

HDSS Annual Reports are not copyrighted and may be freely quoted as long as the source is properly indicated. Reports on previous years are also available free of charge on request. The following citation is suggested for this report; this form of citation is also appropriate for previous HDSS annual reports.

ICDDR,B: Centre for Health and Population Research. Health and Demographic Surveillance System–Matlab, v. 34. Registration of health and demographic events 2001. Dhaka: ICDDR,B, 2003.

This report was prepared by the staff of the Health and Demographic Surveillance System, Dhaka and Matlab.

Editing: M. Shamsul Islam Khan

Printing and publication:

Sentu B. Gomes
Health and Demographic Surveillance Unit

Cover design: Asem Ansari

ISBN 984- 551- 251-8

Scientific Report No. 90

September 2003

Published by:

ICDDR,B: Centre for Health and Population Research
GPO Box 128, Dhaka 1000
Mohakhali, Dhaka 1212, Bangladesh
Telephone: 8811751-60 (10 lines); Fax: (880-2)-8826050
Email: msik@icddrb.org
URL: <http://www.icddrb.org>

Printed by: Parallel Printers, Dhaka

ACKNOWLEDGEMENTS

The Health and Demographic Surveillance System of Matlab is currently supported by the Department for International Development of U.K. and the ICDDR,B: Centre for Health and Population Research. The Centre is supported by the following countries, donor agencies and others which share its concern for the health and population problems of developing countries:

Bilateral/government donors: Australia, Bangladesh, Belgium, Canada, European Union, Kingdom of Saudi Arabia, Japan, The Netherlands, Sri Lanka, Sweden, Switzerland, the United Kingdom, and the United States of America.

United Nations agencies and affiliates: UNAIDS, UNICEF, WHO and World Bank.

International organizations and medical research institutions: Asian Development Bank, Center for Disease Control and Prevention-USA, Howard Hughes Medical Institute, International Vaccine Institute, Japan International Corporation of Welfare Services (JICWELS), National Institutes of Health-USA, National Vaccine Program Office-USA.

Foundations and other important organizations: American Express Foundation, Bill and Melinda Gates Foundation, Child Health Foundation, The Ford Foundation, Nestle Research Foundation, Novartis Nutrition AG, The Rockefeller Foundation, Swiss Red Cross, and Thrasher Research Foundation.

Private sectors: Wyeth, Aventis, Cytos Pharmaceuticals, Dartmouth College, Glaxo-SmithKline, Harvard Medical School, John Snow International, Johns Hopkins University, Karolinska Institute, Massachusetts General Hospital, Umea University, University of Basel, University of New Castle, University of Pennsylvania, University of Tokyo, University of Virginia, and UNOCAL.

CONTENTS

				Page
Summary		....	....	.... 1
Chapter 1.	Introduction	....	....	.... 3
Chapter 2.	Population Changes	....	....	.... 6
Chapter 3.	Mortality	....	....	.... 13
Chapter 4.	Fertility	....	....	.... 23
Chapter 5.	Marriage and Divorce	....	....	.... 29
Chapter 6.	Migration	....	....	.... 35
Chapter 7.	Fertility Regulation in ICDDR,B and Government Areas	....	....	.... 40
Chapter 8.	Use of Maternal and Child Health Services in ICDDR,B and Government Areas	....	....	.... 45

TABLES

Table 2.1.	Vital statistics of ICDDR,B and government areas, 1990-2001	....	....	.... 7
Table 2.2.	Mid-year population, events registered, and population changes, 2001	....	....	.... 9
Table 2.3.	Mid-year population by age and sex, 2001	....	....	.... 10
Table 2.4.	Mid-year population by age, sex, and area, 2001	....	....	.... 11
Table 3.1.	Deaths by age and sex in both areas, 2001	....	....	.... 15
Table 3.2.	Deaths by area, age, and sex, 2001	....	....	.... 16
Table 3.3.	Death rates by age and sex, 2001	....	....	.... 17
Table 3.4.	Death rates by area, age, and sex, 2001	....	....	.... 18
Table 3.5.	Abridged life table by sex, 2001	....	....	.... 19

TABLES (continued)

			Page
Table 3.6.	Deaths by month and age, 2001	....	.... 21
Table 3.7.	Age-standardized mortality rates by cause of death, 2001	....	.... 22
Table 4.1.	Number and rates of pregnancy outcomes by type and area, 2001	....	.... 24
Table 4.2.	Pregnancy outcomes by month, 2001	....	.... 25
Table 4.3.	Age-specific fertility rates and indices by area, 2001	....	.... 27
Table 5.1.	Groom's age at marriage by previous marital status, 2001	....	.... 30
Table 5.2.	Bride's age at marriage by previous marital status, 2001	....	.... 31
Table 5.3.	Marriage rates by age and sex, 2001	....	.... 32
Table 5.4.	Mean and median durations (months) of all marriages by age and sex, 2001	....	.... 33
Table 6.1.	Age and sex-specific migration rates by direction, 2001	....	.... 36
Table 6.2.	In- and out-migration by sex and month, 2001	....	.... 37
Table 7.1.	Contraceptive use rate (%) of currently married women aged 15-49 by area, 1982-2001	....	.... 41
Table 7.2.	Contraceptive method-mix (%) in different survey and surveillance	....	.... 42
Table 7.3.	Contraceptive method-mix (%) in ICDDR,B area, 1986-2001	....	.... 43
Table 7.4.	Method-specific contraceptive use rate among currently married women by age in ICDDR,B area, 2001	....	.... 44

TABLES (continued)

		Page
Table 8.1.	Immunization coverage (%) in ICDDR,B area, 1987-2001 and government area, 2000-2001	.... 49
Table 8.2.	DPT and polio coverage (%) among children aged 12-23 months by number of doses and area, 2001	.... 50
Table 8.3.	Prevalence (%) of childhood diarrhoea in past 24 hours by child's characteristics and area, 2001	.... 51
Table 8.4.	Distribution (%) of diarrhoea episodes among under-five children by ORS use, illness and child's characteristics, and area, 2001	.... 52
Table 8.5.	Distribution (%) of diarrhoea episodes among under-five children by type of treatment providers, illness and child's characteristics and area, 2001	.... 53
Table 8.6.	Monthly prevalence (%) of pneumonia among under-five children by child's characteristics and area, 2001	.... 54
Table 8.7.	Distribution (%) of childhood pneumonia by type of medicine used, illness and child's characteristics, and area, 2001	.... 55
Table 8.8.	Distribution (%) of pneumonia episodes among under-five children by type of treatment providers, illness and child's characteristics, and area, 2001	.... 56

FIGURES

Figure 1.1.	Map of Bangladesh showing the study area	.... 4
Figure 1.2.	Map of Matlab showing villages of HDSS area	.... 5
Figure 2.1.	Trends in fertility and under-five mortality by area, 1990-2001	.... 8
Figure 2.2.	Age pyramid of the 2001 mid-year population	.... 12

FIGURES (continued)

		Page
Figure 3.1.	Probability of survival from birth to age(x) by sex, 2001	.... 20
Figure 4.1.	Number of births and deaths by month, 2001	.... 26
Figure 4.2.	Age-specific fertility rates by area, 2001	.... 28
Figure 5.1.	Marriages and divorces by month, 2001	.... 34
Figure 6.1.	Rates of in- and out-migration by sex and age, 2001	.... 38
Figure 6.2.	Number of in- and out-migrations by sex and month, 2001	.... 39

APPENDICES

Appendix A.1.	Mid-year population in ICDDR,B area by age, sex, and block, 2001	.... 59
Appendix A.2.	Deaths in ICDDR,B area by age, sex, and block, 2001	.... 61
Appendix A.3.	Abridged life table for ICDDR,B area by sex, 2001	.... 63
Appendix A.4.	Abridged life table for government area by sex, 2001	.... 64
Appendix A.5.	Male deaths by cause and age, 2001	.... 65
Appendix A.6.	Female deaths by cause and age, 2001	.... 66
Appendix A.7.	Male deaths by cause, age, and area, 2001	.... 67
Appendix A.8.	Female deaths by cause, age, and area, 2001	.... 68
Appendix A.9.	Age-specific fertility rates and indices for ICDDR,B area by block, 2001	.... 69
Appendix A.10.	Births by mothers' age, live birth order and area, 2001	.... 70
Appendix A.11.	Age-order-specific fertility rates by area, 2001	.... 71

APPENDICES (continued)

	Page
Appendix A.12. Marriage and divorces by month, 2001	.... 72
Appendix A.13. In- and out-migration by age and sex, 2001	.... 73
Appendix A.14. In-migration by age, sex, and area, 2001	.... 74
Appendix A.15. Out-migration by age, sex, and area, 2001	.... 75
Appendix A.16. Male out-migration by cause of movement and age, 2001	.... 76
Appendix A.17. Female out-migration by cause of movement and age, 2001	.... 77
Appendix A.18. Male in-migration by cause of movement and age, 2001	.... 78
Appendix A.19. Female in-migration by cause of movement and age, 2001	.... 79
Appendix A.20. Male migration by destination or origin, 2001	.... 80
Appendix A.21. Female migration by destination or origin, 2001	.... 81
Appendix B. Mid-year population, births, and deaths by village, 2001	.... 82
Appendix C. Life table equations	.... 86
Appendix D. WHO standard world population age structure	.... 87
Appendix E. Names and codes of villages in the HDSS area, 2001	.... 88
Appendix F. Staff of HDSS, 2001	.... 90

SUMMARY

This report presents the vital registration and maternal and child health data, gathered from Matlab, Bangladesh, in 2001. The data were collected by the Health and Demographic Surveillance System of ICDDR,B: Centre for Health and Population Research. The surveillance area is divided into a Maternal and Child Health and Family Planning intervention area (ICDDR,B area) and a government area which receives government services.

In 2001, fertility increased compared to 2000. The crude birth rate (CBR) was 26.4 per 1,000 population, and the total fertility rate (TFR) was 3.1 births per woman in the ICDDR,B area, whereas CBR and TFR were 27.1 and 3.4 respectively in the government area. The crude death rate was 6.5 per 1,000 population in the ICDDR,B service area, while in the government area it was 7.0.

In the ICDDR,B area, infant mortality was 43.7 per 1,000 live births, and in the government area it was 56.9. Rate of mortality of children aged 1-4 years, declined in the government area from 6.4 per 1,000 children (1-4) in 2000 to 3.8 in 2001, whereas in the ICDDR,B area it remained the same (3.9). The mortality rate among children aged less than 5 years, in the ICDDR,B area was 58.4 per 1,000 live births, and in the government area it was 71.2.

The rate of in-migration decreased to 34.0 per 1,000 population in 2001, and the rate of out-migration decreased to 46.2 per 1,000 population. The net out-migration rate was 12.2 per 1,000 population, thereby offsetting the rate of natural increase, which amounted to 20.0 per 1,000 in 2001. The overall annual population growth rate was 0.8%. The marriage rate was 14.2 per 1,000 population, and the divorce rate was 85.0 per 1,000 marriages.

CHAPTER 1

INTRODUCTION

Since 1963, the ICDDR,B: Centre for Health and Population Research, formerly Cholera Research Laboratory, has been implementing a health-related research programme in Matlab, Bangladesh. Matlab is located about 55 km southeast of Dhaka, the capital city of Bangladesh (Fig. 1.1). The Health and Demographic Surveillance System (HDSS), formerly Demographic Surveillance System (DSS), is one of the major components of this field programme. Since 1966, the HDSS has been maintaining the registration of births, deaths, and migrations, in addition to carrying out periodical censuses. In 1975, the system was augmented to include marriages and divorces.

Recording of changes in household headship and household splits started in 1993. The Community Health Research Workers (CHRWs) obtain this information by visiting each household monthly in their assigned areas and fill out the event registration forms. The activities of CHRWs are supervised by Field Research Assistants (FRAs). A detailed description of the DSS and its operation appears in the CRL Scientific Report No. 9 (1978), ICDDR,B Special Publication No. 35 (1994), and ICDDR,B Special Publication No. 72 (1998).

In October 1977, the surveillance area was reduced from 233 to 149 villages, and a Maternal and child Health and Family Planning (ICDDR,B service) Programme was initiated in 70 villages. The remaining 79 villages were treated as a government area (Fig. 1.2). Since the introduction of the ICDDR,B service programme, the CHRWs have been collecting data on child and reproductive health. This system of collecting data is known as the Record-Keeping System (RKS). The changes have been described in the ICDDR,B Scientific Report No. 47 (1981) and ICDDR,B Special Publication No. 72 (1998). Due to river erosion, 7 villages disappeared from the government area in 1987, leaving 142 villages in the HDSS. In 2000, 3 of the 70 villages of ICDDR,B area were transferred to the government area.

This is the thirty-fourth volume of a series of scientific reports of the Health and Demographic Surveillance System produced by ICDDR,B. Data obtained from the Matlab HDSS in 2001, along with brief notes and explanations of the tables, are presented in this volume.

Fig. 1.1. Map of Bangladesh showing the study area

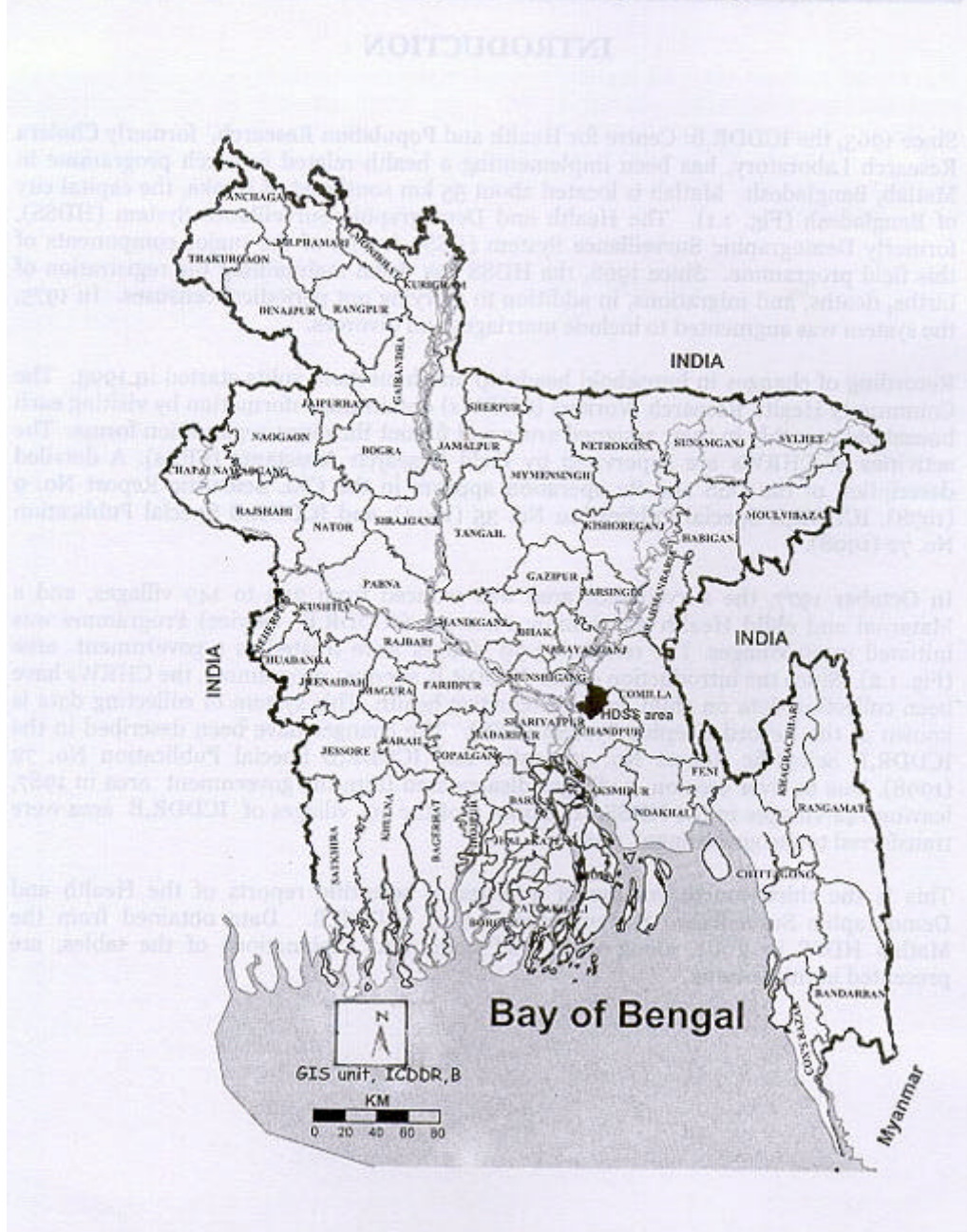
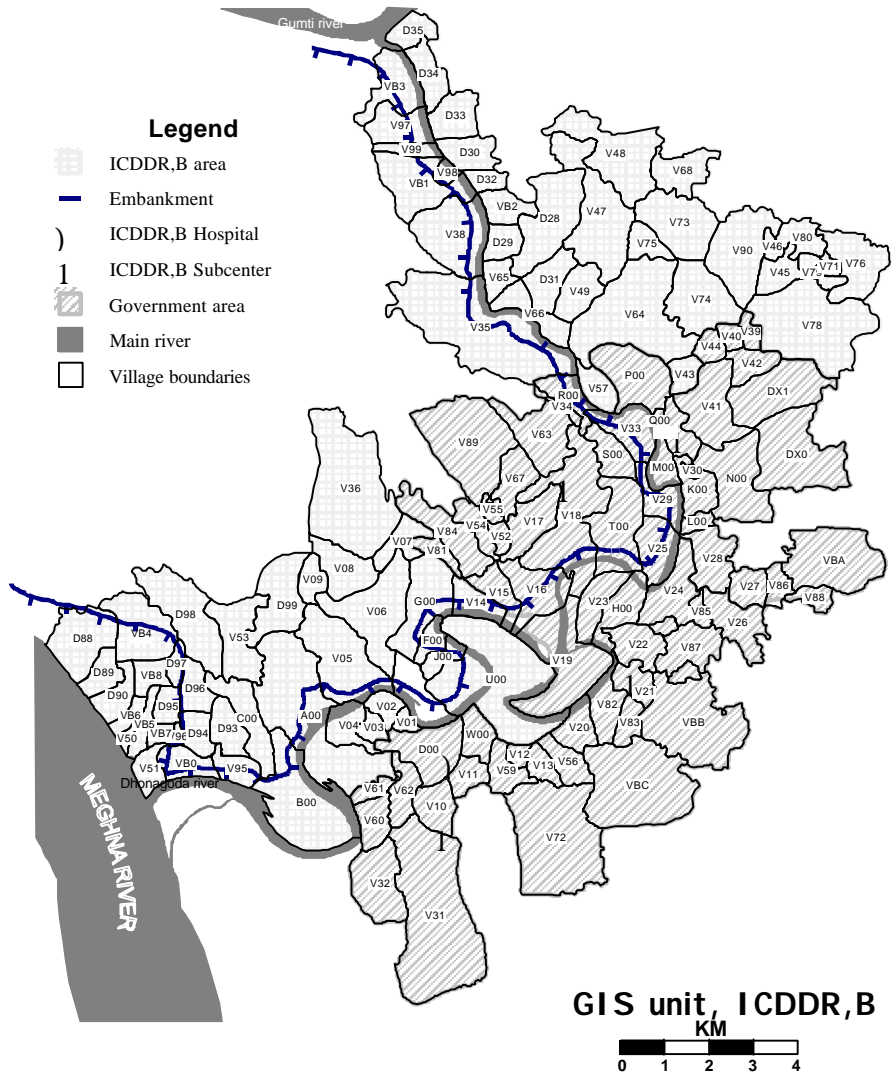


Fig. 1.2. Map of Matlab showing villages of HDSS area



CHAPTER 2

POPULATION CHANGES

The principal vital statistics of the ICDDR,B and government areas from 1990 through 2001 are summarized in Table 2.1. The number of mid-year population and the demographic events registered in 2001 in both ICDDR,B and government areas are shown for both sexes in Table 2.2. Appendix B shows the mid-year population, number of births, and deaths by village.

