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SYSTEM-MATLAB**

Volume Thirty Nine

**Registration of Health and Demographic Events 2005**

**Scientific Report No. 97 – February 2007**

**Health and Demographic Surveillance Unit  
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## SUMMARY

This report presents the vital registration and maternal and child health data gathered from Matlab, Bangladesh, in 2005. The data were collected by the Health and Demographic Surveillance System of ICDDR,B. The surveillance area is divided into an ICDDR,B service area and a Government service area which receives usual government services. The ICDDR,B area is sub-divided into four blocks.

In the surveillance area, as a whole, fertility declined in 2005 compared to 2004. The crude birth rate (CBR) was 23.2 per 1,000 population and total fertility rate (TFR) was 2.8 per woman in 2005, whereas in 2004 the rates were 24.7 and 3.0 respectively. In the ICDDR,B area, CBR was 23.2 and TFR was 2.7 and in the Government service area, CBR and TFR were 23.1 and 2.8 respectively.

The crude death rate was 6.9 per 1,000 population in the ICDDR,B area, and in the Government service area it was 7.0 in 2005. The infant mortality rate was 36.0 per 1,000 live births in the ICDDR,B area, and in the Government service area it was 45.0. The neonatal mortality fell in the ICDDR,B area, but not in the Government service area. Post-neonatal mortality was similar in both the areas. The mortality rate among children aged less than 5 years has decreased to 45.3 in 2005 from 51.9 in 2004 in the ICDDR,B area, but not in the Government service area. The rate of natural increase in population size was 16.2 per 1,000 in 2005.

The rate of in-migration decreased to 35.7 per 1,000 population in 2005 from 42.1 in 2004, and the rate of out-migration also decreased to 53.3 in 2005 from 57.9 in 2004. The net out-migration rate was 16.2 per 1,000 population, thereby offsetting the rate of natural increase, which is 16.2 per 1,000 in 2005. The overall annual population growth rate was -0.1%. The marriage rate was 14.0 per 1,000 population, and the divorce rate was 96.1 per 1,000 marriages.

## CHAPTER 1

### INTRODUCTION

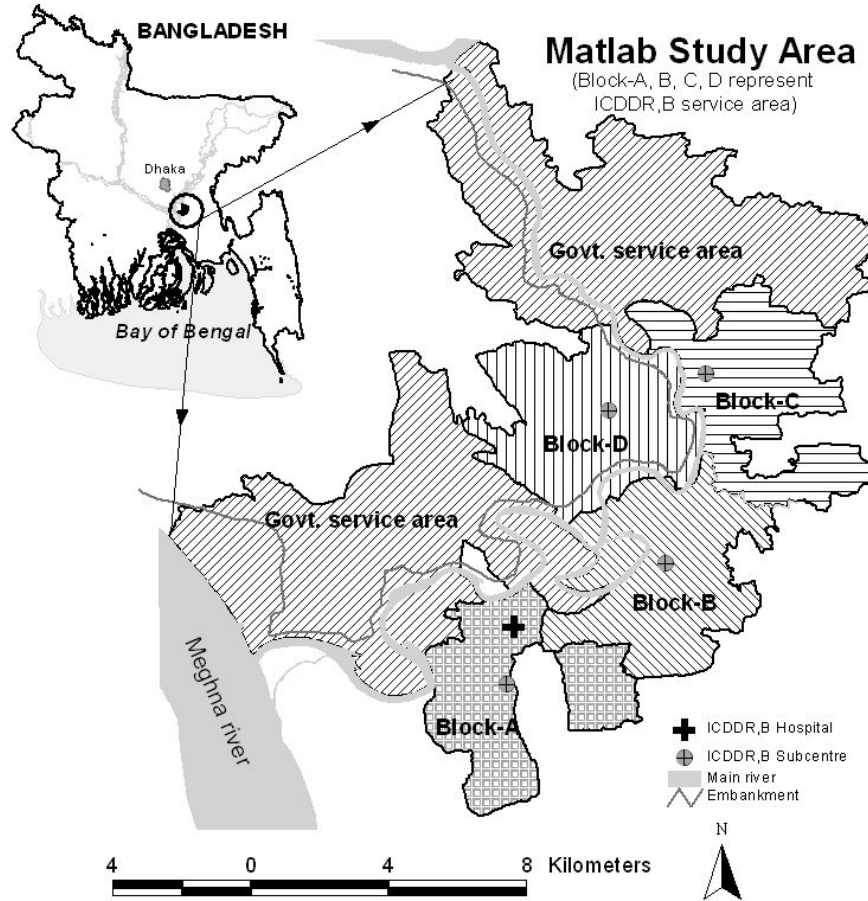
Since 1963, the ICDDR,B, formerly Cholera Research Laboratory, has implemented a health research programme in Matlab, Bangladesh. Matlab is located about 55 km southeast of Dhaka, the capital city of Bangladesh (Fig. 1). The Health and Demographic Surveillance System (HDSS), formerly Demographic Surveillance System (DSS), is one of the major components of this field programme. Since 1966, the HDSS has maintained the registration of births, deaths, and migrations, in addition to carrying out periodical censuses.

Recording changes in household headship and household dissolution 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 Supervisors (FRSs). 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 service area (Fig. 1). Since the introduction of the ICDDR,B service programme, the CHRWs have collected 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 service 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 service area.

This is the thirty nine volume of a series of scientific reports of the Health and Demographic Surveillance System produced by ICDDR,B. Data obtained from the Matlab HDSS area in 2005, along with brief notes and explanations of the tables, are presented in this volume.

Figure 1. Map of Bangladesh showing the study area by blocks



## CHAPTER 2

### POPULATION CHANGES

The principal vital statistics of the ICDDR,B and Government service areas from 1994 through 2005 are summarized in Table 2.1. The number of mid-year population and the demographic events registered in 2005 in both ICDDR,B and Government service areas are shown in Table 2.2. Appendix B shows the mid-year population, number of births, and deaths by village.

In 2005, the crude birth rate decreased to 23.2 in the ICDDR,B area and also decreased to 23.1 in the Government service area from the 2004 level of 24.5 in the ICDDR,B area and 24.8 in the Government service area respectively. In the ICDDR,B area, the crude death rate increased little to 6.9 in 2005 compared to 6.7 in 2004, and in the Government service area it decreased to 7.0 in 2005 compared to 7.4 in 2004. In the ICDDR,B area, the TFR fell to 2.7 in 2005 from 2.9 in 2004 and in the Government service area the rate fell to 2.8 in 2005 from 3.1 in 2004. The trends in the TFR in both areas are illustrated in Figure 2.1.

The rate of infant mortality decreased to 36.0 in 2005 from 39.1 in 2004 in the ICDDR,B area, and 45.0 in 2005 from 48.5 in 2004 in the Government service area. In the ICDDR,B area, neonatal mortality decreased to 26.5 in 2005 from 29.6 in 2004, whereas in the Government service area, it remained at almost the same level of 35.4 in 2005. There was a decrease in the mortality rate of children aged 1-4 years in the ICDDR,B area, but this rate increased in the Government service area to 4.07 per 1,000 children (1-4 years) in 2005 compared to 2.7 in 2004. As a result of these changes, mortality of children aged less than 5 years decreased in the ICDDR,B area from 51.9 per 1,000 live births in 2004 to 45.3 in 2005, but not in the Government service area. The trends in mortality of children aged less than 5 years are illustrated in Figure 2.1.

The numbers of in- and out-migrants registered in 2005 were 8020 and 11982 respectively, giving an in-migration rate of 35.7, out-migration rate of 53.3 and a net migration rate of 17.6 per 1,000 population leaving the area. Out-migrants continued to outnumber in-migrants, thus offsetting the rate of natural increase and reducing the overall annual population growth rate to -0.1%.

The age-sex distribution of the mid-year population of the HDSS 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 1978-2005 period caused a 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 2005, this proportion had fallen to 33.3%. In the Government service area, the change in age distribution was less than that in the ICDDR,B area. Children aged less than 15 years in the Government service area comprised 43.3% of the total population in 1978, which decreased to 35.1% in 2005. 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 5.6% in 1978 to 8.8% in 2005 due to the decline in both fertility and mortality. The net population increase was -1.4 per 1,000 in 2005 while it was 1.8 per 1,000 in 2004, due to the decrease in the number of out-migrants.