In 2001, the crude birth rate increased to 26.4 in the ICDDR,B area and decreased to 27.1 in the government area from the 2000 level of 24.9 in the ICDDR,B area and 27.7 in the government area respectively. In the ICDDR,B area, the crude death rate decreased to 6.5 in 2001 compared to 6.8 in 2000, whereas in the government area it decreased to 7.0 in 2001 from 7.2 in 2000. In the ICDDR,B area, the total fertility rate (TFR) rose to 3.1 but dropped to 3.4 in the government area. The trends in the TFR in both the areas are illustrated in Figure 2.1.

The rate of infant mortality basically did not change in 2000 (43.7) and 2001 (44.0) in the ICDDR,B area, while there is a slight decrease in infant mortality rate from 58.0 in 2000 to 56.9 in 2001 in the government area. Mortality of children aged 1-4 years remained same in the ICDDR,B area but decreased in the government area. As a result of these changes, mortality of children aged less than 5 years decreased in the government area from 81.1 in 2000 to 71.2 in 2001 per 1,000 live births. The trends in fertility and mortality of children aged less than 5 years are illustrated in Figure 2.1.

The numbers of in- and out-migrants registered in 2001 were 7,461 and 10,150 respectively, giving an in-migration rate of 34.0, out-migration rate of 46.2, and a net migration rate of 12.2 per 1,000 population leaving the area. Out-migrants continued to outnumber in-migrants, thereby offsetting the rate of natural increase and reducing the overall annual population growth rate to 0.8%.

The age-sex distribution of the mid-year population of the retained villages is shown in Tables 2.3 and 2.4. Block-wise mid-year population in the ICDDR,B area is shown in Appendix A.1. The age-sex distribution of the mid-year population is illustrated by the population pyramid (Fig. 2.2). The fertility decline in the surveillance area in the 1978-2001 period caused a significant change in the age structure of the population. Children aged less than 15 years constituted 43.4% of the total population in the ICDDR,B area at the beginning of the ICDDR,B service project in 1978. By 2001, this proportion had fallen to 34.4%. In the government area, the change in age distribution was less than that in the ICDDR,B area. Children aged less than 15 years in the government area comprised 43.3% of the total population in 1978, which decreased to 37.5% in 2001. This difference in age distribution was due to the difference in fertility decline in the two areas. On the other hand, the number of elderly population (60 years and over) has increased from 5.8% in 1978 to 8.0% in 2001 due to the decline in both fertility and mortality.

Table 2.1. Vital statistics of ICDDR,B and government areas, 1990-2001

Vital rate (per 1,000)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Crude birth rate												
ICDDR,B area	28.3	25.4	25.4	24.7	25.9	25.2	22.4	23.7	25.8	24.5	24.9	26.4
Government area	37.8	32.7	31.1	29.4	29.4	27.8	26.7	26.8	28.3	25.9	27.7	27.1
Both areas	32.9	29.0	28.2	27.0	27.6	26.5	24.5	25.2	27.0	25.2	26.3	26.8
Total fertility rate*												
ICDDR,B area	3.4	3.0	3.0	2.9	3.0	2.9	2.7	2.8	3.0	2.9	2.9	3.1
Government area	5.0	4.3	4.0	3.8	3.8	3.6	3.5	3.4	3.6	3.3	3.5	3.4
Both areas	4.1	3.6	3.5	3.3	3.4	3.2	3.0	3.1	3.3	3.1	3.2	3.3
Crude death rate												
ICDDR,B area	7.6	8.1	8.3	7.7	8.0	7.3	7.6	6.6	7.0	6.4	6.8	6.5
Government area	9.4	10.2	9.8	10.2	9.2	8.4	7.9	8.0	8.1	7.4	7.2	7.0
Both areas	8.5	9.1	9.0	8.9	8.6	7.9	7.7	7.3	7.5	6.9	7.0	6.8
Neonatal mortality**												
ICDDR,B area	47.8	47.7	49.6	42.8	36.4	30.6	39.5	33.1	36.8	25.4	32.3	26.4
Government area	53.3	63.2	53.3	64.5	56.4	50.3	42.1	50.0	44.0	38.6	43.6	42.4
Both areas	50.9	56.3	51.6	54.4	46.9	40.8	40.9	41.9	40.5	32.0	38.4	34.7
Post-neonatal mortality**												
ICDDR,B area	27.4	32.3	30.8	20.3	27.3	20.6	26.6	16.4	13.8	19.1	11.8	17.2
Government area	34.1	51.7	37.0	34.8	30.8	28.3	24.8	28.6	26.0	22.2	14.4	14.5
Both areas	31.2	43.0	34.1	28.0	29.2	24.6	25.7	22.7	20.1	20.6	13.2	15.9
Infant mortality**												
ICDDR,B area	75.2	80.0	80.5	63.1	63.7	51.1	66.2	49.5	50.6	44.5	44.0	43.7
Government area	87.5	114.9	90.2	99.3	87.2	78.6	67.0	78.6	70.0	60.8	58.0	56.9
Both areas	82.1	99.2	85.7	82.4	76.0	65.3	66.6	64.7	60.6	52.7	51.6	50.5
Child mortality (1-4 yrs.)†												
ICDDR,B area	5.3	7.0	5.9	5.9	5.3	6.7	6.0	4.5	4.7	4.1	3.9	3.9
Government area	9.3	9.1	10.4	10.0	7.0	8.4	8.0	7.0	5.8	7.5	6.4	3.8
Both areas	7.4	8.1	8.3	8.1	6.2	7.6	7.1	5.8	5.2	5.8	5.2	3.9
Under-five mortality**												
ICDDR,B area	94.8	105.7	102.0	86.1	83.6	76.7	87.9	66.7	68.3	60.0	58.6	58.4
Government area	120.4	146.2	127.1	135.1	113.1	109.5	96.4	104.4	91.3	88.6	81.1	71.2
Both areas	108.7	128.1	115.7	112.5	99.1	93.8	92.3	86.3	80.1	74.4	70.7	65.0
Rate of natural increase												
ICDDR,B area	20.7	17.3	17.1	17.0	17.9	17.9	14.8	17.1	18.8	18.1	18.1	19.9
Government area	28.4	22.5	21.2	19.2	20.2	19.4	18.8	18.7	20.2	18.5	20.5	20.1
Both areas	24.4	19.9	19.1	18.1	19.1	18.6	16.8	17.9	19.5	18.3	19.3	20.0
In-migration												
	26.0	26.9	33.6	25.5	26.5	27.0	25.1	34.6	30.3	34.8	35.1	34.0
Out-migration												
	42.4	41.9	48.5	36.1	41.4	37.4	35.0	41.7	36.9	48.0	48.5	46.2
Growth (%)												
	0.8	0.5	0.4	0.8	0.4	0.8	0.7	1.1	1.3	0.5	0.6	0.8

*Per woman.

**Per 1,000 live births.

†Per 1,000 children aged 1-4 years.

Fig. 2.1. Trends in fertility and under five mortality by area, 1990-2001

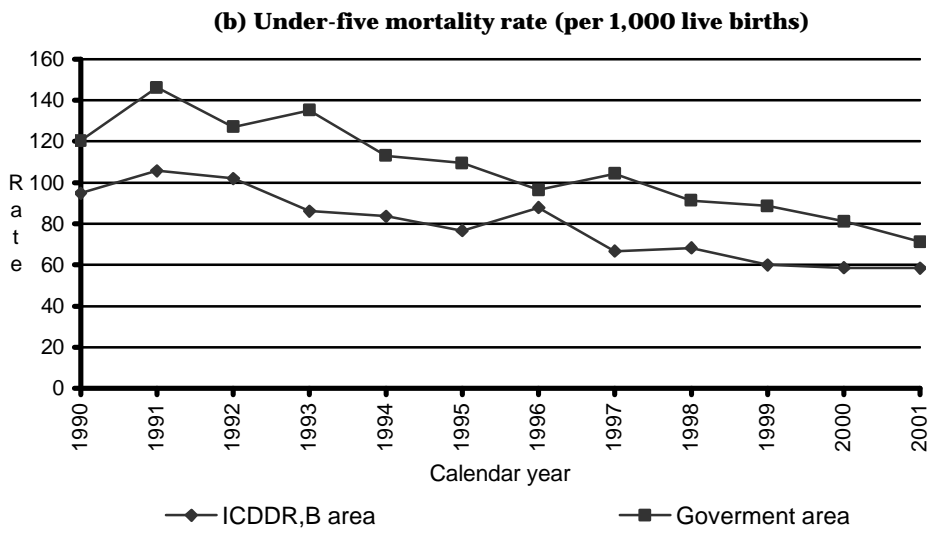
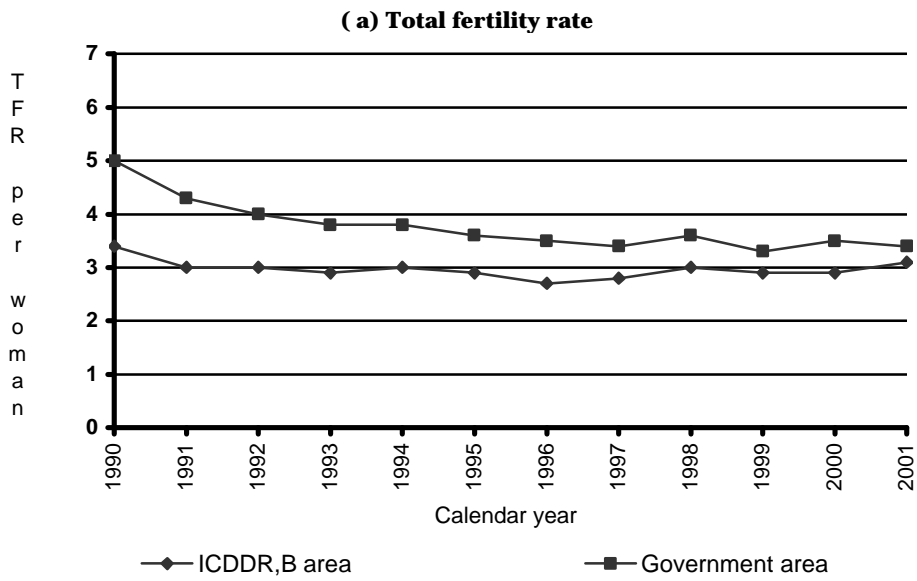


Table 2.2. Mid-year population, events registered, and population changes, 2001

Demographic indicator	Number			Rate per 1,000		
	Total	Male	Female	Total	Male	Female
Total population (30 June 2001)						
ICDDR,B area	107369	51691	55678	-	-	-
Government area	112383	54644	57739	-	-	-
Both areas	219752	106335	113417	-	-	-
Events registered (Jan-Dec. 2001)						
Births						
ICDDR,B area	2837	1445	1392	26.4	-	-
Government area	3043	1583	1460	27.1	-	-
Both areas	5880	3028	2852	26.8	-	-
Deaths						
Infants*						
ICDDR,B area	124	72	52	43.7	49.8	37.4
Government area	173	90	83	56.9	56.9	56.8
Both areas	297	162	135	50.5	53.5	47.3
All deaths						
ICDDR,B area	702	424	278	6.5	8.2	5.0
Government area	782	412	370	7.0	7.5	6.4
Both areas	1484	836	648	6.8	7.9	5.7
In-migration	7461	3588	3873	34.0	33.7	34.1
Out-migration	10150	5104	5046	46.2	48.0	44.5
Marriage	3117	-	-	14.2	-	-
Divorce**	265	-	-	85.0	-	-
Population change (Jan-Dec. 2001)						
Net migration	-2689	-1516	-1173	-12.2	-14.3	-10.3
Natural increase						
ICDDR,B area	2135	1021	1114	19.9	19.8	20.0
Government area	2261	1171	1090	20.1	21.4	18.9
Both areas	4396	2192	2204	20.0	20.6	19.4
Net increase	1707	676	1031	7.8	6.4	9.1

*Rate per 1,000 live births

**Rate per 1,000 marriages

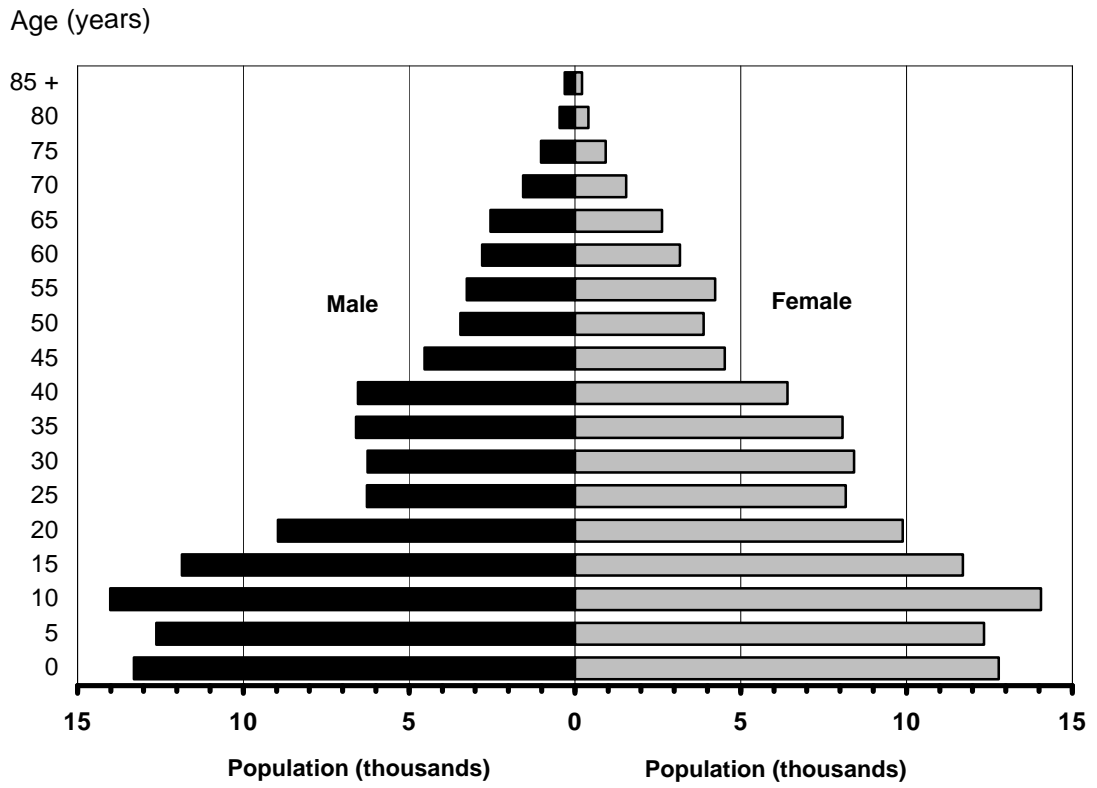
Table 2.3. Mid-year population by age and sex, 2001

Age (years)	Number			Percentage		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	219752	106335	113417	100.0	100.0	100.0
<1 year	5602	2837	2765	2.5	2.7	2.4
1-4	20493	10466	10027	9.3	9.8	8.8
1	5171	2667	2504	2.4	2.5	2.2
2	5328	2758	2570	2.4	2.6	2.3
3	5166	2652	2514	2.4	2.5	2.2
4	4828	2389	2439	2.2	2.2	2.2
5-9	24954	12614	12340	11.4	11.9	10.9
10-14	28075	14020	14055	12.8	13.2	12.4
15-19	23556	11850	11706	10.7	11.1	10.3
20-24	18837	8947	9890	8.6	8.4	8.7
25-29	14438	6274	8164	6.6	5.9	7.2
30-34	14654	6241	8413	6.7	5.9	7.4
35-39	14680	6601	8079	6.7	6.2	7.1
40-44	12962	6547	6415	5.9	6.2	5.7
45-49	9054	4526	4528	4.1	4.3	4.0
50-54	7335	3448	3887	3.3	3.2	3.4
55-59	7497	3265	4232	3.4	3.1	3.7
60-64	5975	2797	3178	2.7	2.6	2.8
65-69	5176	2546	2630	2.4	2.4	2.3
70-74	3110	1567	1543	1.4	1.5	1.4
75-79	1958	1020	938	0.9	1.0	0.8
80-84	880	466	414	0.4	0.4	0.4
85+	516	303	213	0.2	0.3	0.2

Table 2.4. Mid-year population by age, sex, and area, 2001

Age (years)	ICDDR,B area			Government area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	107369	51691	55678	112383	54644	57739
<1 year	2660	1331	1329	2942	1506	1436
1-4	9807	4980	4827	10686	5486	5200
1	2477	1261	1216	2694	1406	1288
2	2571	1300	1271	2757	1458	1299
3	2482	1266	1216	2684	1386	1298
4	2277	1153	1124	2551	1236	1315
5-9	11708	5894	5814	13246	6720	6526
10-14	12786	6411	6375	15289	7609	7680
15-19	11247	5488	5759	12309	6362	5947
20-24	9376	4418	4958	9461	4529	4932
25-29	7574	3304	4270	6864	2970	3894
30-34	7374	3118	4256	7280	3123	4157
35-39	7599	3389	4210	7081	3212	3869
40-44	6512	3328	3184	6450	3219	3231
45-49	4580	2308	2272	4474	2218	2256
50-54	3625	1693	1932	3710	1755	1955
55-59	3773	1651	2122	3724	1614	2110
60-64	2917	1384	1533	3058	1413	1645
65-69	2518	1263	1255	2658	1283	1375
70-74	1561	799	762	1549	768	781
75-79	1032	531	501	926	489	437
80-84	440	232	208	440	234	206
85+	280	169	111	236	134	102

Fig. 2.2. Age pyramid of the 2001 mid-year population



CHAPTER 3

MORTALITY

Distribution of 1,484 deaths by age at death and sex for the whole study area and for the ICDDR,B and government areas is shown in Tables 3.1 and 3.2. Of the 1,484 deaths, 20% were infants, 5% were of children age 1-4 years, and 51% were aged 60 years and above in 2001.

Tables 3.3 and 3.4 show the corresponding age-sex-specific mortality rates for the study area and for the ICDDR,B and government areas. Block-wise deaths in the ICDDR,B area by age and sex are shown in Appendix A.2. In 2001, the male infant mortality rate was 53.5 and the female infant mortality rate was 47.3 per 1,000 live births, whereas in 2000, the male infant mortality rate was 52.2 and the female infant mortality rate was 50.9. In 2001, the overall death rate for males and females was 7.9 and 5.7 respectively. In most age groups, the death rates were higher in the government area than in the ICDDR,B area.

Table 3.5 shows the abridged life tables for males and females derived from these rates, and the l_x values are plotted in Figure 3.1. The expectation of life at birth increased as a whole compared to 2000. The expectation of life at birth was 66.7 years for males and 70.4 for females. The difference in the expectation of life between the two areas was more pronounced for females (3.9) than for males (0.5). Expectation of life at each age in each area was higher for females than for males (Appendices A.3 and A.4), except for only few age groups.

The levels of adult mortality decreased in the government area in 2001. The probability of dying for males aged 15-60 years ($_{45}q_{15}$) was 168, and for females it was 93 per 1,000 population in 2001. In the age group of 60 years and above, females were expected to survive more years in 2001 than males compared to 2000.

Table 3.6 and Figure 4.1 show the distribution of deaths by age and month of occurrence. Deaths of those aged 5 years and above tend to peak in the winter months. Neonatal deaths were also most frequent in winter months, undoubtedly reflecting the seasonal variation in births as described in Chapter 4. Post-neonatal deaths, on the other, tend to peak in winter and summer. Distributions of deaths by sex, cause, and age and by ICDDR,B and government areas are shown in Appendix A.5–A.8.

Table 3.7 gives the age-standardized mortality rates by causes of death, using the WHO standard world population age structure in Appendix D (WHO, 2000). It was found that cardiovascular disease, followed by malignant neoplasm, and chronic obstructive pulmonary disease (COPD), were the more prominent causes of death among males of both the areas. On the other hand, female mortality due to acute respiratory infection (ARI), pneumonia, influenza and nutritional causes were higher in the government area than in the ICDDR,B area. Comparison of the ICDDR,B area with the government area revealed that the main reason for the higher overall mortality rates for both sexes in the latter area was due to higher mortality from diarrhoea and respiratory infections. Other differences between the two areas varied by sex.

A striking feature of Table 3.7 and Appendix A.5-A.8 is the large number of deaths classified in the older age groups under senility, other causes of death (not elsewhere classified), and unknown. This pattern shows that the quality of cause-of-death data in these age groups is still unsatisfactory. Plans are currently being formulated to change the procedure of classification of causes of death that would be reflected in the 2003 report.

Table 3.1. Deaths by age and sex in both areas, 2001

Age	Both sexes	Male	Female
All ages	1484	836	648
<1 year	297	162	135
<1 month	204	111	93
1- 5 months	65	35	30
6-11 months	28	16	12
1-4 years	79	38	41
1	38	17	21
2	12	4	8
3	14	8	6
4	15	9	6
5-9	32	17	15
10-14	23	8	15
15-19	22	12	10
20-24	16	8	8
25-29	15	9	6
30-34	18	8	10
35-39	28	12	16
40-44	40	31	9
45-49	35	19	16
50-54	44	25	19
55-59	71	46	25
60-64	119	65	54
65-69	141	81	60
70-74	160	98	62
75-79	165	95	70
80-84	93	54	39
85+	86	48	38

Table 3.2. Deaths by area, age, and sex, 2001

Age	ICDDR,B area			Government area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	702	424	278	782	412	370
<1 year	124	72	52	173	90	83
<1 month	75	43	32	129	68	61
1- 5 months	35	21	14	30	14	16
6-11 months	14	8	6	14	8	6
1-4 years	38	21	17	41	17	24
1	16	8	8	22	9	13
2	6	2	4	6	2	4
3	10	6	4	4	2	2
4	6	5	1	9	4	5
5-9	12	8	4	20	9	11
10-14	14	5	9	9	3	6
15-19	12	5	7	10	7	3
20-24	5	3	2	11	5	6
25-29	8	6	2	7	3	4
30-34	11	6	5	7	2	5
35-39	12	4	8	16	8	8
40-44	20	14	6	20	17	3
45-49	24	12	12	11	7	4
50-54	24	11	13	20	14	6
55-59	39	27	12	32	19	13
60-64	60	33	27	59	32	27
65-69	68	44	24	73	37	36
70-74	80	57	23	80	41	39
75-79	70	46	24	95	49	46
80-84	33	24	9	60	30	30
85+	48	26	22	38	22	16

**Table 3.3. Death rates by age and sex, 2001
(per 1,000 population)**

Age	Both sexes	Male	Female
All ages	6.8	7.9	5.7
<1 year*	50.5	53.5	47.3
<1 month*	34.7	36.7	32.6
1- 5 months*	11.1	11.6	10.5
6-11 months*	4.8	5.3	4.2
1-4 years	3.9	3.6	4.1
1	7.3	6.4	8.4
2	2.3	1.5	3.1
3	2.7	3.0	2.4
4	3.1	3.8	2.5
5-9	1.3	1.3	1.2
10-14	0.8	0.6	1.1
15-19	0.9	1.0	0.9
20-24	0.8	0.9	0.8
25-29	1.0	1.4	0.7
30-34	1.2	1.3	1.2
35-39	1.9	1.8	2.0
40-44	3.1	4.7	1.4
45-49	3.9	4.2	3.5
50-54	6.0	7.3	4.9
55-59	9.5	14.1	5.9
60-64	19.9	23.2	17.0
65-69	27.2	31.8	22.8
70-74	51.4	62.5	40.2
75-79	84.3	93.1	74.6
80-84	105.7	115.9	94.2
85+	166.7	158.4	178.4

*Rate per 1,000 live births

**Table 3.4. Death rates by area, age, and sex, 2001
(per 1,000 population)**

Age	ICDDR,B area			Government area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	6.5	8.2	5.0	7.0	7.5	6.4
<1 year*	43.7	49.8	37.4	56.9	56.9	56.8
<1 month*	26.4	29.8	23.0	42.4	43.0	41.8
1- 5 months*	12.3	14.5	10.1	9.9	8.8	11.0
6-11 months*	4.9	5.5	4.3	4.6	5.1	4.1
1-4 years	3.9	4.2	3.5	3.8	3.1	4.6
1	6.5	6.3	6.6	8.2	6.4	10.1
2	2.3	1.5	3.1	2.2	1.4	3.1
3	4.0	4.7	3.3	1.5	1.4	1.5
4	2.6	4.3	0.9	3.5	3.2	3.8
5-9	1.0	1.4	0.7	1.5	1.3	1.7
10-14	1.1	0.8	1.4	0.6	0.4	0.8
15-19	1.1	0.9	1.2	0.8	1.1	0.5
20-24	0.5	0.7	0.4	1.2	1.1	1.2
25-29	1.1	1.8	0.5	1.0	1.0	1.0
30-34	1.5	1.9	1.2	1.0	0.6	1.2
35-39	1.6	1.2	1.9	2.3	2.5	2.1
40-44	3.1	4.2	1.9	3.1	5.3	0.9
45-49	5.2	5.2	5.3	2.5	3.2	1.8
50-54	6.6	6.5	6.7	5.4	8.0	3.1
55-59	10.3	16.4	5.7	8.6	11.8	6.2
60-64	20.6	23.8	17.6	19.3	22.6	16.4
65-69	27.0	34.8	19.1	27.5	28.8	26.2
70-74	51.2	71.3	30.2	51.6	53.4	49.9
75-79	67.8	86.6	47.9	102.6	100.2	105.3
80-84	75.0	103.4	43.3	136.4	128.2	145.6
85+	171.4	153.8	198.2	161.0	164.2	156.9

*Rate per 1,000 live births

Table 3.5. Abridged life table by sex, 2001

Age (years)	Male				Female			
	nq_x	l_x	L_x	e^o_x	nq_x	l_x	L_x	e^o_x
0	53.5	100000	96127	66.7	47.3	100000	96573	70.4
1	6.4	94650	94295	69.5	8.4	95266	94797	72.9
2	1.4	94049	93980	68.9	3.1	94471	94324	72.5
3	3.0	93912	93771	68.0	2.4	94177	94065	71.8
4	3.8	93629	93453	67.2	2.5	93953	93837	70.9
5	6.7	93277	464942	66.5	6.1	93722	467300	70.1
10	2.8	92651	462645	61.9	5.3	93154	464626	65.5
15	5.1	92387	460858	57.1	4.3	92658	462380	60.9
20	4.5	91920	458655	52.4	4.0	92263	460457	56.1
15	7.1	91510	456041	47.6	3.7	91890	458676	51.3
30	6.4	90856	452940	42.9	5.9	91553	456516	46.5
35	9.1	90275	449491	38.2	9.9	91011	452985	41.8
40	23.4	89458	442446	33.5	7.0	90114	449116	37.1
45	20.8	87363	432618	29.2	17.5	89484	443796	32.4
50	35.7	85547	420667	24.8	24.2	87915	434664	27.9
55	68.2	82497	399366	20.6	29.1	85791	423168	23.5
60	110.2	76870	364444	16.9	81.7	83291	400546	19.2
65	147.9	68401	318040	13.7	108.3	76485	362968	15.6
70	271.4	58282	252936	10.6	183.3	68204	311189	12.2
75	377.8	42464	172270	8.6	315.3	55700	235340	9.4
80	447.5	26419	102025	7.3	381.3	38138	154359	7.5
85+	1000.0	14597	92141	6.3	1000.0	23596	132264	5.6

**Fig. 3.1. Probability of survival from birth to age(x)
by sex, 2001**

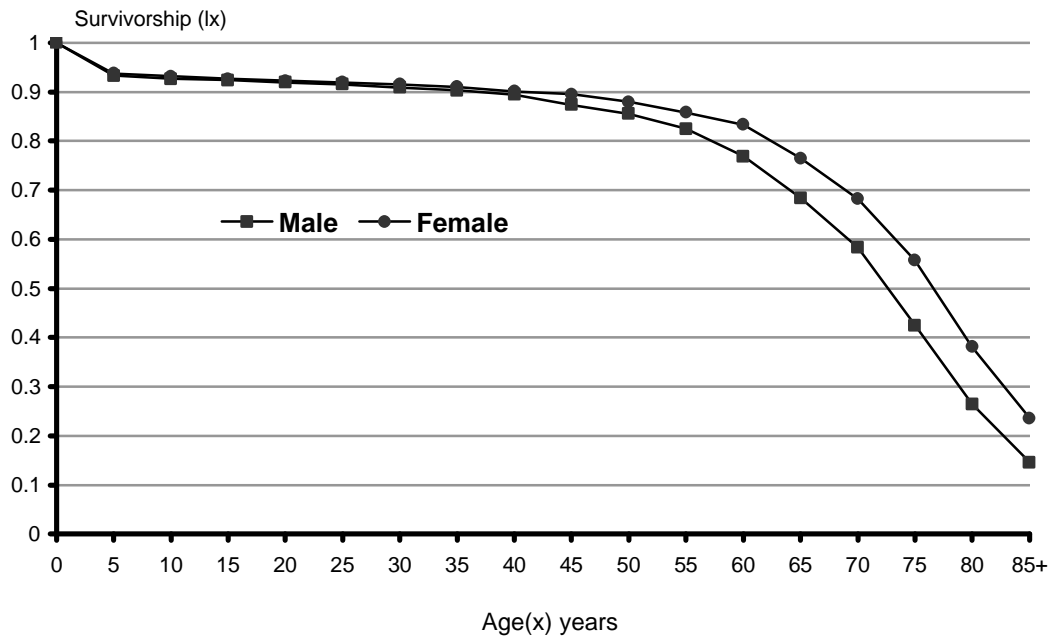


Table 3.6. Deaths by month and age, 2001

Month	Age at death				
	All ages	Under 1 month	1-11 months	1-4 years	5 years and above
January	164	18	10	3	133
February	150	22	11	5	112
March	103	11	4	5	83
April	117	16	14	7	80
May	107	14	7	10	76
June	115	12	8	7	88
July	95	10	7	5	73
August	106	14	8	9	75
September	124	17	3	12	92
October	115	20	7	6	82
November	139	27	7	4	101
December	149	23	7	6	113
Total	1484	204	93	79	1108

**Table 3.7. Age-standardized mortality rates by cause of death, 2001
(per 100,000 population)***

Cause of death	Male		Female	
	ICDDR,B Area	Government area	ICDDR,B area	Government area
Diarrhoea	59.02	50.81	34.46	61.79
Dysentery	16.86	5.41	11.34	4.37
Tuberculosis	44.56	31.92	2.89	4.19
Tetanus (non-neonatal)	0.00	0.00	0.00	0.00
Other infectious diseases	23.77	16.21	26.88	8.47
Malignant neoplasms	92.90	93.54	40.33	42.83
Nutritional	8.32	11.48	6.77	29.18
Cardio-vascular diseases	176.96	150.82	128.81	134.63
ARI, pneumonia, influenza	59.56	63.88	19.34	57.14
COPD**	86.97	85.28	54.49	47.45
Gastrointestinal	33.80	77.63	21.51	23.82
Maternal death	-	-	3.13	5.55
Neonatal tetanus	(0.00)	(0.00)	(0.00)	(0.00)†
Other neonatal	45.98	56.18	32.51	51.39
Suicide	2.75	11.17	2.82	1.66
Homicide	1.34	2.66	1.79	2.60
Drowning	19.76	21.69	25.98	14.78
Other accidents	28.66	30.85	19.83	10.51
Senility	110.56	108.45	79.94	194.24
Other causes n.e.c.***	173.42	133.00	125.79	168.12
Unknown	45.31	45.50	39.69	35.31
Total	1030.50	996.46	678.29	898.03

*Age distribution of standard population is given in Appendix D

**Chronic obstructive pulmonary disease

***Not elsewhere classified

†Less than 5 deaths

CHAPTER 4

FERTILITY

In 2001, there were 5,880 live births in the HDSS as the outcome of 6,747 pregnancies recorded. Table 4.1 shows the number of pregnancies and their outcomes in 2001. The number of live births rose, overall, by 125, or 2.2 %, in 2001 compared to 2000. In the ICDDR,B area, the number of live births in 2001 was 202 more than in 2000, and in the government area it was 77 less than in 2000. In the study area as a whole, 86% of pregnancies resulted in a live birth, a proportion that remains constant from year to year. Among the pregnancies resulting in live births, 69 were multiple confinements.

Table 4.2 and Figure 4.1 show the distribution of pregnancies by outcome, and live births by sex and month of occurrence. The data show the usual marked seasonal variation of births, peaking in September-December. The sex ratio of live births was 106 males per 100 females.

Table 4.3 shows the age-specific fertility rates for the study area, together with the total fertility rate, general fertility rate, and gross and net reproduction rates. Figure 4.2 shows the age-specific fertility rates for both ICDDR,B and government areas. In all age groups, the fertility rates were higher in the government area compared to the ICDDR,B area. The age-specific fertility rates and indices for the ICDDR,B area by blocks are shown in Appendix A.9.

The breakdown by birth order facilitates a more detailed and sensitive analysis of fertility trends and differentials. Thus the totals of the order-specific rates represent the components by birth order of the TFR. In the same way TFR represents the average number of children which would be borne by a woman who go through life having children at the current rates, so the total for birth order N represents the proportion of women who would have at least N children.

Thus, the tables (Appendices A.10 and A.11) highlight the differences between the ICDDR,B area and the government area. There is comparatively little difference between the two areas for birth orders 1 and 2, but thereafter they widen dramatically.

Table 4.1. Number and rates of pregnancy outcomes by type and area, 2001

Type of pregnancy Outcome	Both areas		ICDDR,B area		Government area	
	No.	Rate	No.	Rate	No.	Rate
Total pregnancies*	6747	118.0	3176	109.9	3571	126.2
Live birth pregnancy**	5821	862.8	2813	885.7	3008	842.3
Foetal wastage**	926	137.2	363	114.3	563	157.7
<i>Early (miscarriage)***</i>	736	109.1	265	83.4	471	131.9
<i>Late (still birth)</i>	190	28.2	98	30.9	92	25.8
Multiple birth pregnancies	69		30		39	
Multiple live birth pregnancies	65		28		37	
<i>Three live births</i>	3		0		3	
<i>Two live births</i>	53		23		30	
<i>One live birth</i>	9		5		4	
Still birth pregnancies	2		1		1	
<i>Three still births</i>	1		0		1	
<i>Two still births</i>	1		1		0	
Miscarriage pregnancies	2		1		1	

*Rate per 1,000 women of age 15-49 years (GFR)

**Rate per 1,000 total pregnancies

***Less than 28 weeks

Table 4.2. Pregnancy outcomes by month, 2001

Month	Pregnancy outcome					No. of live born children			
	All	Miscarriage		Still birth	Live Birth*	Both sexes	Male	Female	Ratio
		Induced	Spon.						
All months	6747	341	395	190	5821	5880	3028	2852	1.06
January	563	22	21	24	496	500	227	273	0.83
February	496	39	18	12	427	430	212	218	0.97
March	502	27	38	13	424	428	232	196	1.18
April	421	28	32	13	348	354	174	180	0.97
May	451	38	39	12	362	366	191	175	1.09
June	434	32	38	13	351	356	189	167	1.13
July	465	22	37	11	395	399	227	172	1.32
August	507	32	31	23	421	428	225	203	1.11
September	723	31	35	16	641	649	343	306	1.12
October	766	29	38	19	680	686	367	319	1.15
November	760	20	35	19	686	693	353	340	1.04
December	659	21	33	15	590	591	288	303	0.95

*For any multiple birth pregnancy, the outcome is recorded as live birth, if at least one of the issues is live born

Fig. 4.1. Number of births and deaths by month, 2001

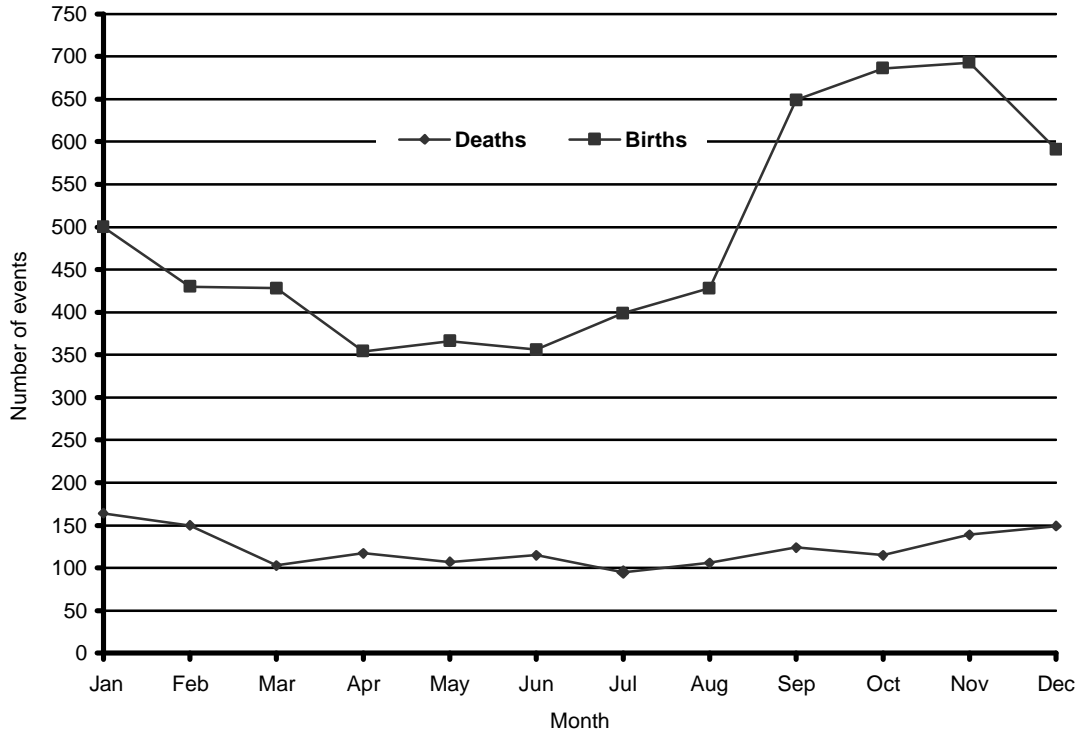


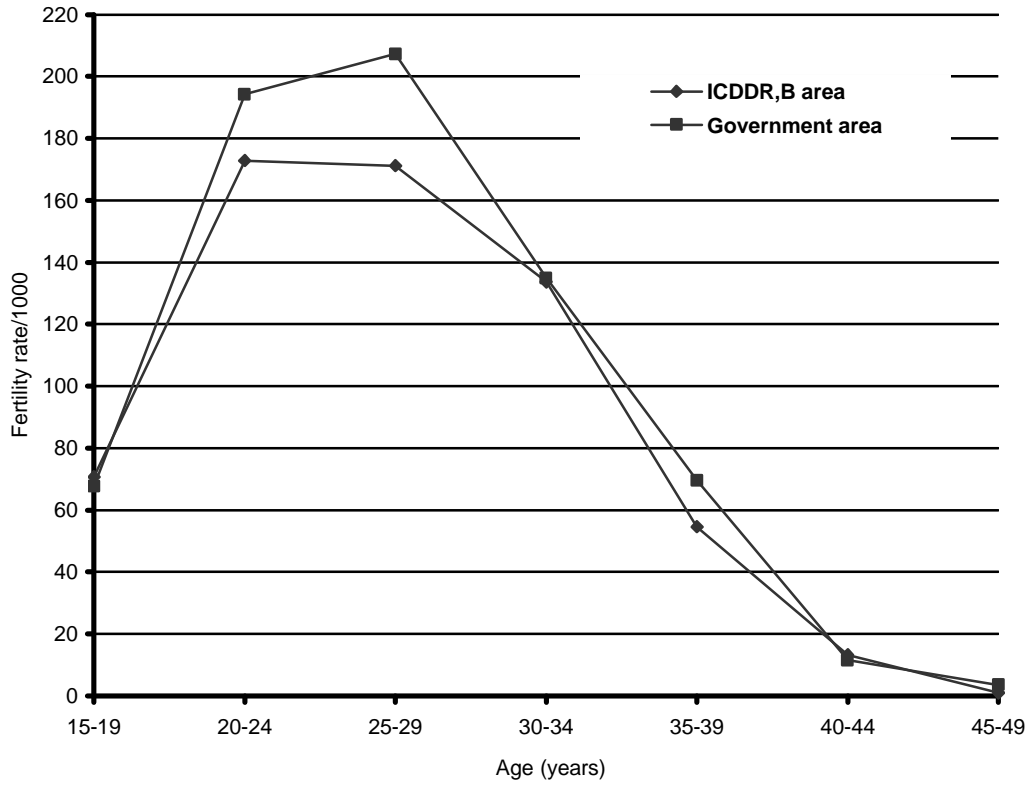
Table 4.3. Age-specific fertility rates (per 1000 women) and indices by area, 2001