**Table 2.1. Vital statistics of ICDDR,B and Government areas\*, 1994-2005**

Vital rate (per 1,000)	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Crude birth rate</b>												
ICDDR,B area	25.9	25.2	22.4	23.7	25.8	24.5	24.9	26.4	25.8	26.4	24.5	23.2
Government area	29.4	27.8	26.7	26.8	28.3	25.9	27.7	27.1	25.3	25.1	24.8	23.1
Both areas	27.6	26.5	24.5	25.2	27.0	25.2	26.3	26.8	25.6	25.7	24.7	23.2
<b>Total fertility rate**</b>												
ICDDR,B area	3.0	2.9	2.7	2.8	3.0	2.9	2.9	3.1	3.0	3.1	2.9	2.7
Government area	3.8	3.6	3.5	3.4	3.6	3.3	3.5	3.4	3.2	3.2	3.1	2.8
Both areas	3.4	3.2	3.0	3.1	3.3	3.1	3.2	3.3	3.1	3.1	3.0	2.8
<b>Crude death rate</b>												
ICDDR,B area	8.0	7.3	7.6	6.6	7.0	6.4	6.8	6.5	6.9	6.8	6.7	6.9
Government area	9.2	8.4	7.9	8.0	8.1	7.4	7.2	7.0	7.3	7.0	7.4	7.0
Both areas	8.6	7.9	7.7	7.3	7.5	6.9	7.0	6.8	7.1	6.9	7.0	6.9
<b>Neonatal mortality***</b>												
ICDDR,B area	36.4	30.6	39.5	33.1	36.8	25.4	32.3	26.4	34.4	31.5	29.6	26.5
Government area	56.4	50.3	42.1	50.0	44.0	38.6	43.6	42.4	36.4	33.8	35.3	35.4
Both areas	46.9	40.8	40.9	41.9	40.5	32.0	38.4	34.7	35.4	32.6	32.5	30.9
<b>Post-neonatal mortality***</b>												
ICDDR,B area	27.3	20.6	26.6	16.4	13.8	19.1	11.8	17.2	13.5	10.6	9.5	9.6
Government area	30.8	28.3	24.8	28.6	26.0	22.2	14.4	14.5	18.1	13.7	13.2	9.6
Both areas	29.2	24.6	25.7	22.7	20.1	20.6	13.2	15.9	15.9	12.1	11.4	9.6
<b>Infant Mortality***</b>												
ICDDR,B area	63.7	51.1	66.2	49.5	50.6	44.5	44.0	43.7	47.9	42.1	39.1	36.0
Government area	87.2	78.6	67.0	78.6	70.0	60.8	58.0	56.9	54.5	47.5	48.5	45.0
Both areas	76.0	65.3	66.6	64.7	60.6	52.7	51.6	50.5	51.2	44.8	43.9	40.5
<b>Child mortality (1 - 4yrs) #</b>												
ICDDR,B area	5.3	6.7	6.0	4.5	4.7	4.1	3.9	3.9	3.5	3.6	3.4	2.4
Government area	7.0	8.4	8.0	7.0	5.8	7.5	6.4	3.8	5.2	4.1	2.7	4.0
Both areas	6.2	7.6	7.1	5.8	5.2	5.8	5.2	3.9	4.4	3.9	3.1	3.2
<b>Under five mortality***</b>												
ICDDR,B area	83.6	76.7	87.9	66.7	68.3	60.0	58.6	58.4	61.1	55.2	51.9	45.3
Government area	113.1	109.5	96.4	104.4	91.3	88.6	81.1	71.2	73.6	62.9	58.9	60.2
Both areas	99.1	93.8	92.3	86.3	80.1	74.4	70.7	65.0	67.5	59.1	55.4	52.8
<b>Rate of natural increase</b>												
ICDDR,B area	17.9	17.9	14.8	17.1	18.8	18.1	18.1	19.9	18.9	19.6	17.8	16.3
Government area	20.2	19.4	18.8	18.7	20.2	18.5	20.5	20.1	18.0	18.0	17.5	16.1
Both areas	19.1	18.6	16.8	17.9	19.5	18.3	19.3	20.0	18.5	18.8	17.6	16.2
<b>In-migration</b>	26.5	27.0	25.1	34.6	30.3	34.8	35.1	34.0	45.7	40.4	42.1	35.7
<b>Out-migration</b>	41.4	37.4	35.0	41.7	36.9	48.0	48.5	46.2	52.4	55.4	57.9	53.3
<b>Growth (%)</b>	0.4	0.8	0.7	1.1	1.3	0.5	0.6	0.8	1.2	0.4	0.2	-0.1

\*ICDDR,B area refers to ICDDR,B service area and Government area refers to Government service area

\*\*Per woman

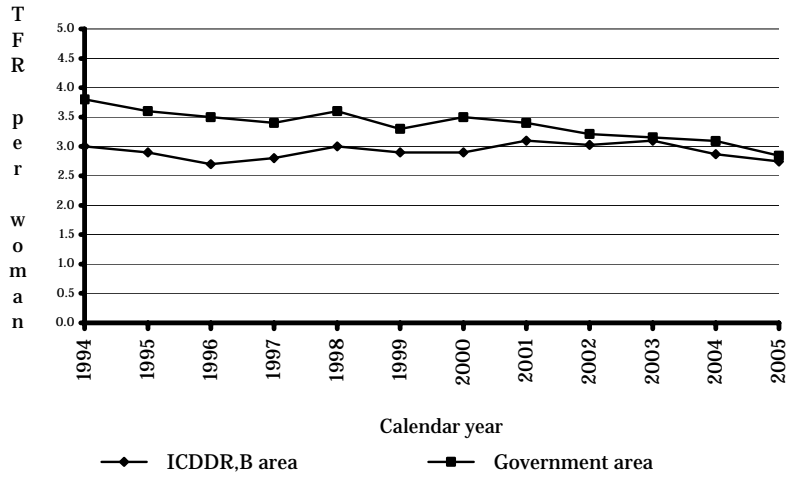
\*\*\*Per 1,000 live births

#Per 1,000 children aged 1-4 years

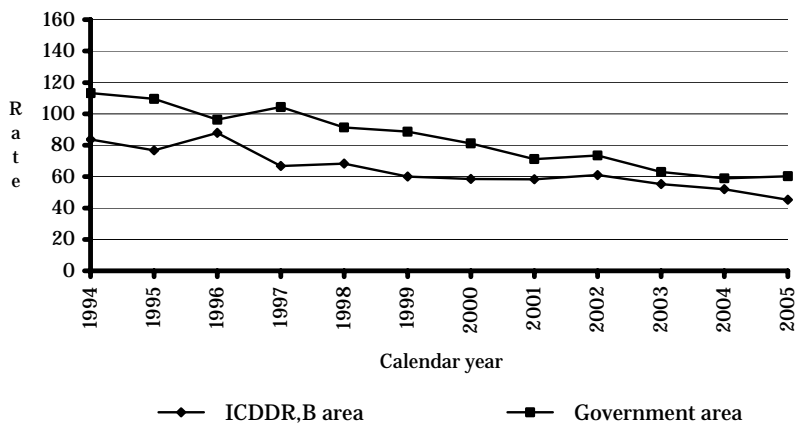


**Fig. 2.1. Trends in fertility and under-five mortality rate by area, 1994-2005**

**(a) Total fertility rate**



**(b) Under-five mortality rate (per 1,000 live births)**



**Table 2.2. Mid-year population, events registered, and population changes, 2005**

Demographic indicator	Number			Rate per 1,000		
	Total	Male	Female	Total	Male	Female
<b>Total Population (30 June 2005)</b>						
ICDDR,B area	112351	53449	58902	-	-	-
Government area	112399	53608	58791	-	-	-
Both areas	224750	107057	117693	-	-	-
<b>Events registered (Jan-Dec. 2005)</b>						
<b>Births</b>						
ICDDR,B area	2608	1347	1261	23.2	-	-
Government area	2602	1328	1274	23.1	-	-
Both areas	5210	2675	2535	23.2	-	-
<b>Deaths</b>						
<b>Infants*</b>						
ICDDR,B area	94	46	48	36.0	34.1	38.1
Government area	117	58	59	45.0	43.7	46.3
Both areas	211	104	107	40.5	38.9	42.2
<b>All deaths</b>						
ICDDR,B area	775	432	343	6.9	8.1	5.8
Government area	787	440	347	7.0	8.2	5.9
Both areas	1562	872	690	6.9	8.1	5.9
In-migration	8020	3648	4372	35.7	34.1	37.1
Out-migration	11981	5967	6014	53.3	55.7	51.1
Marriage	3152	-	-	14.0	-	-
Divorce**	303	-	-	96.1	-	-
<b>Population change (Jan-Dec. 2005)</b>						
Net migration	-3961	-2319	-1642	-17.6	-21.7	-14.0
<b>Natural increase</b>						
ICDDR,B area	1833	915	918	16.3	17.1	15.6
Government area	1815	888	927	16.1	16.6	15.8
Both areas	3648	1803	1845	16.2	16.8	15.7
<b>Net increase</b>	<b>-313</b>	<b>-516</b>	<b>203</b>	<b>-1.4</b>	<b>-4.8</b>	<b>1.7</b>