Age (years)	Both areas		ICDDR,B area		Government area	
	Births	Rate	Births	Rate	Births	Rate
All ages	5880	102.8	2837	98.1	3043	107.6
15-19*	809	69.1	407	70.7	402	67.6
20-24	1815	183.5	856	172.7	959	194.4
25-29	1538	188.4	731	171.2	807	207.2
30-34	1130	134.3	569	133.7	561	135.0
35-39	499	61.8	230	54.6	269	69.5
40-44	79	12.3	42	13.2	37	11.5
45-49**	10	2.2	2	0.9	8	3.5
Total fertility rate		3258		3085		3444
General fertility rate		103		98		108
Gross reproduction rate		1580		1515		1651
Net reproduction rate		1449		1408		1493

*Births to mothers aged 15 years were included in this group

**Births to mothers aged 50 years and above were included in this group

Fig. 4.2. Age-specific fertility rates by area, 2001



CHAPTER 5

MARRIAGE AND DIVORCE

The definitions adopted by the HDSS specify that if either partner in a marriage has been resident in the study area, the marriage should be registered. The number of marriages registered in 2001 was 3,117, giving a crude marriage rate of 14.2 per 1,000 population. This figure shows a decrease over that of 2000.

Tables 5.1 and 5.2 show the distribution of grooms and brides by age at marriage and previous marital status. The mean ages at marriage--27.4 and 19.8 for all grooms and brides respectively and 26.5 and 19.2 for those marrying for the first time--are similar to those of 2000. The mean age has been over 18 years for every year since 1984, while prior to that date it was consistently below 18 years.

Table 5.3 shows the marriage rates by age and sex. Among males, the marriage rate was 46.9 per 1,000 persons aged 15 years and above. For females, the rate was 35.3 per 1,000 aged 10 years and above. For females, the highest rate is 140 per 1,000 in the 15-19 year age group, while for males the peak occurs in the age group of 25-29 years.

The number of divorces was 265 in 2001 compared to 284 in 2000 (Appendix A.12). In general, the incidence of divorce in Matlab has fallen. The number of divorces was more than 500 each year during 1978-1981. Since 1981, this figure has been less than 500. Table 5.4 shows the mean and median durations in months of marriage at divorce by age and sex. The average duration of marriage of all divorcing husbands at the time of divorce was 42 months.

Figure 5.1 shows the distribution of marriages and divorces by month. There has been no strong seasonal pattern for marriages or divorces in 2001.

Table 5.1. Groom's age at marriage by previous marital status, 2001

Age (years)	Previous marital status (%)				
	All grooms	Single	Married	Divorced	Widowed
All ages	100.0 (n=3117)	100.0 (n=2686)	100.0 (n=102)	100.0 (n=253)	100.0 (n=76)
10-14	0.1	0.1	0.0	0.0	0.0
15-19	4.8	5.3	3.9	1.6	1.3
20-24	28.8	30.9	8.8	22.9	2.6
25-29	35.1	37.0	23.5	25.7	13.2
30-34	22.2	21.6	22.5	28.9	19.7
35-39	5.1	4.2	11.8	9.9	14.5
40-44	2.0	0.7	15.7	5.9	17.1
45-49	0.8	0.1	6.9	2.8	10.5
50-54	0.4	0.0	3.9	0.8	7.9
55-59	0.3	0.0	2.9	0.0	6.6
60-64	0.1	0.0	0.0	0.4	3.9
65+	0.2	0.0	0.0	1.2	2.6
Unknown	0.1	0.1	0.0	0.0	0.0
Median age*	27.0	26.0	31.5	29.0	37.5
Mean age*	27.4	26.5	33.8	30.4	40.3
Standard deviation*	6.2	4.8	9.2	8.0	12.1

*Mean and median ages and standard deviation were calculated from ungrouped age data

Table 5.2. Bride's age at marriage by previous marital status, 2001

Age (years)	Previous marital status (%)			
	All brides	Single	Divorced	Widowed
All ages	100.0 (n=3117)	100.0 (n=2829)	100.0 (n=261)	100.0 (n=27)
10 - 14	4.0	4.3	0.8	0.0
15 - 19	52.5	55.8	21.5	11.1
20 - 24	32.3	31.9	37.2	25.9
25 - 29	8.1	6.8	21.1	18.5
30 - 34	2.0	0.9	11.5	18.5
35 - 39	0.5	0.2	4.2	3.7
40 - 44	0.4	0.0	3.4	7.4
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.1	0.0	0.0	7.4
55 - 59	0.0	0.0	0.4	0.0
60 - 64	0.0	0.0	0.0	3.7
65+	0.0	0.0	0.0	3.7
Unknown	0.1	0.1	0.0	0.0
Median age*	19.0	19.0	23.0	28.0
Mean age*	19.8	19.2	24.5	31.6
Standard deviation*	4.4	3.4	6.6	13.0

*Mean and median ages and standard deviation were calculated from ungrouped age data

Table 5.3. Marriage rates by age and sex, 2001

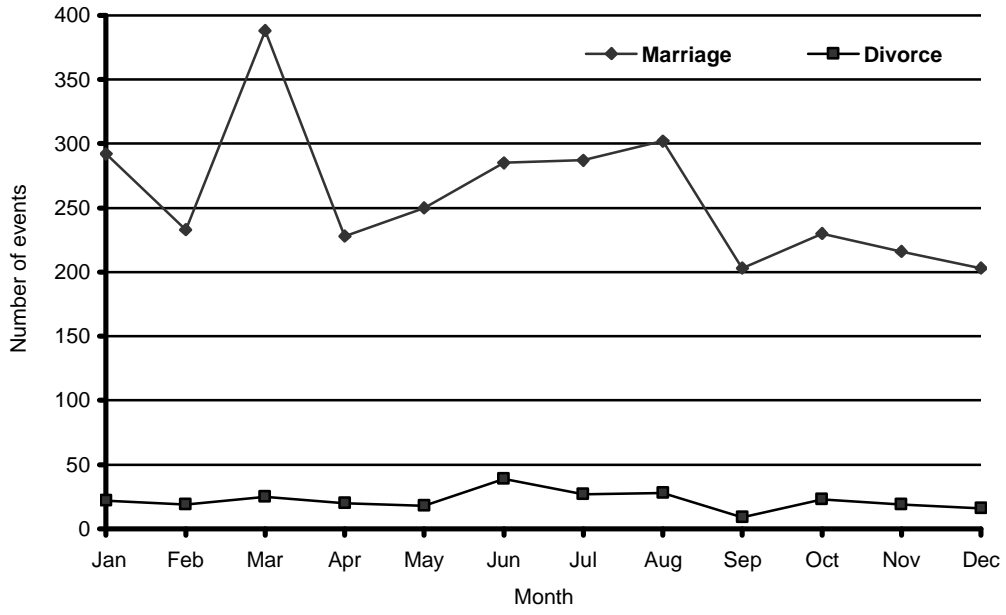
Age (years)	Male			Female		
	Marriages	Population	Rate*	Marriages	Population	Rate*
All ages	3117	66398	46.9	3117	88285	35.3
10-14	-	-	-	124	14055	8.8
15-19	153	11850	12.9	1637	11706	139.8
20-24	899	8947	100.5	1007	9890	101.8
25-29	1093	6274	174.2	252	8164	30.9
30-34	691	6241	110.7	61	8413	7.3
35-39	160	6601	24.2	17	8079	2.1
40-44	63	6547	9.6	11	6415	1.7
45+	58	19938	2.9	8	21563	0.4

*Rates per 1,000 population irrespective of previous marital status

Table 5.4. Mean and median duration (months) of all marriages at divorce by age and sex, 2001

Age (years) at divorce	Male				Female			
	No.	Mean	Median	SD	No.	Mean	Median	SD
<20	15	19.1	12.0	18.9	103	17.9	12.0	21.2
20-24	52	17.9	12.0	18.4	79	29.8	28.0	22.3
25-29	63	30.2	23.0	25.2	35	46.0	39.0	37.1
30-34	65	31.7	26.0	29.1	28	69.7	48.5	58.6
35-39	34	70.1	56.5	66.2	11	70.4	52.0	65.8
40-49	21	49.8	24.0	62.7	7	102.4	96.0	83.8
50+	7	49.0	32.0	37.5	2	46.0	46.0	19.8
Unknown	8	49.8	49.5	33.4	-	-	-	-
All ages	265	35.3	19.0	40.2	265	35.3	19.0	40.2

Fig. 5.1. Marriages and divorces by month, 2001



CHAPTER 6

MIGRATION

An out-migrant is defined as a person originally listed on a DSS census as a resident, or a person who became a resident after the census by birth or immigration, who subsequently moved out of the surveillance (HDSS) area permanently. Likewise, an in-migrant is an individual neither recorded in the last census nor born or lived in the HDSS area after the census who has permanently moved into the surveillance area. Those who stay in the area continuously for at least 6 months in a year, or come home at least once a month to stay overnight, are treated as permanent residents. These definitions are used in the surveillance area as a whole. People who move from the government area into the ICDDR,B area, or vice-versa, do not feature in the tables, which show the numbers of migrants in the two areas.

The number of in-migrants in 2001 was 7,461, giving a crude rate of in-migration of 34.0 per 1000 population. Out-migrants numbered 10,150, and the out-migration rate was 46.2 per 1000 (Appendix A.13). Both in-migration and out-migration rates decreased over those of 2000. The net loss of migrants was 12.2 per 1,000 in 2001, which is lower than that in 2000.

Table 6.1 presents the age-specific migration rates, which are illustrated in Figure 6.1. The tables and figures show the bi-modal distribution of age commonly found for migrant populations, with a primary peak of young adults and a secondary peak of young children moving with their parents. Male out-migrants were rather younger than male in-migrants, while for females the pattern of age distribution was more similar. Table 6.2 and Figure 6.2 show the numbers moving in and out by month. January is the preferred month for migration. Numbers of in- and out-migration by age, sex, and cause of movement are shown in Appendix A.16 through A.19.

Roughly, an equal number of men and women move into and out of rural areas, probably due to marriage. There is a net loss of both men and women to urban Dhaka, primarily of young adults. Migration to the Middle East and other Asian locations is heavily concentrated among out-migrating males aged 15-44 years (Appendices A.20 and A.21).

Table 6.1. Age and sex-specific migration rates by direction, 2001 (per 1,000 population)

Age (years)	Both Sexes		Male		Female	
	In	Out	In	Out	In	Out
All ages	34.0	46.2	33.7	48.0	34.1	44.5
0-4	43.3	47.3	43.7	45.7	43.0	48.9
5-9	25.2	27.5	25.4	27.2	25.0	27.9
10-14	18.8	32.7	17.5	34.8	20.1	30.5
15-19	47.5	89.5	22.8	78.8	72.4	100.4
20-24	65.7	112.8	41.6	112.4	87.5	113.1
25-29	63.2	83.2	77.9	99.6	51.8	70.6
30-34	45.7	48.7	71.0	66.7	26.9	35.4
35-39	29.9	29.1	50.3	39.5	13.2	20.5
40-44	22.7	18.5	32.8	27.6	12.3	9.2
45-49	18.3	15.5	28.7	20.1	8.0	10.8
50-54	12.8	13.1	21.5	13.6	5.1	12.6
55-59	9.7	9.2	13.5	8.3	6.9	9.9
60-64	11.2	9.9	12.2	11.8	10.4	8.2
65+	20.1	25.7	14.9	17.3	25.1	33.8

Table 6.2. In- and out-migration by sex and month, 2001

Month	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All months	7461	3588	3873	10150	5104	5046
January	1478	710	768	1871	1012	859
February	819	421	398	871	457	414
March	899	412	487	1093	532	561
April	669	306	363	883	468	415
May	501	238	263	764	363	401
June	627	310	317	939	477	462
July	424	214	210	850	391	459
August	504	258	246	796	392	404
September	415	202	213	598	292	306
October	468	217	251	625	323	302
November	359	159	200	472	224	248
December	298	141	157	388	173	215

Fig. 6.1. Rates of in- and out-migration by sex and age, 2001

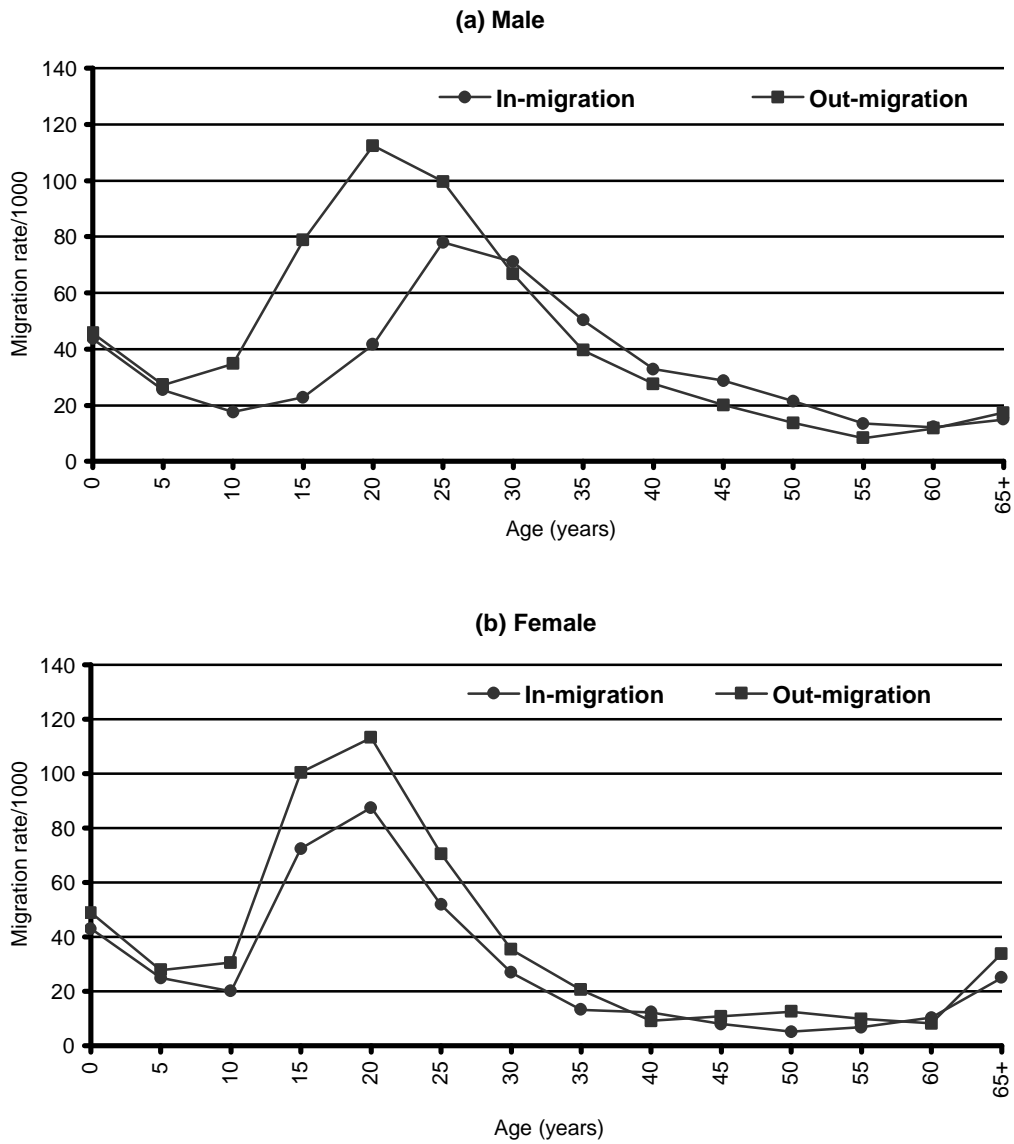
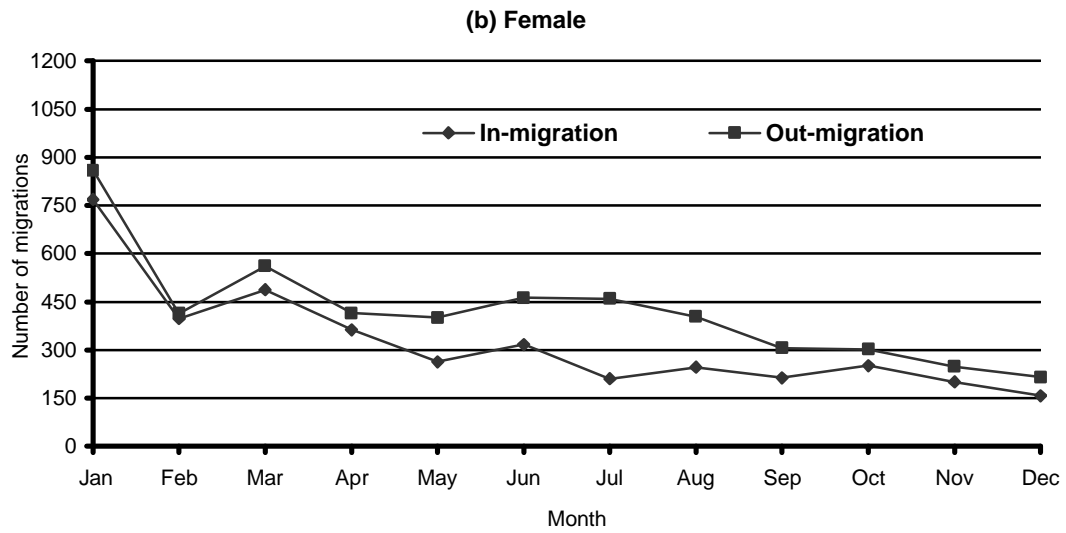
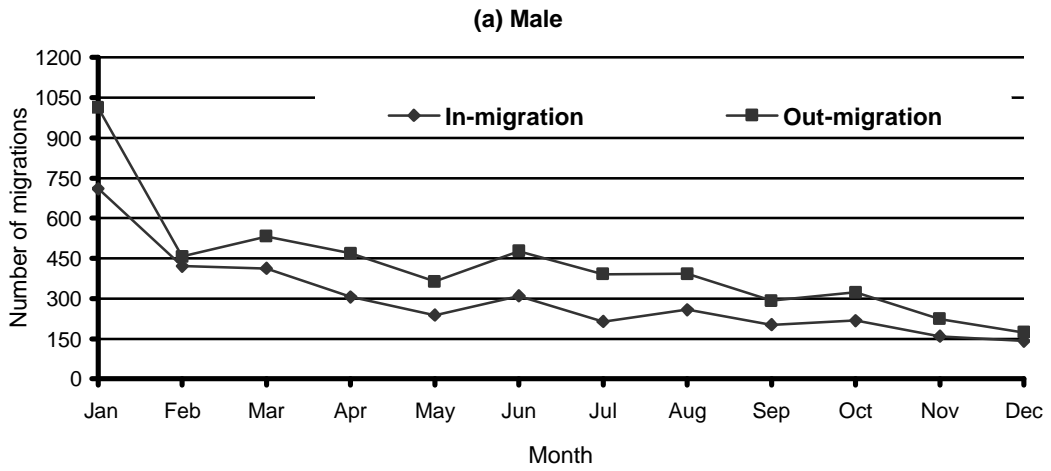


Fig. 6.2. Number of in- and out-migrations by sex and month, 2001



FERTILITY REGULATION IN ICDDR,B AND GOVERNMENT AREAS

In the ICDDR,B area, the CHRWs have been providing maternal and child health and family planning (MCH-FP) services from the fixed-sites (usually in one room of their houses) since 2001, and maintain records of MCH-FP services they provide. ICDDR,B switched from the door-to-door service delivery system to the fixed-site service delivery system in 2001, perhaps to be comparable with the government fixed-site service delivery system. The fixed-site is the Community Clinic (CC) for every 6,000 population for delivering the Essential Services Package, including MCH-FP services. The Government, under the Health and Population Sector Programme 1998-2003, will construct and equip 13,500 CCs nationwide. Up to June 2001, 25% of the planned CCs were completed and functional.