\*Rate per 1000 live births

\*\*Rate per 1000 marriages

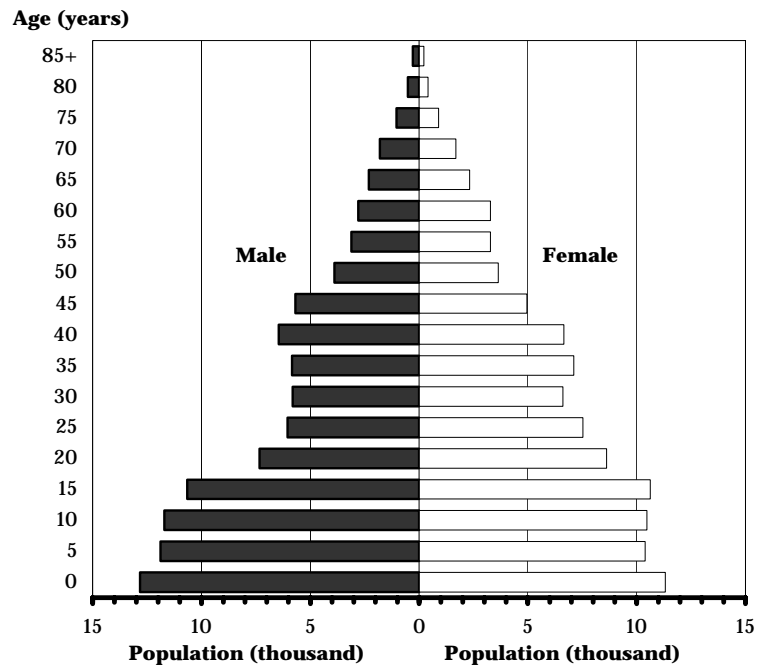
**Table 2.3. Mid-year population by age and sex, 2005**

Age (years)	Number			Percentage		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	224750	107057	117693	100.0	100.0	100.0
<1 year	5288	2659	2629	2.4	2.5	2.2
1 – 4	21754	11069	10685	9.7	10.3	9.1
1	5396	2764	2632	2.4	2.6	2.2
2	5466	2785	2681	2.4	2.6	2.3
3	5499	2800	2699	2.4	2.6	2.3
4	5393	2720	2673	2.4	2.5	2.3
5 – 9	24955	12732	12223	11.1	11.9	10.4
10-14	24861	12536	12325	11.1	11.7	10.5
15-19	23909	11409	12500	10.6	10.7	10.6
20-24	18007	7855	10152	8.0	7.3	8.6
25-29	15328	6469	8859	6.8	6.0	7.5
30-34	14007	6216	7791	6.2	5.8	6.6
35-39	14629	6257	8372	6.5	5.8	7.1
40-44	14735	6905	7830	6.6	6.4	6.7
45-49	11925	6096	5829	5.3	5.7	5.0
50-54	8441	4160	4281	3.8	3.9	3.6
55-59	7198	3340	3858	3.2	3.1	3.3
60-64	6859	2998	3861	3.1	2.8	3.3
65-69	5196	2467	2729	2.3	2.3	2.3
70-74	3906	1925	1981	1.7	1.8	1.7
75-79	2159	1106	1053	1.0	1.0	0.9
80-84	1032	551	481	0.5	0.5	0.4
85+	561	307	254	0.2	0.3	0.2

**Table 2.4. Mid-year population by age, sex, and area, 2005**

Age (years)	ICDDR,B area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	112351	53449	58902	112399	53608	58791
<1 year	2672	1353	1319	2616	1306	1310
1 – 4	10782	5419	5363	10972	5650	5322
1	2720	1393	1327	2676	1371	1305
2	2707	1366	1341	2759	1419	1340
3	2760	1359	1401	2739	1441	1298
4	2595	1301	1294	2798	1419	1379
5 – 9	12227	6153	6074	12728	6579	6149
10-14	11739	5923	5816	13122	6613	6509
15-19	11433	5439	5994	12476	5970	6506
20-24	9046	3877	5169	8961	3978	4983
25-29	7927	3380	4547	7401	3089	4312
30-34	7306	3257	4049	6701	2959	3742
35-39	7593	3254	4339	7036	3003	4033
40-44	7659	3601	4058	7076	3304	3772
45-49	6047	3146	2901	5878	2950	2928
50-54	4351	2169	2182	4090	1991	2099
55-59	3650	1704	1946	3548	1636	1912
60-64	3449	1523	1926	3410	1475	1935
65-69	2585	1248	1337	2611	1219	1392
70-74	1919	969	950	1987	956	1031
75-79	1108	576	532	1051	530	521
80-84	544	281	263	488	270	218
85+	314	177	137	247	130	117

Fig. 2.2. Age pyramid of the 2005 mid-year population



## CHAPTER 3

### MORTALITY

The distribution of 1,562 deaths by age at death and sex for the whole HDSS area and for the ICDDR,B and Government service areas is shown in Tables 3.1 and 3.2 respectively. Of the 1,562 deaths, 13.5% were infants, 2.4% were of children age 1-4 years, and 56.6% were aged 60 years and above in 2005.

Tables 3.3 and 3.4 show the corresponding age-sex-specific mortality rates for the whole HDSS area and for the ICDDR,B and Government service areas. Block-wise deaths in the ICDDR,B area by age and sex are shown in Appendix A.2. In 2005, the overall death rates for males and females were 8.1 and 5.9 respectively. Male mortality rates were higher than female mortality rates in all age groups except for infants. Infant mortality rate was 34.1 per 1,000 live births for males and 38.1 for females. It was lower in the ICDDR,B area than in the Government service area, a result of improvements in the neonatal mortality in the former area. The maternal mortality ratio was equal in both the areas (2.3 each per 1,000 live births). In most age groups, the death rates were higher in the Government service area than in the ICDDR,B area.

Table 3.5 shows the abridged life tables for males and females derived from age-sex specific death rates, and the survival ( $l_x$ ) values are plotted in Figure 3.1 (for Life Table Equations see Appendix C). The expectation of life at birth improved little in 2005 compared to the 2004 level. It was 66.8 years for males and 70.8 for females. The level of adult (15-59 years) mortality increased as a whole in 2005 compared to 2004. The probability of dying for males aged 15-60 years ( ${}_{45}q_{15}$ ) was 196, and for females it was 158 per 1,000 population in 2005. In the age groups of 60-79 years, expectation of life is longer for females than males but after 80 years, expectation of life is comparable for males and females.

The expectation of life at birth was a little higher in the ICDDR,B area than the Government service area. The gender difference expectation of life was more pronounced in the ICDDR,B area (4.3 yrs) than in the Government service area (3.6 yrs). Expectation of life at each age in each area was higher for females than for males, except for a few age groups (Appendices A.3 and A.4).

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. Post-neonatal deaths were higher in January and April and child deaths, on the other hand, were highest in October.

Deaths by underlying causes, sex, age, and by areas are shown in Tables A.5 – A.8. Table 3.7 gives the age-standardized mortality rates by cause of death and sex and by area, using the WHO-standard world population age structure as shown in Appendix D (WHO, 2000). Deaths due to communicable diseases were prominent, led by tuberculosis, then respiratory infections and

diarrhoea. Deaths due to tuberculosis occurred more among males than among females. Prematurity and low birth weight were also important causes of death, particularly of neonates irrespective of sex and area. Among non-communicable diseases, death rates due to the circulatory system (stroke, ischaemic heart disease and hypertensive disease), neoplasms, asthma, diabetes, and digestive diseases were more prominent in both sexes and in both the areas. Accidents and drowning were the major causes of death in the injury category, irrespective of sex and areas. Among the miscellaneous causes, senility followed by fever of unknown origin, were more prominent in both sexes and in both the areas. The maternal mortality rate was almost equal in the Government service area (10.4 vs. 10.6 per 100,000 population). Other differences between the two areas varied by sex, especially in Chronic Obstructive Pulmonary Disease (COPD) and other respiratory diseases.

**Table 3.1. Deaths by age and sex, 2005**

Age	Both sexes		Male		Female	
	Number	Cumulative percentage	Number	Cumulative percentage	Number	Cumulative percentage
All ages	1562	-	872	-	690	-
<1 year	211	-	104	-	107	-
<1 month	161	10.3	83	9.5	78	11.3
1- 5 months	31	12.3	11	10.8	20	14.2
6-11 months	19	13.5	10	11.9	9	15.5
1 - 4 years	70	-	38	-	32	-
1	33	15.6	19	14.1	14	17.5
2	19	16.8	8	15.0	11	19.1
3	3	17.0	1	15.1	2	19.4
4	15	18.0	10	16.3	5	20.1
5 – 9	28	19.8	14	17.9	14	22.2
10-14	17	20.9	10	19.0	7	23.2
15-19	25	22.5	15	20.8	10	24.6
20-24	22	23.9	13	22.2	9	25.9
25-29	23	25.4	14	23.9	9	27.2
30-34	24	26.9	9	24.9	15	29.4
35-39	26	28.6	13	26.4	13	31.3
40-44	42	31.2	19	28.6	23	34.6
45-49	63	35.3	49	34.2	14	36.7
50-54	60	39.1	44	39.2	16	39.0
55-59	67	43.4	45	44.4	22	42.2
60-64	121	51.2	69	52.3	52	49.7
65-69	170	62.0	98	63.5	72	60.1
70-74	210	75.5	109	76.0	101	74.8
75-79	173	86.6	95	86.9	78	86.1
80-84	114	93.9	62	94.0	52	93.6
85+	96	100.0	52	100.0	44	100.0



**Table 3.2. Deaths by area, age, and sex, 2005**

Age	ICDDR,B area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	775	432	343	787	440	347
<1 year	94	46	48	117	58	59
<1 month	69	36	33	92	47	45
1- 5 months	15	5	10	16	6	10
6-11 months	10	5	5	9	5	4
1 – 4 years	26	12	14	44	26	18
1	14	8	6	19	11	8
2	6	2	4	13	6	7
3	2	0	2	1	1	0
4	4	2	2	11	8	3
5 - 9	13	6	7	15	8	7
10-14	6	2	4	11	8	3
15-19	12	7	5	13	8	5
20-24	9	3	6	13	10	3
25-29	13	8	5	10	6	4
30-34	10	6	4	14	3	11
35-39	10	7	3	16	6	10
40-44	26	10	16	16	9	7
45-49	31	23	8	32	26	6
50-54	30	23	7	30	21	9
55-59	33	24	9	34	21	13
60-64	74	40	34	47	29	18
65-69	91	55	36	79	43	36
70-74	100	52	48	110	57	53
75-79	87	46	41	86	49	37
80-84	64	37	27	50	25	25
85+	46	25	21	50	27	23

**Table 3.3. Death rates by age and sex, 2005  
(per 1,000 population)**

Age	Both sexes	Male	Female
All ages	6.9	8.1	5.9
<1 year*	40.5	38.9	42.2
<1 month*	30.9	31.0	30.8
1- 5 months*	6.0	4.1	7.9
6-11 months*	3.6	3.7	3.6
1 - 4 years	3.2	3.4	3.0
1	6.1	6.9	5.3
2	3.5	2.9	4.1
3	0.5	0.4	0.7
4	2.8	3.7	1.9
5 - 9	1.1	1.1	1.1
10-14	0.7	0.8	0.6
15-19	1.0	1.3	0.8
20-24	1.2	1.7	0.9
25-29	1.5	2.2	1.0
30-34	1.7	1.4	1.9
35-39	1.8	2.1	1.6
40-44	2.9	2.8	2.9
45-49	5.3	8.0	2.4
50-54	7.1	10.6	3.7
55-59	9.3	13.5	5.7
60-64	17.6	23.0	13.5
65-69	32.7	39.7	26.4
70-74	53.8	56.6	51.0
75-79	80.1	85.9	74.1
80-84	110.5	112.5	108.1
85+	171.1	169.4	173.2

\*Rate per 1,000 live births

**Table 3.4. Death rates by area, age, and sex, 2005  
(per 1,000 population)**

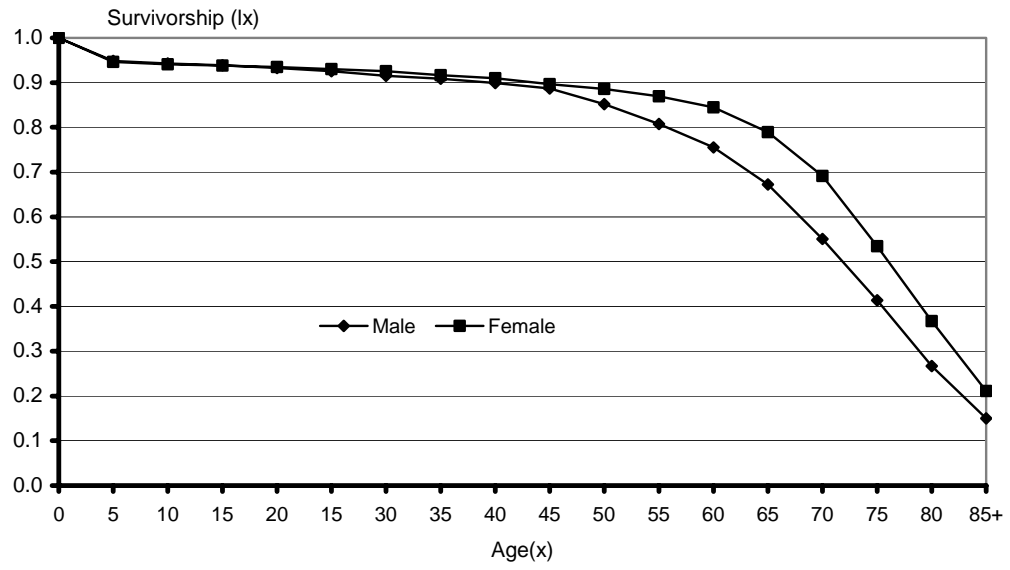
Age	ICDDR,B area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	6.9	8.1	5.8	7.0	8.2	5.9
<1 year*	36.0	34.1	38.1	45.0	43.7	46.3
<1 month*	26.5	26.7	26.2	35.4	35.4	35.3
1- 5 months*	5.8	3.7	7.9	6.1	4.5	7.8
6-11 months*	3.8	3.7	4.0	3.5	3.8	3.1
1 - 4 years	2.4	2.2	2.6	4.0	4.6	3.4
1	5.1	5.7	4.5	7.1	8.0	6.1
2	2.2	1.5	3.0	4.7	4.2	5.2
3	0.7	0.0	1.4	0.4	0.7	0.0
4	1.5	1.5	1.5	3.9	5.6	2.2
5 - 9	1.1	1.0	1.2	1.2	1.2	1.1
10-14	0.5	0.3	0.7	0.8	1.2	0.5
15-19	1.0	1.3	0.8	1.0	1.3	0.8
20-24	1.0	0.8	1.2	1.5	2.5	0.6
25-29	1.6	2.4	1.1	1.4	1.9	0.9
30-34	1.4	1.8	1.0	2.1	1.0	2.9
35-39	1.3	2.2	0.7	2.3	2.0	2.5
40-44	3.4	2.8	3.9	2.3	2.7	1.9
45-49	5.1	7.3	2.8	5.4	8.8	2.0
50-54	6.9	10.6	3.2	7.3	10.5	4.3
55-59	9.0	14.1	4.6	9.6	12.8	6.8
60-64	21.5	26.3	17.7	13.8	19.7	9.3
65-69	35.2	44.1	26.9	30.3	35.3	25.9
70-74	52.1	53.7	50.5	55.4	59.6	51.4
75-79	78.5	79.9	77.1	81.8	92.5	71.0
80-84	117.6	131.7	102.7	102.5	92.6	114.7
85+	146.5	141.2	153.3	202.4	207.7	196.6