The CHRWs in both ICDDR,B and government areas record family planning methods used by couples in the previous month by asking eligible women about family planning during their monthly home visits. They also motivate couples for adopting family planning; advise pregnant women for antenatal care, safe delivery, and use of safe-delivery kit; advise parents for immunization of children in time; make them aware of symptoms of common childhood morbidity; and advise them to treat sick children by formally trained providers. The motivation activities are more intensive and extensive in the ICDDR,B area than in the government services area.

Table 7.1 shows that the contraceptive-use rate was static in the ICDDR,B area, and is increasing slowly at the national level. The faster increase in the contraceptive-use rates in the low family-planning performing area will reduce the spatial difference. Table 7.2 shows the difference in contraceptive method-mix between the ICDDR,B and government areas and the national-level estimates for selected years. At the national level and in the government area, pill is the most widely-used method, followed by injectables and tubectomy, while in the ICDDR,B area, injectables are the most widely-used method, followed by pill, condom, and tubectomy. The difference in the method-mix between the areas may be due to the impact of the MCH-FP services project in the ICDDR,B area. Changes in the method-mix in the ICDDR,B area during 1986-2001 are shown in Table 7.3. The use of pill, injectables, and condom has increased at the expense of tubectomy and intra-uterine device (IUD) over the years. The contraceptive-use rate has increased with the increase in women's age in the ICDDR,B area (Table 7.4). Women aged 25 years or more are more likely to use injectables, undergo tubectomy, and adopt traditional methods than women aged less than 25 years.

Table 7.1. Contraceptive use rate (%) of currently married women aged 15-49 years by area, 1982-2001

Year	Matlab		National ^a
	ICDDR,B area	Government area*	
1982	36.7	-	-
1983	40.3	-	19.1
1984	46.4	15.8	-
1985	46.2	-	-
1986	47.4	-	25.3
1987	51.3	-	-
1988	52.5	-	-
1989	58.8	-	31.4
1990	60.6	27.9	-
1991	61.1	-	39.9
1992	61.1	30.2	-
1993	62.7	-	44.6
1994	65.6	-	-
1995	68.6	-	-
1996	68.1	46.9	49.2
1997	67.4	-	-
1998	68.8	-	-
1999	69.9	-	53.8
2000	69.5	45.0 ^b	-
2001	69.7	-	-

*Sources: In-depth and KAP surveys, 1984 and 1990 respectively; MDHS 1992 and HDSS Census 1996

^aSources: CPS (Contraceptive Prevalence Survey), BFS (Bangladesh Fertility Survey) and BDHS (Bangladesh Demographic and Health Survey)

^bContraceptive use rate in the government area in 2000 is estimated based on the results of re-interview of 200 currently married women eligible for contraceptive use. The rate is under-estimated because the CHRWs in this area who have been recording vital events since 1966, are not yet used to recording maternal and child health (MCH-FP) information. They have been trained for recording MCH-FP information since February 2000

Table 7.2. Contraceptive method mix (%) in different surveys and surveillance

Method	BFS (Rural) 1989	BDHS 1999/2000	BMMS 2001	Matlab ICDDR,B area		Matlab government area 2001
				1989	2001	
Pill	31.2	42.8	51.2	22.9	30.7	52.4
Condom	5.8	8.0	6.4	2.6	10.4	2.0
Injectables	1.9	13.4	15.7	47.5	43.8	19.1
IUD	4.5	2.2	1.6	6.7	1.8	0.5
Tubectomy	27.6	12.5	10.6	16.1	8.3	17.6
Vasectomy	3.9	0.9	1.0	0.6	1.0	0.4
Foam	0.3	0.0	0.0	0.5	0.0	0.0
Norplant	U	0.9	1.0	U	U	U
Others*	24.7	19.2	12.5	3.1	4.0	8.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Others include periodic abstinence, withdrawal, and other traditional methods

BDHS=Bangladesh Demographic and Health Survey

BFS=Bangladesh Fertility Survey

BMMS=Bangladesh Maternal Health Services and Maternal Mortality Survey

U=Unknown

Table 7.3. Contraceptive method mix^a (%) in the ICDDR,B area, 1986-2001

Method	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Pill	18.9	20.6	21.3	23.3	25.4	26.1	27.3	28.1	25.7	25.8	25.4	26	29.7	28.7	30.6	31.9
Condom	2.8	2.9	2.6	2.5	2.3	2.4	2.7	3.2	3.9	4.7	6.2	7.7	7.1	7.7	9.5	10.8
Injectables	40.5	43.1	47.4	50.2	50.8	51.3	51.4	50.2	52.9	54.3	54.4	53.1	50.0	50.4	47.8	45.7
IUD	12.9	11.7	8.8	6.3	5.2	4.2	3.6	3.6	3.1	2.7	2.2	1.8	2.3	3.3	2.4	1.9
Tubectomy	23.0	20.4	18.4	16.5	15.3	15.1	14.5	14.5	14	12.2	11.5	11.1	10.6	9.8	9.1	8.6
Vasectomy	1.0	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.6	1.1
Foam	0.9	0.6	0.8	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

^aCurrently married women using any modern method

Table 7.4. Method specific contraceptive use rate among currently married women by age in ICDDR,B area, 2001

Age (years)	Not using	Any method used	Method used							No. of eligible women
			Pill	IUD	Injectables	Condom	Tubectomy	Vasectomy	Others ^a	
Less 20	55.8	44.2	18.9	1.6	15.9	7.5	0.0	0.0	0.2	1156
20 – 24	44.1	55.9	21.3	2.0	26.8	5.3	0.0	0.0	0.5	3231
25 – 29	38.5	61.5	21.7	1.3	30.5	6.6	0.5	0.2	0.7	3942
30 – 34	30.8	69.2	22.9	1.1	33.4	7.4	2.4	0.6	1.3	3853
35 – 39	21.4	78.6	22.3	1.0	35.4	8.5	7.3	1.5	2.6	3984
40 – 44	14.8	85.2	20.5	1.0	32.1	8.7	14.7	1.3	6.8	2703
45+	12.8	87.2	17.9	0.5	27.9	6.7	22.3	1.0	10.8	1741
Total	30.3	69.7	21.4	1.2	30.6	7.2	5.8	0.7	2.8	20610

^aOthers include periodic abstinence, withdrawal, and other traditional methods

**USE OF MATERNAL AND CHILD HEALTH SERVICES
IN ICDDR,B AND GOVERNMENT AREAS****Immunization**

The CHRWs have been providing immunizations to both pregnant women and children from their homes (fixed sites) since 2001 and have been maintaining vaccination records in the ICDDR,B area. In contrast, the CHRWs in the government area record only vaccination status either by checking the vaccination card or by asking mothers about vaccination of children if the vaccination card was missing. For full protection of newborns against tetanus, it is recommended that pregnant women receive two doses of tetanus toxoid (TT). However, if a woman has been vaccinated during her previous pregnancy, she may require only one booster dose during her subsequent pregnancy. A woman requires 5 doses of TT for life-long protection. The rate of TT coverage is presented for women whose latest pregnancies terminated in live births.

The World Health Organization recommends that all children receive a BCG vaccination against tuberculosis; three doses of DPT vaccine for the prevention of diphtheria, pertussis (whooping cough), and tetanus; three doses of polio vaccine; and a vaccination against measles before their first birthday. Therefore, vaccination of children aged 12-23 months is presented to allow comparison of results across the surveys.

Table 8.1 shows the rates of coverage of different vaccines among women who produced a live birth and among children aged 12-23 months by area in 1987-2001. In 2001, the coverage of TT with at least two doses was almost universal (98.1%) in the ICDDR,B area. The 1999/2000 Bangladesh Demographic and Health Survey (BDHS) estimated the national coverage of TT with two or more doses to be 64%. In the ICDDR,B area, in 2001, immunization of children was universal: 99% received BCG, 98% received three doses of DPT and polio, and 96% received measles vaccines in 2001. These rates are higher than the estimates of 90% for BCG, 80% for DPT and polio and 74% for measles in the government area. The BDHS estimates of immunization coverage were 91% for BCG, 72% for DPT and polio, and 71% for measles in 1999/2000. Table 8.2 shows the coverage of DPT and polio among children aged 12-23 months by number of doses in the ICDDR,B and government areas in 2001. The coverage of one or two dose(s) is 10% in the government area as opposed to 1% in the ICDDR,B area.

Child Morbidity and Health Service Use

Diarrhoea and pneumonia are the two leading causes of infant and child mortality in

Bangladesh. While the CHRWs in the ICDDR,B area have long experience in recording child health information, particularly the prevalence of diarrhoea and pneumonia visiting every household monthly, the CHRWs in the government area were trained to record the same child health information since February 2000. They asked mothers if their children had symptoms of diarrhoea, i.e. three or more loose stools per 24 hours with or without mucus or blood in 24 hours preceding the date of visit.

An episode was termed bloody diarrhoea if blood was present in stool, otherwise it was termed watery diarrhoea. For recording pneumonia, they asked mothers if their children had symptoms of pneumonia, such as fever, cough, rapid breathing or breathing difficulty and chest indrawing (or inability to suck the breast if child is aged less than 2 months) in the preceding one month. An episode of pneumonia was termed severe if chest indrawing was present in addition to other symptoms, otherwise it was termed simply pneumonia. The estimate of the prevalence may be upward biased in longitudinal monthly surveys; for example, episodes that lasted for more than 30 days are counted in subsequent visits as child-months with pneumonia.

Diarrhoea causes dehydration, and oral rehydration solution (ORS) is the most simple and inexpensive tool to combat dehydration. The CHRWs in the ICDDR,B area, during their home visits, provide ORS packets free of charge if they encounter any diarrhoea patients, provide treatment for minor illnesses of women and children, and refer severe illnesses to the ICDDR,B sub-centres or hospital in Matlab. If a child had diarrhoea in the preceding 24 hours, the mother was asked whether ORS (either packets or home-made sugar, salt and water solution) or IV fluids were administered to prevent dehydration. It may be mentioned that use of ORS or IV for diarrhoea episode includes episodes still continuing on the visit date. For the still-continuing episodes, the CHRWs may have made home visits before ORS or IV was administered (i.e. right-censoring) and thus, ORS or IV use may be under-estimated. However, they did not record additional fluids given from a green coconut or rice water to combat dehydration.

Similarly, if a child had pneumonia in the past month, the CHRWs asked mothers about health actions taken to combat pneumonia. They recorded most recent treatment taken, particularly type of medicine used and type of health provider consulted. As mentioned before, treatment taken against pneumonia may also be under-estimated because of right-censoring (home visit before use of health service).

Prevalence of Diarrhoea and Use of ORS and Health Providers

Table 8.3 shows the prevalence of diarrhoea in past 24 hours per 100 children in the ICDDR,B and government areas in 2001. While the prevalence of bloody diarrhoea is comparable between the two areas, the prevalence of watery diarrhoea was higher in the ICDDR,B area (2.8%) than in the government area (2.3%). The prevalence of watery diarrhoea was highest in the age group of 6-11 months and slightly higher for boys than for girls in either area. In contrast, the prevalence of bloody diarrhoea did not vary by age and sex of children. Education of mother was not related to the prevalence of

watery or bloody diarrhoea in any area. Table 8.4 shows that the overall use of ORS for children having watery or bloody diarrhoea in the preceding 24 hours was higher in the ICDDR,B area than in the government area. While ORS use was (36%) similar for watery and bloody diarrhoea in the ICDDR,B area, its use was higher for watery diarrhoea than for bloody diarrhoea in the government area (28%). The longer the duration of episodes, the higher the use of ORS in both the areas. Younger children (aged less than 6 months) were given ORS less often than older children. Neither sex of the child nor mother's education was related to the use of ORS to manage diarrhoea.

There was a marked difference in the use of health providers for treating diarrhoea between the ICDDR,B and the government areas (Table 8.5). In both the areas, parents adopted home-treatment at a higher rate for watery diarrhoea than for bloody diarrhoea, and consulted untrained village doctors more often for treatment of bloody diarrhoea than for treatment of watery diarrhoea. They also consulted traditional healers and untrained village doctors, who are available in most villages round the clock, more frequently for both watery and bloody diarrhoea in the government area than in the ICDDR,B area. They consulted field workers more frequently for watery diarrhoea than for bloody diarrhoea, and they do so even more frequently in the ICDDR,B area than in the government area. Young children were taken to health providers at a higher rate in the government area compared to older children, but not in the ICDDR,B area. The difference in management of diarrhoea between these two areas may be due to the impact of the provision of better quality of care in the ICDDR,B area. Gender of child and maternal education was not related to type of health providers used for treating diarrhoea episodes in either area.

Prevalence of Pneumonia and Service Uptake

Table 8.6 shows the monthly prevalence of pneumonia per 100 children in the ICDDR,B and government areas by illness and by characteristics of children in 2001. The overall prevalence of pneumonia was 4.0% in the ICDDR,B area and 1.8% in the government area. Severe pneumonia accounted for 18% of the overall prevalence in the ICDDR,B area and 28% in the government area. These area-level differences suggest that the CHRWs missed a significant proportion of pneumonia episodes, particularly non-severe ones in the monthly surveillance in the government area. The possible reasons for missing pneumonia could be either that the mothers in this area were less aware of the symptoms of pneumonia or the CHRWs had a shorter exposure in recording child-morbidity data or both.

The prevalence of pneumonia shows an inverse relationship with age, which is expected. The prevalence was little higher for boys than for girls. Education of mothers showed a weak negative relationship with the prevalence of pneumonia among their children.

Table 8.7 shows the difference in type of medicines used for treating pneumonia in the ICDDR,B and government areas by illness and characteristics of children. Antibiotics were used for combating 77% of the pneumonia episodes in the ICDDR,B area as

opposed to 56% in the government area. Unlike the ICDDR,B area, antibiotics were used more often for treating severe episodes than for mild episodes (76% vs 48%) in the government area. Boys with pneumonia were treated with antibiotics at a higher rate than girls with pneumonia, particularly in the government area. The educational differential in the use of antibiotics was relatively small in either area.

Table 8.8 shows the treatment pattern of pneumonia by illness and characteristics of children in the ICDDR,B and government areas. The well-trained providers (doctors or paramedics, including ICDDR,B ones) treated 29% of the pneumonia episodes in the ICDDR,B area and 12% in the government area. Untrained village doctors and traditional healers treated 51% and 17% respectively of the pneumonia episodes in the government area as opposed to 24% and 4% respectively in the ICDDR,B area. The severity of illness triggered the choice of well-trained providers in both the areas. The results suggest that parents bypassed field workers for well-trained providers for severe pneumonia.

Age of child influenced the choice of treatment provider to combat pneumonia. Infants with pneumonia were more likely to be treated by well-trained providers than their older counterparts in both the areas. Services of well-trained providers were used more often by children of educated mothers than by children of uneducated mothers.