\*Rate per 1,000 live births

**Table 3.5. Abridged life table by sex, 2005**

Age (years)	Male				Female			
	$nq_x$	$l_x$	$L_x$	$e^0_x$	$nq_x$	$l_x$	$L_x$	$e^0_x$
0	38.9	100000	96890	66.8	42.2	100000	96623	70.8
1	6.9	96112	95724	68.5	5.3	95779	95479	72.9
2	2.9	95454	95317	68.0	4.1	95271	95076	72.3
3	0.4	95180	95163	67.2	0.7	94881	94846	71.6
4	3.7	95146	94971	66.2	1.9	94811	94722	70.7
5	5.5	94797	472786	65.5	5.7	94633	471921	69.8
10	4.0	94277	470520	60.8	2.8	94093	469850	65.2
15	6.6	93902	468089	56.0	4.0	93826	468267	60.4
20	8.2	93286	464658	51.4	4.4	93451	466305	55.6
15	10.8	92517	460288	46.8	5.1	93038	464104	50.8
30	7.2	91521	456083	42.3	9.6	92567	460787	46.1
35	10.3	90861	452136	37.6	7.7	91679	456762	41.5
40	13.7	89921	446769	32.9	14.6	90970	451787	36.8
45	39.5	88692	435345	28.3	11.9	89643	445745	32.3
50	51.6	85193	415743	24.4	18.5	88572	439072	27.7
55	65.3	80795	391680	20.6	28.1	86931	428996	23.1
60	109.2	75518	358216	16.8	65.3	84485	409572	18.7
65	181.4	67274	307260	13.6	124.2	78969	371728	14.8
70	249.0	55068	242157	11.0	227.0	69162	307991	11.6
75	354.0	41356	170456	8.8	313.4	53459	226146	9.2
80	437.7	26715	103916	7.2	424.5	36707	144151	7.2
85+	1000.0	15022	88688	5.9	1000.0	21123	121940	5.8

Fig. 3.1. Probability of survival from birth to age(x) by sex, 2005



**Table 3.6. Deaths by month and age, 2005**

Month	All ages	Age at death			
		Under 1 month	1-11 months	1-4 years	5 years and above
January	164	17	7	6	134
February	169	10	5	6	148
March	121	6	3	8	104
April	115	13	7	5	90
May	113	8	4	9	92
June	118	7	2	4	105
July	116	10	6	6	94
August	108	15	6	3	84
September	114	27	2	6	79
October	128	20	1	11	96
November	138	13	6	4	115
December	158	15	1	2	140
<b>Total</b>	<b>1562</b>	<b>161</b>	<b>50</b>	<b>70</b>	<b>1281</b>

**Table 3.7. Age-standardized mortality rates by cause of death, 2005  
( per 100,000 population)\***

Cause of death	Male		Female	
	ICDDR,B area	Government service area	ICDDR,B area	Government service area
<b>Communicable diseases</b>				
Diarrhoeal	9.81	(7.61)	36.13	18.33
Dysentery	0.0	(4.84)	(2.82)	10.03
Tuberculosis	28.44	30.25	(4.16)	(2.13)
EPI related death	0.0	(1.32)	0.0	0.0
Meningitis	(3.60)	(5.49)	(5.10)	(4.60)
Hepatitis	(4.76)	(2.71)	(1.88)	(1.37)
Respiratory infections	19.97	35.21	16.17	19.34
Other communicable	(4.60)	4.79	0.0	(1.91)
<b>Maternal and neonatal conditions</b>				
Maternal death	-	-	10.42	10.55
Neonatal condition				
-Premature and LBW	18.63	17.92	17.74	15.11
-Birth asphyxia	(2.66)	(5.51)	(5.46)	(4.12)
-Other neonatal	18.63	31.70	16.38	32.98
<b>Nutritional</b>	(2.62)	(5.95)	(9.19)	22.10
<b>Non-communicable diseases</b>				
Malignant neoplasm				
-Neoplasm	113.36	112.80	40.64	29.67
-Neoplasm in female organ	-	-	(7.80)	12.30
-Neoplasm other kinds	18.83	10.96	(9.30)	(3.90)
Endocrine disorder				
-Diabetes	37.34	24.20	36.21	42.85
Neuro-psychiatric	(7.72)	(6.37)	(7.96)	(5.01)
Diseases of circulatory system				
-Rheumatic heart disease	(1.56)	0.0	0.0	0.0
-Hypertension disease	12.89	(6.92)	20.28	(6.10)
-Ischaemic heart disease	76.79	73.06	23.47	20.58
-Stroke	217.09	303.98	239.97	212.19
-Other cardiovascular	68.37	27.86	55.25	66.34

(continued)

**Table 3.7 (contd.). Age-standardized mortality rates by cause of death, 2005 (per 100,000 population)\***

Cause of death	Male		Female	
	ICDDR,B area	Government service area	ICDDR,B Area	Government service area
Respiratory disease				
-COPD**	29.32	17.10	19.32	17.25
-Asthma	41.78	19.88	29.36	14.21
-Other respiratory	12.78	21.23	(2.82)	26.02
Digestive disease	75.50	73.16	30.45	55.59
Genito-urinary disease				
-Renal failure	(2.34)	0.0	(3.42)	(1.91)
-Nephritic syndrome	(5.15)	0.0	0.0	(1.32)
-Other urinary	(8.36)	12.96	(2.32)	0.0
Other non-communicable	(9.07)	9.17	(7.05)	8.73
<b>Injuries</b>				
Unintentional injuries				
-Accident	67.79	72.76	29.16	42.79
-Drowning	19.98	28.85	18.40	15.61
Intentional injuries				
-Suicide	(1.56)	(3.86)	13.28	(4.75)
-Homicide	(4.55)	(1.38)	0.0	(4.60)
<b>Miscellaneous causes</b>				
-Senility	0.0	(15.90)	0.0	(20.51)
-Fever of unknown origin	30.92	(8.60)	11.72	(1.91)
-Edema of unspecified origin	0.0	0.0	(2.32)	0.0
-Septicaemia	(10.01)	18.55	21.31	18.93
<b>Unknown/missing</b>	21.51	22.94	18.64	33.68
<b>Total</b>	<b>1008.29</b>	<b>1045.81</b>	<b>775.89</b>	<b>809.36</b>

\*Age distribution of standard population is given in Appendix D

\*\*Chronic obstructive pulmonary disease

( ) Less than 5 deaths



## CHAPTER 4

### FERTILITY

In 2005, there were 5,210 live births in the HDSS area as outcomes of 6,012 pregnancy terminations recorded. Table 4.1 shows the number of pregnancy terminations and their outcomes in 2005. The number of live births decreased by 327, or 5.9 %, in 2005 compared to 2004. In the HDSS area as a whole, 86% of pregnancies resulted in a live birth, a proportion that remains almost the same from year to year; pregnancies resulting in fetal wastages show no definite trend. Among the pregnancies resulting in live births, 68 were multiple births (twins and triplets).

Table 4.2 shows the distribution of pregnancies by outcome, and live births by sex by month of occurrence. The data show the usual marked seasonal variation of births, peaking in August-January. The sex ratio of live births was 106 males per 100 females; there is no definite trend over the period. Figure 4.1 shows births and deaths by month of occurrence. Seasonality of births corresponds to the peak season of natural growth of population in the area.

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 service areas. In the age groups 20-24 and 25-29, the fertility rates were higher in the Government service area compared to the ICDDR,B area. The age-specific fertility rates and related fertility measures for the ICDDR,B area by blocks are shown in Appendix A.9.

The breakdown of age –specific fertility rate 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 that would be borne by a woman if she goes 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 service area. There is comparatively very little difference between the two areas for birth order 1 but thereafter they widen dramatically.

Table 4.4 shows marked variation in the distribution of live births by place of delivery and area. Institutional delivery accounts for 50% in the ICDDR,B area and 12% in the Government service area. More commonly used places for institutional delivery in the Government service area were private clinic/nursing home (3.5%) and Upazila Heath Complex (3.1%), and in ICDDR,B area, ICDDR,B hospital (25%) followed by ICDDR,B sub-centres (15%). Table 4.5 shows the distribution of live births by birth attendants<sup>1</sup> and area. In the ICDDR,B area, TBAs assisted 31%

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<sup>1</sup> The most qualified attendant was considered if there was more than one in attendance.

of the live-birth deliveries as opposed to 79% in the Government service area. The respective figures for trained TBAs were 16% and 7%. Medically trained birth attendants (doctors, nurses or midwives, lady family planning visitors or family welfare visitors) assisted 51% of the live birth deliveries in the ICDDR,B and 13% in the Government service area. In the ICDDR,B area, assistance was sought more frequently from LFPV/FWV (40%) followed by doctors (9%) whereas in the Government area, it was from doctors (7%) followed by nurses (5%).

Table 4.6 illustrates the mode of delivery of live births by area. Normal vaginal delivery (including use of drug and saline and/or Episiotomy) accounted for 92% in the ICDDR,B area and 94% in the Government service area. Instrumental deliveries, especially caesarean were 7% and 4% respectively in the ICDDR,B and Government service areas.

HDSS recorded pre-natal care received by mothers in different stages of pregnancy in 2005. Table 4.7 shows pre-natal care received by mothers who had a live birth in 2005 in three trimesters by type of service providers. In the ICDDR,B area, in first trimester 54% of the mothers did not receive any pre-natal care as oppose to 92% in the Government service area. The representative figures for 2<sup>nd</sup> and 3<sup>rd</sup> trimester were 18%-19% in the ICDDR,B area and 29%-40% in the Government service area. In the ICDDR,B area, seeking pre-natal care from skilled providers accounts for 45% in first trimester and 80%-81% in second and third trimesters. In this area, providers of pre-natal care are ICDDR,B sub-centres (67% and 63% in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters respectively) and ICDDR,B Matlab hospital (10% and 12% in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters respectively). In the Government service area, skilled providers of prenatal care are private clinics (6% and 11% in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters respectively), community clinics or family welfare centres (5% and 7% in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters respectively) and government hospitals (4% and 5% in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters respectively). In this area, others (that include untrained village doctors, herbalists (*kabiraj*) and homeopaths) are most common providers of pre-natal care.

**Table 4.1. Numbers and rates of pregnancy outcomes by type and area, 2005**

Type of pregnancy Outcome	Both areas		ICDDR,B area		Government service area	
	Number	Rate	Number	Rate	Number	Rate
Total pregnancies *	6012	98.0	2948	94.9	3064	101.2
Live birth preg. **	5154	857.3	2575	873.5	2579	841.7
Foetal wastage **	858	142.8	373	126.6	485	158.3
Early (miscarriage) ***	716	119.1	305	103.5	411	134.1
<i>Induced</i>	293	48.8	88	29.9	205	66.9
<i>Spontaneous</i>	423	70.4	217	73.7	206	67.2
Late (stillbirth)	142	23.6	68	23.1	74	24.2
Multiple birth preg.	68		38		30	
Multiple live birth preg.	63		36		27	
<i>Three live births</i>	0		0		0	
<i>Two live births</i>	56		33		23	
<i>One live birth</i>	7		3		4	
Stillbirth pregnancies	1		0		1	
Two stillbirths	1		0		1	
Miscarriage pregnancies	4		2		2	

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

\*\*Rate per 1,000 total pregnancies

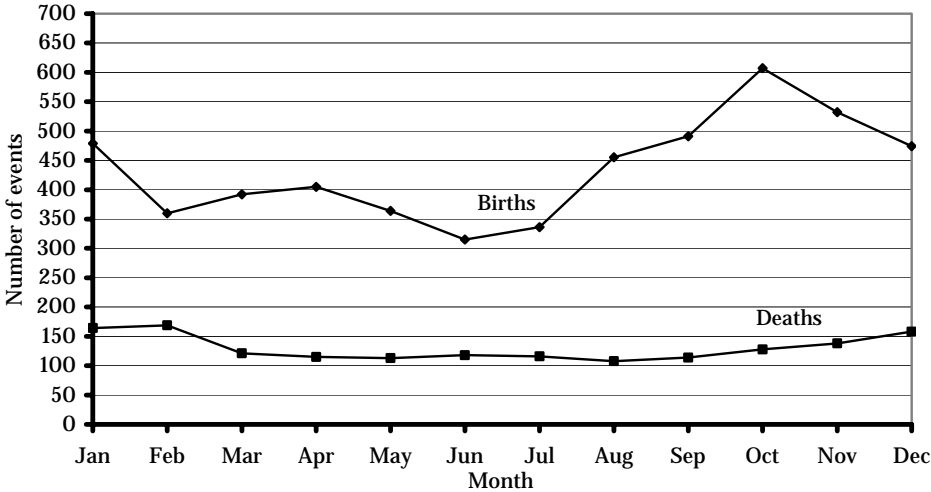
\*\*\*Less than 28 weeks

**Table 4.2. Pregnancy outcomes by month, 2005**

Month	Pregnancy outcome					No. of live born children			
	Miscarriage			Still Birth	Live birth <sup>a</sup>	Both sexes	Male	Female	Ratio
	All	Induced	Spon.						
All months	6012	293	423	142	5154	5210	2675	2535	1.06
January	547	21	32	20	474	479	244	235	1.04
February	423	21	36	10	356	360	189	171	1.11
March	487	46	33	18	390	392	208	184	1.13
April	475	22	50	1	402	405	219	186	1.18
May	442	29	43	7	363	364	181	183	0.99
June	395	35	44	8	308	315	149	166	0.90
July	402	32	32	8	330	336	190	146	1.30
August	511	21	32	7	451	455	222	233	0.95
September	545	17	33	14	481	491	253	238	1.06
October	665	14	29	18	604	607	309	298	1.04
November	586	14	28	17	527	532	285	247	1.15
December	534	21	31	14	468	474	226	248	0.91

<sup>a</sup>For any multiple birth pregnancy, the outcome is recorded as live birth, if at least one of the issue is live born

Fig. 4.1. Number of births and deaths by month, 2005



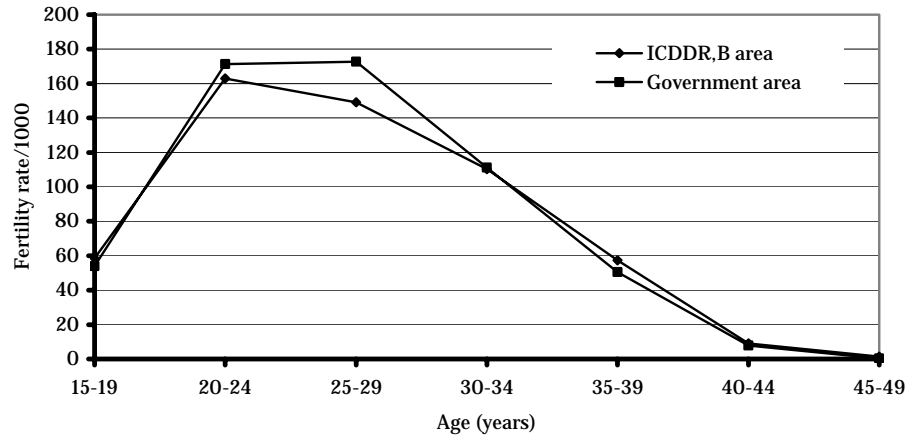
**Table 4.3. Age-specific fertility rates (per 1,000 women) and indices by area, 2005**

Age (years)	Both areas		ICDDR,B area		Government service area	
	Births	Rate	Births	Rate	Births	Rate
All ages	5210	84.9	2608	84.0	2602	85.9
15-19*	703	56.2	351	58.6	352	54.1
20-24	1696	167.1	842	162.9	854	171.4
25-29	1423	160.6	678	149.1	745	172.8
30-34	863	110.8	447	110.4	416	111.2
35-39	453	54.1	249	57.4	204	50.6
40-44	67	8.6	37	9.1	30	8.0
45-49**	5	0.9	4	1.4	1	0.3
Total fertility rate		2791		2744		2842
General fertility rate		85		84		86
Gross reproduction rate	1358			1327		1391
Net reproduction rate		1259		1236		1284

\*Births to mothers under age 15 were included in this group

\*\*Births to mothers age 50 and above were included in this group

Fig. 4.2. Age-specific fertility rates by area, 2005



**Table 4.4. Distribution of place of delivery by area, 2005**

Place of Delivery	ICDDR,B area		Government service area		Both areas	
	Number	Percent	Number	Percent	Number	Percent
Home	1275	49.5	2258	87.6	3533	68.5
ICDDR,B sub-centre	376	14.6	5	0.2	381	7.4
ICDDR,B hospital	647	25.1	13	0.5	660	12.8
Upazila health complex	32	1.2	79	3.1	111	2.2
District hospital	66	2.6	63	2.4	129	2.5
Clinic/nursing home	151	5.9	89	3.5	240	4.7
UH&FWC	4	0.2	64	2.5	68	1.3
Others	24	0.9	8	0.3	32	0.6
Total	2575	100.0	2579	100.0	5154	100.0