Table 8.1. Immunization coverage (%) in ICDDR,B area, 1987-2001 and government area, 2000-2001

Year	TT* Coverage during last pregnancy of women giving live birth	Vaccination coverage rate of children aged 12-23 months							
		BCG (1 dose)		DPT and polio (3 doses)		Measles (1 dose)		All**	
		ICDDR,B Area	ICDDR,B area	Government area	ICDDR,B area	Government area	ICDDR,B area	Government area	ICDDR,B area	Government area
1987	86.1	88.4	-	76.1	-	85.2	-	69.3	-
1988	89.7	93.3	-	82.8	-	87.9	-	77.2	-
1989	91.3	94.6	-	88.4	-	92.0	-	84.0	-
1990	95.3	98.7	-	95.7	-	96.4	-	93.8	-
1991	97.1	98.6	-	95.6	-	97.0	-	94.1	-
1992	98.6	99.1	-	96.9	-	97.8	-	96.0	-
1993	98.8	99.5	-	97.6	-	98.1	-	96.6	-
1994	99.3	99.5	-	97.7	-	97.0	-	95.7	-
1995	98.8	99.3	-	96.8	-	97.0	-	95.0	-
1996	99.3	99.5	-	98.0	-	97.9	-	96.7	-
1997	98.6	99.3	-	98.5	-	98.0	-	97.3	-
1998	98.3	99.2	-	97.7	-	96.1	-	95.4	-
1999	97.7	99.0	-	97.7	-	94.8	-	94.1	-
2000†	97.0	99.2	73.6	97.7	67.8	95.9	50.2	95.1	48.5
2001	98.1	99.1	89.8	98.2	80.0	96.0	74.1	95.4	71.0

*At least two doses received during the last pregnancy that terminated in live birth

**Children fully vaccinated (i.e those who received BCG, measles and three doses of DPT and polio)

†Immunization coverage rate is about 20% under reported in the Government area due to not checking of vaccination cards during the initial months of 2000

Table 8.2. DPT and polio coverage (%) among children aged 12-23 months by number of doses and area, 2001

No. of doses	ICDDR,B area	Government area
None	0.9	9.4
1	0.4	4.1
2	0.5	6.5
3	98.2	80.0
No. of children	2545	2890

Table 8.3. Prevalence* (%) of childhood diarrhoea in past 24 hours by child's characteristics and area, 2001

Characteristics	Watery diarrhoea		Bloody diarrhoea		Either		BDHS** 1999/2000
	ICDDR,B area	Government Area	ICDDR,B area	Government area	ICDDR,B area	Government area	
Child's age (months)							
<6	2.2	1.7	0.1	0.2	2.4	1.9	3.4
6-11	5.5	4.6	0.3	0.5	5.8	5.0	11.9
12-23	4.1	3.3	0.3	0.4	4.4	3.8	11.8
24-35	2.5	2.2	0.5	0.4	3.0	2.6	5.6
36-47	2.2	1.6	0.3	0.3	2.5	1.9	3.8
48-59	1.5	1.3	0.1	0.2	1.6	1.5	2.3
Sex							
Male	2.9	2.4	0.3	0.3	3.2	2.8	6.4
Female	2.8	2.3	0.3	0.3	3.0	2.6	5.8
Mother's education							
No education	3.0	2.4	0.3	0.4	3.3	2.8	6.2
Primary incomplete	3.4	3.0	0.4	0.5	3.8	3.4	5.9
Primary complete	2.9	2.2	0.3	0.3	3.2	2.5	6.6
Secondary+	2.4	2.0	0.2	0.3	2.6	2.3	6.1
All (%)	2.8	2.3	0.3	0.3	3.1	2.7	6.1
No. of diarrhoea episodes†	4211	3822	430	545	4641	4367	392

*Whether or not diarrhoea episodes started or ended within 24 hours

**Percentage of children experiencing diarrhoea in past two weeks irrespective of date of onset

†Equivalent to number of 24-hour periods of observation in which children had had diarrhoea

BDHS=Bangladesh Demographic and Health Survey

Table 8.4. Distribution (%) of diarrhoea episodes among under-five children by ORS use, illness and child's characteristics, and area, 2001

Illness and characteristics of children	ORS used			
	ICDDR,B area		Government area	
	No	Yes	No	Yes
Types of diarrhoea				
Watery	56.4	43.6	64.5	35.5
Bloody	55.3	44.7	72.1	27.9
Duration of diarrhoea (days)				
1- 3	61.4	38.6	67.3	32.7
4-6	52.5	47.5	63.2	36.8
7+	44.6	55.4	59.9	40.1
Child's age (months)				
<6	68.7	31.3	80.2	19.8
6-11	54.2	45.8	62.0	38.0
12-23	55.2	44.8	60.3	39.7
24-35	56.1	43.9	66.7	33.3
36-47	55.6	44.4	69.3	30.7
48-59	55.2	44.8	67.3	32.7
Sex				
Male	55.2	44.8	64.6	35.4
Female	57.6	42.4	66.5	33.5
Mother's education				
No education	58.7	41.3	65.7	34.3
Primary incomplete	56.9	43.1	63.6	36.4
Primary complete	51.7	48.3	66.8	33.2
Secondary+	56.0	44.0	65.5	34.5
All (%)	56.3	47.7	65.4	34.6
No. of diarrhoea episodes*	2615	2026	2858	1509

*Equivalent to number of 24-hour periods of observation in which children had had diarrhoea
ORS=Oral rehydration solution

Table 8.5. Distribution (%) of diarrhoea episodes among under-five children by type of treatment providers, illness and child's characteristics, and area, 2001

Illness and characteristics	ICDDR,B area					Government area				
	Home treatment	Traditional healer	Village doctor	Hospital	Field worker	Home treatment	Traditional healer	Village doctor	Hospital	Field worker
Type of diarrhoea										
Watery	47.6	4.9	14.0	3.2	30.2	50.6	6.1	23.8	3.3	16.1
Bloody	34.0	5.6	32.8	9.1	18.6	29.5	8.1	46.8	8.6	7.0
Child's age (months)										
<6	48.8	13.8	16.7	3.4	17.2	47.7	19.8	20.6	4.4	7.6
6-11	41.9	8.2	18.7	4.9	26.2	41.2	8.6	30.8	6.1	13.3
12-23	46.4	4.1	16.3	3.8	29.4	42.9	5.2	31.3	4.6	15.9
24-35	45.5	3.2	16.4	3.5	31.4	52.5	3.2	27.5	2.4	14.4
36-47	49.1	2.2	12.4	3.4	32.9	54.8	4.3	19.8	2.0	19.1
48-59	50.3	1.4	11.5	2.8	34.0	57.7	3.5	18.6	3.7	16.4
Sex										
Male	45.0	4.7	16.6	4.2	29.6	46.6	6.1	27.7	4.1	15.5
Female	47.9	5.3	14.8	3.3	28.6	49.6	6.6	25.6	3.9	14.4
Child's mother education										
No education	49.6	4.7	13.8	2.6	29.4	51.8	5.4	23.4	3.0	16.5
Primary incomplete	45.1	5.4	14.9	3.1	31.5	46.9	6.2	25.4	2.5	19.0
Primary complete	44.6	4.4	16.4	4.1	30.6	46.6	5.5	30.7	3.6	13.5
Secondary+	44.1	5.4	18.5	5.6	26.4	44.4	8.3	29.7	6.9	10.6
All (%)	46.3	5.0	15.8	3.8	29.2	48.0	6.3	26.7	4.0	15.0
No. of diarrhoea episodes*	2151	231	731	175	1353	2096	277	1166	175	653

*Equivalent to number of 24-hour periods of observation in which children had had diarrhoea.

Table 8.6. Monthly prevalence* (%) of pneumonia among under-five children by child's characteristics and area, 2001

Characteristics	Pneumonia		Severe pneumonia		Either		BDHS** 1999/2000
	ICDDR,B area	Government area	ICDDR,B area	Government area	ICDDR,B area	Government area	
Child's age (months)							
<6	2.5	3.2	1.0	2.4	3.5	5.6	23.4
6-11	4.5	2.6	0.8	1.0	5.3	3.6	22.6
12-23	5.4	1.7	0.9	0.5	6.4	2.2	23.5
24-35	3.7	0.8	0.7	0.2	4.4	1.0	17.1
36-47	2.4	0.5	0.4	0.1	2.8	0.6	14.7
48-59	1.4	0.3	0.4	0.0	1.8	0.4	12.9
Sex							
Male	3.7	1.4	0.8	0.6	4.5	2.0	19.0
Female	2.9	1.2	0.5	0.4	3.5	1.6	17.7
Mother's education							
No education	3.8	1.3	0.7	0.5	4.5	1.8	19.3
Primary incomplete	4.1	1.9	0.7	0.7	4.8	2.6	18.8
Primary complete	3.2	1.0	0.8	0.5	4.1	1.5	18.1
Secondary+	2.5	1.1	0.6	0.5	3.1	1.6	16.3
All (%)	3.3	1.3	0.7	0.5	4.0	1.8	18.3
No. of pneumonia episodes [†]	4905	2107	1031	862	5936	2969	1176

*Percentage of child-months with reported pneumonia irrespective of date of onset

**Prevalence in previous two-weeks

†Equivalent to number of months of observation in which children had experienced pneumonia

BDHS=Bangladesh Demographic Health Survey

Table 8.7. Distribution (%) of childhood pneumonia by type of medicine used, illness and child's characteristics, and area, 2001

Illness and characteristics	ICDDR,B area			Government area		
	Antibiotics	Other drug	No drug	Antibiotics	Other drug	No drug
Type of pneumonia						
Mild	77.3	9.9	12.8	48.3	20.1	31.6
Severe	75.1	10.9	14.1	76.3	11.0	12.6
Child's age (months)						
<6	85.9	9.6	4.5	56.2	21.6	22.2
6-11	85.3	7.5	7.2	63.8	15.3	21.0
12-23	81.0	8.8	10.2	59.5	15.0	25.5
24-35	74.2	10.2	15.5	49.4	14.9	35.7
36-47	66.8	12.2	21.0	39.5	16.3	44.2
48-59	61.3	15.5	23.2	48.1	18.9	33.0
Sex						
Male	78.1	9.6	12.3	59.9	17.2	22.9
Female	75.3	10.6	14.1	51.8	17.9	30.3
Mother's education						
No education	75.4	9.4	15.2	54.0	17.3	28.8
Primary incomplete	75.8	11.4	12.8	54.2	20.1	25.7
Primary complete	75.0	10.1	14.8	58.4	14.9	26.8
Secondary+	81.2	10.0	8.8	60.4	17.1	22.5
All (%)	76.9	10.0	13.1	56.4	17.5	26.1
No. of pneumonia episodes*	4565	596	775	1676	519	774

*Equivalent to number of months of observation in which children had experienced pneumonia

Table 8.8. Distribution (%) of pneumonia episodes among under-five children by type of treatment providers, illness and child's characteristics, and area, 2001

Illness and Characteristics	ICDDR,B area					Government area				
	Home treatment	Traditional healer	Village doctor	Hospital	Field worker	Home treatment	Traditional healer	Village doctor	Hospital	Field worker
Type of pneumonia										
Mild	10.4	4.1	23.6	24.5	37.3	24.4	17.1	50.8	6.5	1.2
Severe	11.3	5.1	25.0	51.9	6.7	2.9	17.6	51.9	26.8	0.8
Child's age (months)										
<6	2.9	5.5	17.3	52.9	21.4	9.7	29.8	46.1	13.8	0.5
6-11	4.8	3.7	21.4	38.1	32.1	14.9	14.1	56.0	13.8	1.1
12-23	8.1	3.6	21.7	29.3	37.2	19.6	10.2	56.1	12.2	1.8
24-35	12.6	4.6	26.2	24.0	32.6	30.4	7.1	50.6	10.1	1.8
36-47	17.6	4.7	28.5	18.9	30.3	37.9	11.1	41.6	8.4	1.1
48-59	21.0	5.1	29.1	19.3	25.5	32.1	7.5	53.8	6.6	0.0
Sex										
Male	10.1	4.2	24.2	30.3	31.2	15.2	16.3	52.7	15.0	0.8
Female	11.2	4.5	23.4	27.9	33.1	22.1	18.5	49.0	8.8	1.6
Mother's education										
No education	12.3	5.0	21.6	26.1	35.1	21.7	16.7	52.4	8.3	0.9
Primary incomplete	10.3	4.6	24.5	28.9	31.7	18.1	18.1	51.6	11.1	1.1
Primary complete	11.6	4.4	25.0	29.5	29.5	18.7	16.1	48.6	14.9	1.7
Secondary+	7.5	3.1	26.0	34.1	29.4	13.3	17.9	50.4	17.3	1.1
All (%)	10.6	4.3	23.8	29.3	32.0	18.2	17.2	51.1	12.4	1.1
No. of pneumonia episodes*	628	256	1415	1737	1900	539	512	1517	368	33

*Equivalent to number of months of observation in which children had experienced pneumonia

APPENDICES

**Appendix A.1. Mid-year population in ICDDR,B area by age,
sex, and block, 2001**

Age (years)	Block A			Block B		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	32111	15258	16853	29741	14228	15513
<1	798	401	397	760	388	372
1-4	3019	1537	1482	2814	1411	1403
1	728	365	363	727	371	356
2	814	411	403	725	357	368
3	774	395	379	719	367	352
4	703	366	337	643	316	327
5-9	3593	1805	1788	3345	1660	1685
10-14	3964	1972	1992	3641	1846	1795
15-19	3310	1540	1770	3203	1619	1584
20-24	2752	1190	1562	2542	1177	1365
25-29	2210	918	1292	2032	893	1139
30-34	2251	937	1314	1963	817	1146
35-39	2348	1013	1335	2010	856	1154
40-44	1959	1010	949	1688	850	838
45-49	1337	684	653	1229	592	637
50-54	1088	520	568	987	453	534
55-59	1107	497	610	1000	413	587
60-64	797	421	376	826	375	451
65-69	673	348	325	705	345	360
70-74	404	205	199	489	255	234
75-79	294	153	141	295	154	141
80-84	117	53	64	116	64	52
85+	90	54	36	96	60	36

(continued)

Appendix A.1 (contd.). Mid-year population in ICDDR,B area by age, sex, and block, 2001

Age (years)	Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	23488	11523	11965	22029	10682	11347
<1	550	281	269	552	261	291
1-4	2046	1020	1026	1928	1012	916
1	503	250	253	519	275	244
2	528	271	257	504	261	243
3	521	252	269	468	252	216
4	494	247	247	437	224	213
5-9	2424	1248	1176	2346	1181	1165
10-14	2644	1326	1318	2537	1267	1270
15-19	2549	1286	1263	2185	1043	1142
20-24	2209	1112	1097	1873	939	934
25-29	1743	796	947	1589	697	892
30-34	1667	725	942	1493	639	854
35-39	1639	771	868	1602	749	853
40-44	1463	737	726	1402	731	671
45-49	1026	520	506	988	512	476
50-54	813	386	427	737	334	403
55-59	848	381	467	818	360	458
60-64	618	293	325	676	295	381
65-69	580	287	293	560	283	277
70-74	298	164	134	370	175	195
75-79	221	104	117	222	120	102
80-84	102	58	44	105	57	48
85+	48	28	20	46	27	19

Appendix A.2. Deaths in ICDDR,B area by age, sex, and block, 2001

Age	Block A			Block B		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	201	120	81	198	122	76
<1 year	42	22	20	35	19	16
<1 month	22	11	11	22	12	10
1-5 months	16	9	7	6	3	3
6-11 months	4	2	2	7	4	3
1-4 years	15	6	9	9	7	2
1	6	3	3	3	2	1
2	2	0	2	2	1	1
3	4	1	3	4	4	0
4	3	2	1	0	0	0
5-9	5	3	2	3	2	1
10-14	2	2	0	6	1	5
15-19	2	0	2	2	0	2
20-24	1	1	0	0	0	0
25-29	4	4	0	1	0	1
30-34	2	1	1	8	4	4
35-39	5	1	4	2	1	1
40-44	5	4	1	3	2	1
45-49	6	2	4	7	2	5
50-54	10	5	5	5	2	3
55-59	14	10	4	9	8	1
60-64	15	12	3	19	10	9
65-69	11	5	6	19	15	4
70-74	27	20	7	25	18	7
75-79	17	12	5	21	12	9
80-84	5	4	1	13	10	3
85+	13	6	7	11	9	2

(continued)

**Appendix A.2 (contd.). Deaths in ICDDR,B area by age, sex,
and block, 2001**

Age	Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	139	83	56	164	99	65
<1 year	24	16	8	23	15	8
<1 month	15	10	5	16	10	6
1-5 months	7	5	2	6	4	2
6-11 months	2	1	1	1	1	0
1-4 years	4	2	2	10	6	4
1	2	0	2	5	3	2
2	0	0	0	2	1	1
3	0	0	0	2	1	1
4	2	2	0	1	1	0
5-9	4	3	1	0	0	0
10-14	3	0	3	3	2	1
15-19	4	2	2	4	3	1
20-24	3	1	2	1	1	0
25-29	1	1	0	2	1	1
30-34	0	0	0	1	1	0
35-39	3	2	1	2	0	2
40-44	7	6	1	5	2	3
45-49	5	4	1	6	4	2
50-54	3	2	1	6	2	4
55-59	7	4	3	9	5	4
60-64	13	5	8	13	6	7
65-69	16	10	6	22	14	8
70-74	11	9	2	17	10	7
75-79	13	8	5	19	14	5
80-84	7	3	4	8	7	1
85+	11	5	6	13	6	7

Appendix A.3. Abridged life table for ICDDR,B area by sex, 2001

Age (years)	Male				Female			
	nq_x	l_x	L_x	e^0_x	nq_x	l_x	L_x	e^0_x
0	49.8	100000	96393	66.5	37.4	100000	97295	72.6
1	6.3	95017	94663	68.9	6.6	96264	95892	74.4
2	1.5	94416	94344	68.4	3.1	95633	95483	73.9
3	4.7	94271	94048	67.5	3.3	95333	95176	73.1
4	4.3	93825	93622	66.8	0.9	95020	94977	72.4
5	6.8	93419	465641	66.1	3.4	94935	473924	71.4
10	3.9	92787	463105	61.5	7.0	94609	471510	66.7
15	4.5	92426	461163	56.8	6.1	93943	468404	62.1
20	3.4	92006	459312	52.0	2.0	93374	466436	57.5
15	9.0	91694	456559	47.2	2.3	93186	465427	52.6
30	9.6	90865	452318	42.6	5.9	92968	463584	47.7
35	5.9	89995	448753	38.0	9.5	92423	460100	43.0
40	20.8	89465	443019	33.2	9.4	91549	455764	38.3
45	25.7	87601	432802	28.8	26.1	90690	447977	33.7
50	32.0	85351	420430	24.5	33.1	88324	434843	29.5
55	78.8	82619	397896	20.2	27.9	85398	421475	25.4
60	112.9	76112	360355	16.7	84.6	83015	398651	21.1
65	160.9	67520	311806	13.5	91.5	75993	363679	17.8
70	303.6	56658	241130	10.6	140.9	69038	322193	14.3
75	356.5	39455	162360	9.1	214.8	59313	265965	11.2
80	410.4	25390	100720	7.8	196.1	46573	211020	8.6
85+	1000.0	14971	97312	6.5	1000.0	37442	188912	5.0

Appendix A.4. Abridged life table for government area by sex, 2001

Age (years)	Male				Female			
	nq_x	l_x	L_x	e^0_x	nq_x	l_x	L_x	e^0_x
0	56.9	100000	95884	67.0	56.8	100000	95884	68.7
1	6.4	94315	93960	70.1	10.0	94315	93756	71.8
2	1.4	93713	93649	69.5	3.1	93368	93224	71.5
3	1.4	93584	93517	68.6	1.5	93081	93009	70.7
4	3.2	93449	93298	67.7	3.8	92937	92761	69.8
5	6.7	93147	464304	66.9	8.4	92585	461132	69.1
10	2.0	92526	462208	62.3	3.9	91807	458213	64.7
15	5.5	92343	460549	57.5	2.5	91449	456717	59.9
20	5.5	91837	458018	52.8	6.1	91219	454820	55.1
15	5.0	91331	455594	48.0	5.1	90666	452259	50.4
30	3.2	90871	453685	43.3	6.0	90201	449759	45.6
35	12.4	90580	450313	38.4	10.3	89660	446174	40.9
40	26.1	89459	441895	33.8	4.6	88738	442741	36.3
45	15.7	87125	432474	29.7	8.8	88327	439835	31.4
50	39.2	85760	421013	25.1	15.2	87547	434654	26.7
55	57.3	82402	401024	21.0	30.4	86213	425002	22.1
60	107.5	77681	368783	17.1	79.0	83594	402536	17.7
65	135.0	69329	324537	13.9	123.3	76987	362566	14.0
70	236.5	59970	265627	10.6	222.9	67495	301275	10.5
75	400.3	45789	182923	8.1	415.9	52450	207246	7.8
80	482.2	27459	103279	6.9	527.9	30635	111041	6.6
85+	1000.0	14219	86604	6.1	1000.0	14464	92207	6.4

Appendix A.5. Male deaths by cause and age, 2001

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	46	10	6	1	0	0	0	1	0	0	1	2	1	0	0	4	6	6	5	3
Dysentery	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1	1
INFECTIOUS																				
Tuberculosis	28	0	0	0	0	0	1	0	2	0	0	1	5	4	4	5	2	3	1	0
Tetanus (non-neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	17	5	0	1	0	1	0	0	0	0	1	1	0	0	0	1	1	2	1	3
MALIGNANT NEOPLASM																				
NUTRITIONAL	10	4	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0
CARDIO-VASCULAR	113	0	0	0	0	0	0	1	1	3	4	1	3	6	15	11	24	27	9	8
RESPIRATORY																				
ARI, pneumonia, influenza	70	46	3	1	0	1	0	0	0	0	0	0	1	2	2	4	2	3	2	3
COPD	60	0	0	1	0	1	0	0	0	1	1	1	2	6	6	10	11	10	6	4
GASTRO-INTESTINAL																				
MATERNAL DEATH	43	0	1	1	0	1	0	1	0	1	6	1	4	3	7	6	5	4	2	0
NEONATAL																				
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	81	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																				
Suicide	6	0	0	0	0	1	1	2	0	0	0	1	0	0	0	0	1	0	0	0
Homicide	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Drowning	30	1	20	4	2	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Other accidents, etc.	28	3	2	2	2	2	2	0	0	2	3	1	2	0	0	2	2	1	1	1
OTHER AND UNSPECIFIED																				
Senility	66	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	15	15	12	19
Other causes n.e.c.	119	9	5	1	1	2	2	0	2	3	7	4	3	7	12	17	15	15	9	5
Unknown	38	3	0	1	1	1	2	1	2	1	3	1	2	5	2	7	3	1	1	1
TOTAL	836	162	38	17	8	12	8	9	8	12	31	19	25	46	65	81	98	95	54	48

ARI=Acute respiratory infection

COPD=Chronic obstructive pulmonary disease

n.e.c.=Not elsewhere classified

Appendix A.6. Female deaths by cause and age, 2001

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	37	8	4	0	0	0	0	1	1	0	1	2	0	1	1	3	6	4	1	4
Dysentery	5	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1
INFECTIOUS																				
Tuberculosis	3	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Tetanus (non-neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	16	3	1	1	0	1	1	1	0	1	2	0	0	0	1	2	0	0	0	2
MALIGNANT NEOPLASM																				
	36	0	3	0	1	0	0	0	1	2	3	3	6	3	5	5	3	1	0	0
NUTRITIONAL																				
	16	8	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	1	2	1
CARDIO-VASCULAR																				
	88	0	0	0	1	1	0	0	1	0	1	4	4	3	10	18	15	16	7	7
RESPIRATORY																				
ARI, pneumonia, influenza	49	36	5	2	1	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1
COPD	38	0	0	0	0	1	0	0	0	2	0	2	1	5	8	7	5	3	3	1
GASTRO-INTESTINAL																				
	21	0	0	1	1	1	0	0	1	4	0	1	2	5	1	2	1	1	0	0
MATERNAL DEATH																				
	5	0	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	0
NEONATAL																				
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	65	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																				
Suicide	3	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Homicide	3	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Drowning	25	0	17	3	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
Other accidents, etc.	14	2	0	1	2	0	0	1	1	0	0	0	0	1	2	1	0	2	0	1
OTHER AND UNSPECIFIED																				
Senility	77	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	11	30	12	11
Other causes n.e.c.	106	3	5	2	3	1	2	1	4	5	2	3	5	4	12	9	16	9	12	8
Unknown	41	8	5	5	1	2	2	1	0	1	0	1	0	1	7	4	2	1	0	0
TOTAL	648	135	41	15	15	10	8	6	10	16	9	16	19	25	54	60	62	70	39	38

ARI=Acute respiratory infection

COPD=Chronic obstructive pulmonary disease

n.e.c.=Not elsewhere classified

Appendix A.7. Male deaths by cause, age and area, 2001

Cause	All ages		<1		1-4		5-14		15-44		45-64		65-84		85+	
	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.
DIARRHOEAL																
Diarrhoea	26	20	7	3	3	3	0	1	1	1	1	2	12	9	2	1
Dysentery	6	2	0	0	0	0	1	0	0	0	0	0	4	2	1	0
INFECTIOUS																
Tuberculosis	16	12	0	0	0	0	0	0	1	2	9	5	6	5	0	0
Tetanus (non-neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	10	7	3	2	0	0	0	1	1	1	1	0	3	2	2	1
MALIGNANT NEOPLASM																
	36	35	0	0	1	0	0	1	6	3	12	20	17	11	0	0
NUTRITIONAL																
	5	5	3	1	0	0	1	2	0	0	1	0	0	2	0	0
CARDIO-VASCULAR																
	63	50	0	0	0	0	0	0	5	4	16	9	38	33	4	4
RESPIRATORY																
ARI, pneumonia, influenza	32	38	19	27	1	2	1	0	1	0	3	2	6	5	1	2
COPD	31	29	0	0	0	0	1	0	0	3	7	8	22	15	1	3
GASTRO-INTESTINAL																
	14	29	0	0	1	0	0	1	3	6	6	9	4	13	0	0
MATERNAL DEATH																
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEONATAL																
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	34	47	34	47	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																
Suicide	1	5	0	0	0	0	0	0	0	4	0	1	1	0	0	0
Homicide	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Drowning	14	16	0	1	11	9	3	3	0	2	0	1	0	0	0	0
Other accidents, etc.	13	15	0	3	0	2	3	1	5	4	2	1	3	3	0	1
OTHER AND UNSPECIFIED																
Senility	34	32	0	0	0	0	0	0	0	0	1	2	20	24	13	6
Other causes n.e.c.	70	49	6	3	4	1	2	0	10	6	18	8	28	28	2	3
Unknown	18	20	0	3	0	0	0	2	5	5	6	4	7	5	0	1
TOTAL	424	412	72	90	21	17	13	12	38	42	83	72	171	157	26	22

ARI=Acute respiratory infection

COPD=Chronic obstructive pulmonary disease

n.e.c.=Not elsewhere classified

Appendix A.8. Female deaths by cause, age and area, 2001

Cause	All ages		<1		1-4		5-14		15-44		45-64		65-84		85+	
	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.	ICDDR, B	Govt.
DIARRHOEAL																
Diarrhoea	15	22	6	2	0	4	0	0	1	2	2	2	5	9	1	3
Dysentery	4	1	1	0	0	0	0	0	0	0	2	0	0	1	1	0
INFECTIOUS																
Tuberculosis	1	2	0	0	0	0	0	0	0	1	0	1	1	0	0	0
Tetanus (non-neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	11	5	2	1	1	0	0	1	4	2	1	0	1	1	2	0
MALIGNANT NEOPLASM																
	18	18	0	0	3	0	1	0	3	3	9	8	2	7	0	0
NUTRITIONAL																
	5	11	4	4	0	0	1	1	0	0	0	1	0	4	0	1
CARDIO-VASCULAR																
	43	45	0	0	0	0	1	0	2	1	14	7	22	34	4	3
RESPIRATORY																
ARI, pneumonia, influenza	13	36	10	26	1	4	1	2	0	0	0	0	1	3	0	1
COPD	20	18	0	0	0	0	0	0	1	2	8	8	10	8	1	0
GASTRO-INTESTINAL																
	10	11	0	0	0	0	1	1	2	4	7	2	0	4	0	0
MATERNAL DEATH																
	2	3	0	0	0	0	0	0	2	3	0	0	0	0	0	0
NEONATAL																
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	24	41	24	41	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																
Suicide	2	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0
Homicide	1	2	0	1	0	1	0	0	1	0	0	0	0	0	0	0
Drowning	14	11	0	0	8	9	3	2	0	0	0	0	2	0	1	0
Other accidents, etc.	7	7	0	2	0	0	0	3	2	0	1	2	3	0	1	0
OTHER AND UNSPECIFIED																
Senility	21	56	0	0	0	0	0	0	0	0	2	4	12	48	7	4
Other causes n.e.c.	47	59	1	2	3	2	1	4	9	6	13	11	16	30	4	4
Unknown	20	21	4	4	1	4	3	3	2	4	5	4	5	2	0	0
TOTAL	278	370	52	83	17	24	13	17	30	29	64	50	80	151	22	16

ARI=Acute respiratory infection

COPD=Chronic obstructive pulmonary disease

n.e.c.=Not elsewhere classified

**Appendix A.9. Age-specific fertility rates and indices for
ICDDR,B area by block, 2001**

Age (years)	Block A		Block B		Block C		Block D	
	Births	Rate	Births	Rate	Births	Rate	Births	Rate
All ages	848	95.5	841	107.0	558	87.9	590	101.3
15-19*	133	75.1	114	72.0	83	65.7	77	67.4
20-24	263	168.4	245	179.5	174	158.6	174	186.3
25-29	216	167.2	212	186.1	146	154.2	157	176.0
30-34	165	125.6	176	153.6	103	109.3	125	146.4
35-39	63	47.2	74	64.1	44	50.7	49	57.4
40-44	8	8.4	18	21.5	8	11.0	8	11.9
45-49**	0	0.0	2	3.1	0	0.0	0	0.0
Total fertility rate	2959		3400		2748		3227	
General fertility rate	96		107		88		101	
Gross reproduction rate	1434		1669		1251		1723	

*Births to mothers aged <15 years were included in this group

**Births to mothers aged 50 years and above were included in this group

Appendix A.10. Births by mothers age, live birth order, and area, 2001

Age (years)	Total women	Total births	Live birth order									
			1	2	3	4	5	6	7	8	9	10+
Both areas												
<15	14055	6	6	0	0	0	0	0	0	0	0	0
15-19	11706	803	732	65	5	1	0	0	0	0	0	0
20-24	9890	1815	874	718	191	31	1	0	0	0	0	0
25-29	8164	1538	218	540	528	194	41	15	0	1	0	1
30-34	8413	1130	43	127	320	321	198	73	36	10	1	1
35-39	8079	499	6	14	63	119	125	85	55	21	6	5
40-44	6415	79	0	1	3	11	13	12	17	10	6	6
45-49	4528	10	0	1	0	0	2	2	0	1	1	3
ICDDR,B area												
<15	6375	5	5	0	0	0	0	0	0	0	0	0
15-19	5759	402	378	21	3	0	0	0	0	0	0	0
20-24	4958	857	439	340	72	5	1	0	0	0	0	0
25-29	4270	731	113	295	257	55	8	2	0	1	0	0
30-34	4256	569	22	77	176	170	88	22	10	3	0	1
35-39	4210	230	3	7	39	71	52	34	14	7	1	2
40-44	3184	42	0	1	2	6	10	7	9	3	1	3
45-49	2272	2	0	0	0	0	1	1	0	0	0	0
Government area												
<15	7680	1	1	0	0	0	0	0	0	0	0	0
15-19	5947	401	354	44	2	1	0	0	0	0	0	0
20-24	4932	958	435	378	119	26	0	0	0	0	0	0
25-29	3894	807	105	245	271	139	33	13	0	0	0	1
30-34	4157	561	21	50	144	151	110	51	26	7	1	0
35-39	3869	269	3	7	24	48	73	51	41	14	5	3
40-44	3231	37	0	0	1	5	3	5	8	7	5	3
45-49	2256	8	0	1	0	0	1	1	0	1	1	3

Appendix A.11. Age-order-specific fertility rates by Area, 2001

Age (years)	Live birth order											
	Total	1	2	3	4	5	6	7	8	9	10+	
Both areas												
<15	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0686	0.0625	0.0056	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1835	0.0884	0.0726	0.0193	0.0031	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25-29	0.1884	0.0267	0.0661	0.0647	0.0238	0.0050	0.0018	0.0000	0.0001	0.0000	0.0001	0.0001
30-34	0.1343	0.0051	0.0151	0.0380	0.0382	0.0235	0.0087	0.0043	0.0012	0.0001	0.0001	0.0001
35-39	0.0618	0.0007	0.0017	0.0078	0.0147	0.0155	0.0105	0.0068	0.0026	0.0007	0.0006	0.0006
40-44	0.0123	0.0000	0.0002	0.0005	0.0017	0.0020	0.0019	0.0027	0.0016	0.0009	0.0009	0.0009
45-49	0.0022	0.0000	0.0002	0.0000	0.0000	0.0004	0.0004	0.0000	0.0002	0.0002	0.0002	0.0007
Total	3.2577	0.9194	0.8075	0.6536	0.4079	0.2330	0.1167	0.0687	0.0285	0.0101	0.0123	
ICDDR,B area												
<15	0.0008	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0698	0.0656	0.0036	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1729	0.0885	0.0686	0.0145	0.0010	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25-29	0.1712	0.0265	0.0691	0.0602	0.0129	0.0019	0.0005	0.0023	0.0002	0.0000	0.0000	0.0000
30-34	0.1337	0.0052	0.0181	0.0414	0.0399	0.0207	0.0052	0.0023	0.0007	0.0000	0.0002	0.0002
35-39	0.0546	0.0007	0.0017	0.0093	0.0169	0.0124	0.0081	0.0033	0.0017	0.0002	0.0005	0.0005
40-44	0.0132	0.0000	0.0003	0.0006	0.0019	0.0031	0.0022	0.0028	0.0009	0.0003	0.0009	0.0009
45-49	0.0009	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.0852	0.9365	0.8069	0.6324	0.3629	0.1934	0.0818	0.0542	0.0177	0.0028	0.0083	
Government area												
<15	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0674	0.0595	0.0074	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1942	0.0882	0.0766	0.0241	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25-29	0.2072	0.0270	0.0629	0.0696	0.0357	0.0085	0.0033	0.0000	0.0000	0.0000	0.0000	0.0003
30-34	0.1350	0.0051	0.0120	0.0346	0.0363	0.0265	0.0123	0.0063	0.0017	0.0002	0.0000	0.0000
35-39	0.0695	0.0008	0.0018	0.0062	0.0124	0.0189	0.0132	0.0106	0.0036	0.0013	0.0008	0.0008
40-44	0.0115	0.0000	0.0000	0.0003	0.0015	0.0009	0.0015	0.0025	0.0022	0.0015	0.0009	0.0009
45-49	0.0035	0.0000	0.0004	0.0000	0.0000	0.0004	0.0004	0.0000	0.0004	0.0004	0.0013	0.0013
Total	3.4426	0.9032	0.8062	0.6761	0.4571	0.2759	0.1539	0.0966	0.0396	0.0176	0.0165	

Appendix A.12. Marriages and divorces by month, 2001

Month	Marriage		Divorce	
	No.	Percentage	No.	Percentage
January	292	9.4	22	8.3
February	233	7.5	19	7.2
March	388	12.4	25	9.4
April	228	7.3	20	7.5
May	250	8.0	18	6.8
June	285	9.1	39	14.7
July	287	9.2	27	10.2
August	302	9.7	28	10.6
September	203	6.5	9	3.4
October	230	7.4	23	8.7
November	216	6.9	19	7.2
December	203	6.5	16	6.0
Total	3117	100.0	265	100.0

Appendix A.13. In- and out-migration by age and sex, 2001

Age (years)	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	7461	3588	3873	10150	5104	5046
<5	1131	581	550	1233	608	625
5-9	628	320	308	687	343	344
10-14	529	246	283	917	488	429
15-19	1118	270	848	2109	934	1175
20-24	1237	372	865	2125	1006	1119
25-29	912	489	423	1201	625	576
30-34	669	443	226	714	416	298
35-39	439	332	107	427	261	166
40-44	294	215	79	240	181	59
45-49	166	130	36	140	91	49
50-54	94	74	20	96	47	49
55-59	73	44	29	69	27	42
60-64	67	34	33	59	33	26
65+	104	38	66	133	44	89

Appendix A.14. In-migration by age, sex, and area, 2001

Age (years)	ICDDR,B area			Government area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	4252	2062	2190	3209	1526	1683
<5	649	333	316	482	248	234
5-9	370	185	185	258	135	123
10-14	321	145	176	208	101	107
15-19	607	138	469	511	132	379
20-24	661	207	454	576	165	411
25-29	549	297	252	363	192	171
30-34	395	256	139	274	187	87
35-39	249	188	61	190	144	46
40-44	165	125	40	129	90	39
45-49	97	73	24	69	57	12
50-54	55	47	8	39	27	12
55-59	37	25	12	36	19	17
60-64	38	18	20	29	16	13
65+	59	25	34	45	13	32

Appendix A.15. Out-migration by age, sex, and area, 2001

Age (years)	ICDDR,B area			Government area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	5236	2598	2638	4914	2506	2408
<5	642	311	331	591	297	294
5-9	342	170	172	345	173	172
10-14	447	247	200	470	241	229
15-19	1054	438	616	1055	496	559
20-24	1120	503	617	1005	503	502
25-29	686	356	330	515	269	246
30-34	358	214	144	356	202	154
35-39	235	140	95	192	121	71
40-44	116	88	28	124	93	31
45-49	74	52	22	66	39	27
50-54	37	17	20	59	30	29
55-59	35	17	18	34	10	24
60-64	27	17	10	32	16	16
65+	63	28	35	70	16	54

Appendix A.16. Male out-migration by cause of movement and age, 2001

Cause of movement	Age (years)														
	Total	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	5104	608	343	488	934	1006	625	416	261	181	91	47	27	33	44
Work/economic/educational															
-acquired/seeking job	2806	1	6	150	633	774	486	324	198	124	61	23	11	8	7
-job completion/retirement	11	0	0	0	0	1	0	3	1	0	1	2	1	2	0
-to acquire education	392	1	29	102	121	107	27	3	0	0	1	0	0	1	0
-educ. completed/interrupted	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
-student lodging	6	0	0	0	1	2	0	2	0	1	0	0	0	0	0
Housing/environmental															
-acquired/seeking new land/house	297	0	1	7	11	25	47	43	39	38	19	17	9	15	26
-river erosion	3	0	0	0	0	0	1	0	0	1	0	0	1	0	0
Marriage/familial															
-marriage	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
-separation/divorce/widow	4	0	0	0	0	0	1	2	0	0	1	0	0	0	0
-move with or join spouse/parents	1512	603	307	226	159	81	51	27	18	14	5	5	3	5	8
-adoption	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	41	0	0	3	4	6	11	8	4	2	2	0	1	0	0
-health or old age care	5	0	0	0	0	2	0	0	0	0	0	0	0	1	2
Legal problems	5	0	0	0	1	2	0	2	0	0	0	0	0	0	0
Other and not stated															
-others n.e.c.	12	0	0	0	3	1	1	2	0	1	1	0	1	1	1
-unknown or not stated	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0

n.e.c.=Not elsewhere classified

Appendix A.17: Female out-migration by cause of movement and age, 2001

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	5046	625	344	429	1175	1119	576	298	166	59	49	49	42	26	89
Work/economic/educational															
-acquired/seeking job	556	0	5	81	249	97	50	36	16	11	5	3	2	0	1
-job completion/retirement	3	0	0	0	0	0	1	1	0	0	0	1	0	0	0
-to acquire education	166	0	32	46	50	25	10	2	0	1	0	0	0	0	0
-educ. completed/interrupted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Housing/environmental															
-acquired/seeking new land/house	270	1	4	8	28	48	35	39	19	9	13	12	11	6	37
-river erosion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marriage/Familial															
-marriage	804	0	0	16	386	301	80	16	4	0	0	0	0	0	1
-separation/divorce/widow	51	0	0	1	22	15	5	2	3	0	2	0	0	1	0
-move with or join spouse/parents	3107	612	302	275	425	608	386	195	120	38	25	31	28	18	44
-adoption	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	49	0	0	1	11	22	8	4	1	0	0	1	1	0	0
-health or old age care	9	0	1	0	0	0	0	0	0	0	1	0	0	1	6
Legal problems	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Other and not stated															
-others n.e.c.*	15	0	0	0	3	3	1	2	2	0	3	1	0	0	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

n.e.c.=Not elsewhere classified

Appendix A.18. Male in-migration by cause of movement and age, 2001

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	3588	581	320	246	270	372	489	443	332	215	130	74	44	34	38
Work/economic/educational															
-acquired/seeking job	373	0	0	7	33	65	92	60	49	25	16	10	7	4	5
-job completion/retirement	663	0	0	1	16	58	132	160	125	75	41	22	15	12	6
-to acquire education	185	3	42	66	47	23	3	1	0	0	0	0	0	0	0
-educ. completed/interrupted	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	20	0	0	2	2	5	3	3	1	2	1	0	0	0	1
Housing/environmental															
-acquired/seeking new															
Land/house	308	0	0	7	16	38	53	63	42	32	18	16	5	10	8
-river erosion	6	0	0	0	0	0	0	2	0	2	0	1	0	1	0
Marriage/familial															
-marriage	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
-separation/divorce/widow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-move with or join															
spouse/parents	1923	570	275	163	145	169	187	144	102	67	47	21	13	6	14
-adoption	10	8	2	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	13	0	0	0	2	0	4	2	3	1	0	0	1	0	0
-health or old age care	45	0	0	0	3	8	4	3	5	6	7	2	2	1	4
Legal problems	15	0	0	0	0	3	3	2	3	2	0	2	0	0	0
Other and not stated															
-others n.e.c.*	25	0	0	0	6	2	8	3	2	3	0	0	1	0	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