Data source: Birth registration form



**Table 4.5. Distribution of birth attendant by area, 2005**

Birth Attendant	ICDDR,B area		Government service area		Both areas	
	Number	Percent	Number	Percent	Number	Percent
TBA	792	30.8	2046	79.3	2838	55.1
Trained TBA	415	16.1	183	7.1	598	11.6
FWV/SHA	1029	40.0	91	3.5	1120	21.7
Nurse	49	1.9	122	4.7	171	3.3
MBBS doctor	227	8.8	130	5.0	357	6.9
Other attendant	59	2.3	4	0.2	63	1.2
None	4	0.2	3	0.1	7	0.1
Total	2575	100.0	2579	100.0	5154	100.0

FWV = Female Welfare Visitor  
SHA = Senior Health Assistant

**Table 4.6. Distribution of mode of delivery by area, 2005**

Mode of Delivery	ICDDR,B area		Government service area		Both areas	
	Number	Percent	Number	Percent	Number	Percent
Normal vaginal	2379	92.4	2467	95.7	4846	94.0
Operation (C/S)	174	6.8	108	4.2	282	5.5
Instrumental (forcep & ventose)	22	0.9	4	0.2	26	0.5
Total	2575	100.0	2579	100.0	5154	100.0

**Table 4.7. Percentage of prenatal care in different trimester and area, 2005**

Source	ICDDR,B area			Government service area		
	Ist trimester	2nd trimester	3rd trimester	Ist trimester	2nd trimester	3rd trimester
	Percent			Percent		
Trained TBA	0.27	0.19	0.23	0.00	0.04	0.16
CC/FWC/Sat. Clinic	0.31	0.89	1.01	0.70	5.12	7.44
ICDDR,B Sub-centre	38.87	67.50	63.53	0.08	1.05	0.27
Govt. Hospital/UHC	0.62	1.32	1.63	0.43	3.80	5.08
ICDDR,B Hospital	4.31	10.37	12.31	0.08	0.66	1.59
Chandpur MCWC	0.04	0.04	0.04	0.04	0.39	1.01
Private Clinic	0.43	1.05	1.51	1.24	5.78	10.93
Others	0.62	0.89	0.85	5.35	54.25	33.85
No care	54.52	17.75	18.87	92.09	28.93	39.67
No. of live birth	2575	2575	2575	2579	2579	2579

## MARRIAGE AND DIVORCE

The definitions adopted by the HDSS specify that if either partner in a marriage is resident in the HDSS area, the marriage should be registered. The number of marriages registered in 2005 was 3,152, giving a crude marriage rate of 14.0 per 1,000 population. This rate is higher than that of 2004, which was 13.4. A state law requires legal registration of marriage and divorce of Muslims and Christians (no such law exists for Hindus in Bangladesh). Table shows that 85%-91% of the Muslim marriages solemnise with Kazi( marriage register) usually in brides' home. in 2002-2005.

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 were 27.5 and 20.0 for all grooms and brides respectively; 26.7 and 19.5 for those marrying for the first time—are almost the same as those of 2004. In general there has been a long-term gradual rise in age at marriage of female in Matlab: the mean age for females has been over 18 years for every year since 1985, while prior to that date it was consistently below that age (Figure 5.2).

Table 5.3 shows the marriage rates by age and sex. Among males, the marriage rate was 39.1 per 1,000 males aged 10 years and above and for females, the rate was 34.2 per 1,000 females aged 10 years and above. For females, the highest rate was 136.4 per 1,000 in the age group of 15-19 year, while for males the highest rate was 187.2 in the age group of 25-29 years. Table 5.4 shows distribution of current marital status of the study population by age and sex in 2005. Of the total population 45.2% were currently married and it was higher for females than for males (47.4 vs 43.0%). Widows 9.3% for females and 0.7% for males. This difference may be due to remarriage, which is more common for men than for women.

Table 5.6 shows distribution of marriages by type of gifts received from father-in-law at the time of marriage in 2002-2005. Groom's party received marriage gifts from the father-in-law in two-thirds of the marriages. Gifts were received under two different contracts: there was a clear negotiation with bridal party about gift prior to the marriage or there was no such negotiation, but gift was given for daughter's happiness. The first contract can be regarded as dowry and its incidence was 64%-66%. Incidence of giving dowry did not show any declining trend in 2002-2005. Dowry was paid at the time of marriage in full for one-fifth of the marriages and partially for two-fifths of the marriages.

The number of divorces was more than 500 each year during 1978-1981. Since 1981, this figure has been less than 500. In general, the incidence of divorce in Matlab has fallen. HDSS recorded 303 divorces in 2005 (Appendix A.12) and of them, 80.7 percent were registered with courts. Table 5.5 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 43.1 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 2005 but marriages were high in month of March and low in October.

The Figure 5.2 shows the trends in mean age at first marriage and mean age at first birth in Matlab and the national level. Mean age at first marriage has increased in both areas in 1978-2005. In the ICDDR,B area the mean age at marriage has increased from 16.8 years in 1978 to 19.5 years in 2005. The respective figures for the Government area are 16.7 and 19.3 years. However, the interval between marriage and first birth has remained more or less the same. In comparison with the national level, both age at first marriage and age at first birth are much higher in Matlab (BDHS, 2004). In the national level mean age at first marriage shows an increasing trend, which reduces the interval between marriage and first birth in recent years.

**Table 5.1. Groom's age at marriage by previous marital status, 2005**

Age (years)	Previous marital status (%)				
	All grooms	Single	Married	Divorced	Widowed
	100.0	87.5	2.9	7.2	2.4
All ages	100.0	100.0	100.0	100.0	100.0
	(n=3152)	(n=2759)	(n=90)	(n=227)	(n=76)
10-14	0.1	0.1	0.0	0.0	0.0
15-19	5.2	5.7	1.1	2.2	0.0
20-24	25.8	27.5	7.8	19.8	1.3
25-29	38.4	40.5	22.2	30.0	7.9
30-34	19.7	19.2	30.0	24.2	13.2
35-39	6.4	5.3	13.3	13.7	19.7
40-44	2.5	1.3	13.3	4.8	25.0
45-49	0.8	0.3	3.3	3.1	9.2
50-54	0.4	0.1	4.4	0.9	6.6
55-59	0.4	0.0	2.2	0.9	11.8
60-64	0.1	0.0	2.2	0.0	2.6
65+	0.1	0.0	0.0	0.4	2.6
Unknown	0.0	0.0	0.0	0.0	0.0
Median age*	27.0	26.0	33.0	29.0	42.0
Mean age*	27.5	26.7	34.3	30.3	42.5
Standard deviation*	6.2	5.0	9.3	7.7	10.3

\*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, 2005**

Age (years)	Previous marital status (%)			
	All brides	Single	Divorced	Widowed
	100.0	91.2	8.2	0.7
All ages	100.0 (n=3152)	100.0 (n=2874)	100.0 (n=257)	100.0 (n=21)
10 - 14	2.8	3.0	0.4	0.0
15 - 19	52.8	56.1	19.5	19.0
20 - 24	31.6	31.1	36.6	33.3
25 - 29	9.0	8.0	19.8	19.0
30 - 34	2.5	1.5	12.8	9.5
35 - 39	0.9	0.2	7.4	4.8
40 - 44	0.3	0.0	2.3	9.5
45 - 49	0.1	0.0	0.8	4.8
50 - 54	0.0	0.0	0.4	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65+	0.0	0.0	0.0	0.0
Median age*	19.0	19.0	24.0	24.0
Mean age*	20.0	19.5	25.1	26.8
Standard deviation*	4.3	3.6	6.6	8.8

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

**Table 5.3. Marriage rates by age and sex, 2005**

Age (years)	Male			Female		
	Marriages	Population	Rate*	Marriages	Population	Rate*
All ages (10+ yrs)	3152	80702	39.1	3152	92153	34.2
10-14	2	12536	0.2	88	12325	7.1
15	4	2577	1.6	174	2817	61.8
16	12	2433	4.9	284	2539	111.9
17	32	2351	13.6	388	2461	157.7
18	40	2301	17.4	414	2465	168.0
19	75	1852	40.5	405	2215	182.8
20-24	813	7855	103.5	996	10152	98.1
25-29	1211	6469	187.2	285	8859	32.2
30-34	622	6216	100.1	78	7791	10.0
35-39	203	6257	32.4	27	8372	3.2
40-44	78	6905	11.3	8	7830	1.0
45+	59	22950	2.6	5	24327	0.2
Unknown	1	0	0	0	0	0