n.e.c.=Not elsewhere classified

Appendix A.19. Female in-migration by cause of movement and age, 2001

Cause of movement	Age (years)														
	Total	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	3873	550	308	283	848	865	423	226	107	79	36	20	29	33	66
Work/economic/educational															
-acquired/seeking job	95	0	0	27	14	15	16	15	4	0	3	1	0	0	0
-job completion/retirement	54	0	0	2	14	18	8	3	3	3	0	0	0	1	2
-to acquire education	148	1	40	64	31	9	1	1	0	1	0	0	0	0	0
-educ. completed/interrupted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/environmental															
-acquired/seeking new land/house	176	0	0	1	22	36	34	25	15	8	4	5	5	11	10
-river erosion	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Marriage/familial															
-marriage	652	0	0	11	366	218	34	9	3	5	2	2	1	1	0
-separation/divorce/widow	91	0	0	0	20	34	18	9	4	6	0	0	0	0	0
-move with or join spouse/parents	2573	530	264	177	376	520	304	160	75	51	27	12	23	15	39
-adoption	21	19	1	1	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	30	0	3	0	4	12	4	1	2	2	0	0	0	1	1
-health or old age care	21	0	0	0	0	1	2	0	1	2	0	0	0	2	13
Legal problems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other and not stated															
-others n.e.c.*	11	0	0	0	1	2	2	2	0	1	0	0	0	2	1
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

n.e.c.=Not elsewhere classified

Appendix A.20. Male migration by destination or origin, 2001

Destination	Rural/urban	Out-migration						In-migration					
		Age (years)						Age (years)					
		0-14	15-24	25-34	35-44	45+	Total	0-14	15-24	25-34	35-44	45+	Total
Dhaka	Rural	21	23	11	3	4	62	74	41	36	18	12	181
	Urban	735	1111	481	174	100	2601	453	299	363	178	113	1406
Chittagong	Rural	411	197	121	76	67	872	450	155	146	94	62	907
	Urban	164	193	84	33	24	498	90	60	63	37	44	294
Sylhet	Rural	1	3	1	1	0	6	5	3	2	1	1	12
	Urban	57	63	10	15	2	147	34	21	18	9	5	87
Khulna	Rural	2	0	0	0	0	2	6	3	2	2	2	15
	Urban	23	28	10	5	8	74	18	4	13	8	9	52
Rajshahi	Rural	2	2	1	1	0	6	1	4	4	0	2	11
	Urban	1	9	6	1	1	18	6	2	4	0	1	13
India		13	7	5	5	10	40	7	5	8	4	1	25
Asia		1	70	69	26	3	169	1	26	161	101	25	314
Middle-east		2	224	232	93	23	574	1	18	112	94	41	266
Others		1	2	7	7	0	17	0	0	0	0	2	2
Unknown		5	8	3	2	0	18	1	1	0	1	0	3
Total		1439	1940	1041	442	242	5104	1147	642	932	547	320	3588

Appendix A.21. Female migration by destination or origin, 2001

Destination	Rural/urban	Out-migration						In-migration					
		Age (years)						Age (years)					
		0-14	15-24	25-34	35-44	45+	Total	0-14	15-24	25-34	35-44	45+	Total
Dhaka	Rural	27	34	15	5	5	86	65	97	37	15	10	224
	Urban	653	895	388	108	125	2169	418	372	262	76	69	1197
Chittagong	Rural	445	916	306	69	71	1807	468	1056	257	56	63	1900
	Urban	184	342	104	23	24	677	102	111	54	17	179	463
Sylhet	Rural	2	5	1	0	1	9	5	6	2	1	2	16
	Urban	34	41	22	8	11	116	30	25	11	4	57	127
Khulna	Rural	2	2	2	1	0	7	6	4	3	2	1	16
	Urban	21	22	10	5	4	62	13	17	7	6	5	48
Rajshahi	Rural	2	2	3	0	0	7	4	4	0	1	11	20
	Urban	8	11	3	0	2	24	14	6	7	0	1	28
India		9	10	6	5	9	39	9	1	6	2	4	22
Asia		0	5	2	0	1	8	2	6	2	2	0	12
Middle-east		1	2	6	1	1	11	1	4	1	4	3	13
Other		3	0	1	0	0	4	0	0	0	0	0	0
Unknown		7	7	5	0	1	20	4	4	0	0	3	11
Total		1398	2294	874	225	255	5046	1141	1713	649	186	408	4097

Appendix B

Mid-year population, births, and deaths by villages, 2001

Village code*	Population	Live births	Deaths	Birth rate	Death rate
ICDDR,B area:					
D	2187	42	15	19.2	6.9
W	5134	108	25	21.0	4.9
V10	1767	45	10	25.5	5.7
V11	2316	63	12	27.2	5.2
V31	8889	273	58	30.7	6.5
V32	3025	98	21	32.4	6.9
V60	953	21	9	22.0	9.4
V61	657	16	2	24.4	3.0
V62	901	12	8	13.3	8.9
V72	6282	170	41	27.1	6.5
Block A	32111	848	201	26.4	6.3
H00	1308	29	4	22.2	3.1
V12	594	13	0	21.9	0.0
V13	720	19	5	26.4	6.9
V19	2910	91	15	31.3	5.2
V20	1310	32	8	24.4	6.1
V21	521	14	3	26.9	5.8
V22	593	19	2	32.0	3.4
V23	571	14	2	24.5	3.5
V24	2911	83	23	28.5	7.9
V26	2811	67	16	23.8	5.7
V56	1557	35	12	22.5	7.7
V59	1396	41	11	29.4	7.9
V82	1589	56	13	35.2	8.2
V83	546	15	1	27.5	1.8
V85	452	19	4	42.0	8.8
V87	676	23	2	34.0	3.0
VBB	4448	139	30	31.3	6.7
VBC	4828	132	47	27.3	9.7
Block B	29741	841	198	28.3	6.7
K00	917	24	4	26.2	4.4
L00	535	13	1	24.3	1.9
M00	187	6	1	32.1	5.3
N00	2098	48	13	22.9	6.2
O00	1638	40	16	24.4	9.8
P00	2092	45	11	21.5	5.3

Village code*	Population	Live births	Deaths	Birth rate	Death rate
Q00	331	9	3	27.2	9.1
V27	918	23	8	25.1	8.7
V28	1471	49	15	33.3	10.2
V30	573	10	1	17.5	1.7
V39	352	10	2	28.4	5.7
V40	741	13	4	17.5	5.4
V41	1729	40	10	23.1	5.8
V42	728	12	2	16.5	2.7
V44	610	22	4	36.1	6.6
V86	866	15	4	17.3	4.6
V88	495	9	3	18.2	6.1
VBA	2473	55	15	22.2	6.1
DX0	3399	94	15	27.7	4.4
DX1	1335	21	7	15.7	5.2
Block C	23488	558	139	23.8	5.9
R00	1427	29	17	20.3	11.9
S00	945	20	6	21.2	6.3
T00	1596	53	15	33.2	9.4
V15	689	13	2	18.9	2.9
V16	817	29	4	35.5	4.9
V17	1129	29	7	25.7	6.2
V18	3862	114	38	29.5	9.8
V25	1257	28	13	22.3	10.3
V29	474	6	4	12.7	8.4
V33	456	14	3	30.7	6.6
V34	786	22	3	28.0	3.8
V52	219	7	0	32.0	0.0
V54	631	7	2	11.1	3.2
V55	530	12	5	22.6	9.4
V63	2087	52	14	24.9	6.7
V67	659	18	0	27.3	0.0
V81	720	21	2	29.2	2.8
V84	2273	68	16	29.9	7.0
V89	1472	48	13	32.6	8.8
Block D	22029	590	164	26.8	7.4
ICDDR,B area Total	107369	2837	702	26.4	6.5

Village code*	Population	Live births	Deaths	Birth rate	Death rate
Government area:					
A	3184	83	27	26.1	8.5
B	2093	49	11	23.4	5.3
C	3919	124	26	31.6	6.6
F	1483	37	7	24.9	4.7
G	2817	79	25	28.0	8.9
J	703	19	4	27.0	5.7
U	8724	220	59	25.2	6.8
V01	448	17	6	37.9	13.4
V02	515	15	8	29.1	15.5
V03	630	9	2	14.3	3.2
V04	321	16	0	49.8	0.0
V05	3369	96	24	28.5	7.1
V06	2456	77	17	31.4	6.9
V07	318	6	6	18.9	18.9
V08	1186	28	7	23.6	5.9
V09	1176	29	7	24.7	6.0
V14	807	21	5	26.0	6.2
V35	3908	108	28	27.6	7.2
V36	5536	120	40	21.7	7.2
V38	1648	39	6	23.7	3.6
V43	944	22	3	23.3	3.2
V45	1106	29	2	26.2	1.8
V46	382	12	2	31.4	5.2
V47	1927	59	11	30.6	5.7
V48	613	10	7	16.3	11.4
V49	1290	36	14	27.9	10.9
V50	65	1	0	15.4	0.0
V51	547	17	3	31.1	5.5
V53	3103	81	18	26.1	5.8
V57	1063	18	12	16.9	11.3
V64	4417	140	32	31.7	7.2
V65	804	23	6	28.6	7.5
V66	892	17	9	19.1	10.1
V68	1002	33	7	32.9	7.0
V71	498	19	6	38.2	12.0
V73	854	24	5	28.1	5.9
V74	1400	40	7	28.6	5.0
V75	372	10	0	26.9	0.0
V76	1807	61	15	33.8	8.3
V78	269	5	3	18.6	11.2

Village code*	Population	Live births	Deaths	Birth rate	Death rate
V79	347	6	2	17.3	5.8
V80	1198	39	6	32.6	5.0
V90	1247	23	7	18.4	5.6
V95	2044	73	13	35.7	6.4
V96	720	17	4	23.6	5.6
V97	411	10	3	24.3	7.3
V98	148	1	1	6.8	6.8
V99	590	17	5	28.8	8.5
VB1	1141	25	9	21.9	7.9
VB2	1037	26	4	25.1	3.9
VB3	3042	60	24	19.7	7.9
VB4	3774	101	37	26.8	9.8
VB5	922	26	6	28.2	6.5
VB6	581	12	3	20.7	5.2
VB7	351	14	3	39.9	8.5
VB8	1420	33	6	23.2	4.2
VB10	2948	99	15	33.6	5.1
D28	1136	22	4	19.4	3.5
D29	210	7	1	33.3	4.8
D30	785	31	6	39.5	7.6
D31	1113	32	7	28.8	6.3
D32	779	19	5	24.4	6.4
D33	1131	30	12	26.5	10.6
D34	1410	37	11	26.2	7.8
D35	621	12	5	19.3	8.1
D88	1530	53	17	34.6	11.1
D89	1284	30	10	23.4	7.8
D90	940	31	6	33.0	6.4
D93	1301	38	10	29.2	7.7
D94	1510	48	10	31.8	6.6
D95	606	17	1	28.1	1.7
D96	1041	31	5	29.8	4.8
D97	806	34	7	42.2	8.7
D98	3501	93	21	26.6	6.0
D99	2162	47	19	21.7	8.8
Government area Total	112383	3043	782	27.1	7.0

*See village name in Appendix E

Appendix C
Life table equations

$$1. \quad {}_nq_x = \frac{{}_nm_x}{\frac{1}{n} + {}_nm_x \left[\frac{1}{2} + \frac{n}{12} ({}_nm_x - \ln C) \right]}$$

$$2. \quad l_0 = 100,000$$

$$l_x = (1 - {}_nq_{x-n}) l_{x-n}$$

$$3. \quad L_0 = 0.276 l_0 + 0.724 l_1$$

$$L_1 = 0.410 l_1 + 0.590 l_2$$

$$L_i = \frac{1}{2} (l_i + l_{i+1}), \quad i = 2, 3, 4$$

$${}_nL_x = \frac{{}_nd_x}{{}_nm_x} \quad \text{for } 5 \leq x \leq 80$$

$${}_{\infty}L_{85} = \frac{l_{85}}{{}_{\infty}m_{85}} \quad \text{for the last age group 85+}$$

$$4. \quad e_x = \frac{T_x}{l_x} \quad \text{where } T_x = \sum_{y=x}^{\infty} L_y$$

Note: Greville's method, as suggested in: Shryock HS, Seigel JS, et al. The methods and materials of demography (revised), v. II. Washington DC: Bureau of the Census, 1975: 414, 444-5.
(ln C assumed to be 0.095; separation factors in Equation 3 correspond to an infant mortality rate of 100.)

Appendix D

WHO standard world population age structure

Age group (years)	World population	Percentage
0	1800	1.8
1-4	7000	7.0
5-9	8700	8.7
10-14	8600	8.6
15-19	8500	8.5
20-24	8200	8.2
25-29	7900	7.9
30-34	7600	7.6
35-39	7200	7.2
40-44	6600	6.6
45-49	6000	6.0
50-54	5400	5.4
55-59	4600	4.6
60-64	3700	3.7
65-69	3000	3.0
70-74	2200	2.2
75-79	1500	1.5
80-84	900	0.9
85+	600	0.6
Total	100000	100

Source: Age standardization of rates: a new WHO standard
(www.who.int/whosis/statistics/discussion_papers/pdf/paper31.pdf)

Appendix E

Names and codes of villages in the HDSS area, 2001

Village code	Village name	Village code	Village name
ICDDR,B area			
Block A			
D	Charmukundi	V32	Mobarakdi
W	Kaladi	V60	Suvankardi
V10	Dhakirgaon	V61	Munsabdi
V11	Nabakalash	V62	Shilmondi
V31	Dighaldi	V72	Upadi
Block B			
H	Lamchari	V26	Narayanpur
V12	Bhangerpar	V56	Palipara
V13	Baburpara	V59	Doshpara
V19	Lakshmipur	V82	Dhanarpar
V20	Dagorpur	V83	Padmapal
V21	Khadergaon	V85	Bhanurpara
V22	Beloti	V87	Hurmaisha
V23	Baluchar	VB12	Nagda
V24	Machuakhal	VB13	Naogaon
Block C			
K	Shahpur	V39	Gobindapur
L	Tatkhana	V40	Masunda
M	Char Nayergaon	V41	Paton
N	Aswinpur	V42	Adhara (South)
O	Nayergaon	V44	Panchdona
P	Titerkandi	V86	Adhara
Q	Char Shibpur	V88	Datikara
V27	Panchghoria	VB11	Mehron
V28	Khidirpur	D100	Barogaon
V30	Harion	D101	Naojan
Block D			
R	Nandalalpur	V34	Satparia
S	Tatua	V52	Nayakandi
T	Amuakanda	V54	Balakandi
V15	Bhati Rasulpur	V55	Induria
V16	Binandapur	V63	Islamabad (East)
V17	Hatighata	V67	Majlishpur
V18	Torkey	V81	Sonaterkandi
V25	Char Pathalia	V84	Shanbajkandi
V29	Shibpur (South)	V89	Islamabad (Middle)
V33	Shibpur (North)		

Village code	Village name	Village code	Village name
Government area			
A	Uddamdi	V75	Mukundia
B	Charmasua	V76	Chosoi
C	Sarderkandi	V78	Soladana
F	Sepoykandi	V79	Pitambordi
G	Thatalia	V80	Daribond
J	Char Harigope	V90	Narinda
U	Baispur	V95	Baluchar
V01	Kadamtali	V96	Rampur
V02	Nilokhi	V97	Dhanagoda
V03	Char Nilokhi	V98	Santoshpur
V04	Char Pathalia	V99	Baluakandi
V05	Gazipur	VB1	Taltoli
V06	Fatepur	VB2	Sree Rayerchar
V07	Nayakandi	VB3	Rayerkandi
V08	Goalbhar	VB4	Ramdaspur
V09	Naburkandi	VB5	Thakurpara
V14	Enayetnagar	VB6	Sarkerpara
V35	Durgapur	VB7	Mirpur
V36	Ludhua	VB8	Farazikandi
V37**	Charputia	VB9**	Ramanathgonj
V38	Galimkha	VB10	South Rampur
V43	Kanachak	D28	Bazarkhola
V45	Bakchar	D29	Kirtonkhola
V46	Silinda	D30	Banuakandi
V47	Tulatali	D31	Harina Bazarkhola
V48	Gangkandi	D32	Khalisha
V49	Harina Bhabanipara	D33	Nayanagar
V50	Bakharpur	D34	Saidkharkandi
V51	Induriakandi	D35	Mollah Kandi
V53	Chhoto Haldia	D88	Sankibhanga
V57	Baluchar	D89	Sankibhanga Namapara
V58**	Mohishmari	D90	Zahirabaj
V64	Kawadi	D91**	North Joypur
V65	Nayachar	D92**	West Joypur
V66	Thatalia	D93	Maizkandi
V68	Sobahan	D94	Hazipur
V69**	Naobangha	D95	Tapaderpara
V70**	South Joypur	D96	Sakharipara
V71	Khamarpara	D97	Nayakandi
V73	Sadardia	D98	Bara Haldia
V74	Ketundia	D99	Mandertoli

*Division by block applies only to the ICDDR,B area

**Lost due to river erosion in 1987

Appendix F
Staff of HDSS, 2001

Peter Kim Streatfield, PhD
HDSS Project Director

Matlab Field Station

Mr. A.M. Sarder, Senior Manager
Mr. Md. Aftekharuzzaman, FRO
Mr. Md. Nazrul Islam, FRO

Mr. A.A.M. Mobinul Islam, Sr. Programmer
Mr. Samiran Barua, Junior Programmer

Mr. M. Muirul Alam Bhuiyan
Medical Assistant

Ms Shahana Ahmed, DET
Ms Monowara Begum, DET
Ms Nazma Akhter, DET

Mr. Md. Anisur Rahman, Clerk Gr. I
Mr. Md. Ahsan Ullah
Mr. Mokbul Hossain (Bhutto)

Field Research Assistants:
Mr. M. Idris Ali Miah II
Mr. Zahirul Hoque
Mr. Golam Hossain
Mr. Md. Jasimmuddin
Mr. Nasir Ahmed
Mr. Alfaz Uddin Chowdhury
Mr. Md. Sadiquzzaman
Mr. Shah Mostafa Kamal
Mr. Sheikh Abdul Jabber
Mr. Md. A. Malek Patwari
Mr. Md. Muirul Hoque
Ms Monowara Begum

Quality Control Team:
Ms Farzana Haque
Ms Zakia Parveen

Note: Besides these staff members, 91 CHRWs contributed to the HDSS data collection.

Dhaka-based Staff

Dr. Abdur Razzaque
Mr. Saker A. Chowdhury
Ms Lutfun Nahar
Ms Saleha Begum
Dr. Md. Nurul Alam

Dr. Md. Golam Mostafa
Mr. Sentu B. Gomes
Ms Rahima Mazhar

Mr. Carel van Mels
Mr. Harun-ur-Rashid
Ms Habiba Rahman
Ms Nasrin Aktar
Mr. ABM Delwar Hossain

Dr. M. Kapil Ahmed
Mr. Sajal K. Saha
Mr. Md. Arifur Rahim