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

**Table 5.4. Distribution of current marital status (%) of the study population by age and sex, 2005**

Age (years)	Male					Female				
	NM	PM	WID	DIV	Total	NM	PM	WID	DIV	Total
0-4	100.0	0.0	0.0	0.0	13728	100.0	0.0	0.0	0.0	13314
5-9	100.0	0.0	0.0	0.0	12732	100.0	0.0	0.0	0.0	12223
10-14	100.0	0.0	0.0	0.0	12536	99.1	0.8	0.0	0.0	12325
15-19	97.8	2.1	0.0	0.0	11409	73.1	26.3	0.0	0.5	12500
20-24	77.5	22.1	0.0	0.3	7855	23.4	75.3	0.1	1.2	10152
25-29	40.9	58.5	0.0	0.6	6469	6.1	92.2	0.5	1.2	8859
30-34	13.0	86.4	0.0	0.7	6216	1.7	96.0	1.4	1.0	7791
35-39	3.2	96.3	0.0	0.4	6257	0.6	95.3	2.8	1.3	8372
40-44	0.9	98.7	0.0	0.4	6905	0.3	91.6	6.3	1.7	7830
45-49	0.6	99.0	0.3	0.2	6096	0.2	85.6	12.3	2.0	5829
50-54	0.2	98.8	0.6	0.4	4160	0.1	76.0	22.2	1.6	4281
55-59	0.2	98.2	1.4	0.2	3340	0.1	62.5	36.0	1.5	3858
60-64	0.2	97.6	1.9	0.3	2998	0.0	48.5	50.3	1.1	3861
65-69	0.1	95.2	4.4	0.3	2467	0.1	32.0	67.4	0.5	2729
70-74	0.1	92.0	7.7	0.2	1925	0.0	18.2	81.3	0.5	1981
75-79	0.1	86.6	13.1	0.2	1106	0.1	10.3	89.2	0.5	1053
80-84	0.2	80.0	19.4	0.4	551	0.0	6.0	93.6	0.4	481
85+	0.0	64.2	35.5	0.3	307	0.0	1.2	98.4	0.4	254
All (%)	56.1	43.0	0.7	0.2	100.0	42.5	47.4	9.3	0.8	100.0
Total population	60027	46040	769	221	107057	50028	55740	10988	937	117693

NM=Never married, PM=Presently married, WID=Widowed, DIV=Divorced



**Table 5.5. Mean and median duration (months) of all marriages at divorce by age and sex, 2005**

Age (years) at divorce	Male				Female			
	No.	Mean	Median	SD	No.	Mean	Median	SD
< 20	14	13.3	13.5	8.2	93	18.9	11.0	31.8
20 – 24	71	25.0	17.0	23.1	116	29.8	27.0	20.5
25 – 29	77	30.8	23.0	36.2	44	53.6	46.0	36.8
30 – 34	58	41.7	35.0	39.4	24	73.6	53.5	61.9
35 – 39	38	54.8	36.5	52.1	14	129.4	124.5	93.2
40 – 49	30	87.7	60.0	83.9	6	131.0	132.0	77.1
50+	14	109.3	59.5	129.1	6	187.8	132.0	150.7
Unknown	1	72.0	72.0	0.0	0	0.0	0.0	0.0
All ages	303	43.1	25.0	55.3	303	43.1	25.0	55.3

**Table 5.6. Marriages by type of gifts receipt from father-in-law, 2002-2005**

Type of gift received	Year			
	2002	2003	2004	2005
None	32.9	32.9	35.0	32.7
Gift without prior negotiation	1.9	2.3	1.5	0.8
Gift after prior negotiation	65.2	64.8	63.5	66.5
<b>Gift payment</b>				
Full	NA	NA	20.2	19.5
Partial	NA	NA	39.7	39.9
Not yet paid*	NA	NA	3.6	7.1

NA=Not available

\*Was agreed at the time of marriage but did not pay as yet

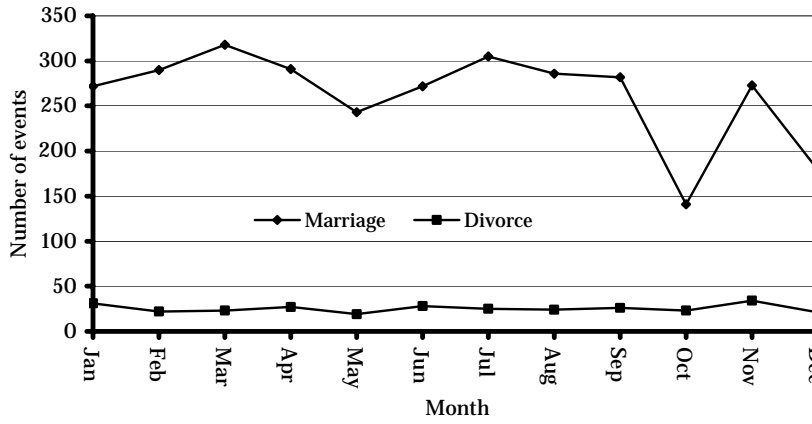
**Table 5.7. Registration status of Muslim marriages, 2000-2005**

Year	Registered with kazi		Not registered	
	Number	Percent	Number	Percent
2000	2457	85.0	434	15.0
2001	2486	86.0	348	12.3
2002	2620	90.6	376	12.6
2003	2469	85.4	359	12.7
2004	2483	85.9	224	8.3
2005	2563	88.7	251	8.9

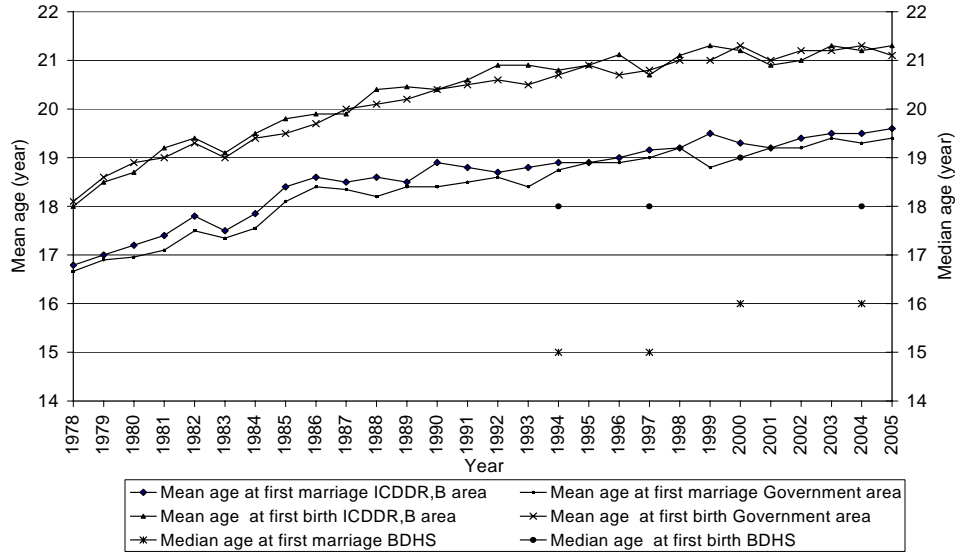
**Table 5.8. Registration status of divorces of Muslim marriages, 2000-2005**

Year	Registered with kazi		Not registered	
	Number	Percent	Number	Percent
2000	195	67.2	95	32.8
2001	179	67.8	85	32.2
2002	243	74.8	82	25.2
2003	239	76.1	75	23.9
2004	230	82.4	49	17.6
2005	243	80.7	58	19.3

**Fig. 5.1. Marriages and divorces by month, 2005**



**Fig. 5.2. Trends in age at first marriage and first birth in Matlab (1978-2005) and Bangladesh**



## MIGRATION

An out-migrant is defined as a person originally listed on a HDSS census as a resident, or a person who became a resident 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.

During 2005, 8020 persons (3648 males and 4372 females) moved into the HDSS area, which represented an annual average in-migration of 3.6 percent both for males and females of the mid-year population. On the other hand 11981 persons (5967 males and 6014 females) left the HDSS area or on an average 5.3 percent for both males and females of the mid-year population (Appendix A.13), giving a crude rate of in-migration of 35.7 per 1000 population, and out-migration rate of 53.3 per 1000 population. The highest incidence of in-migration for males was about 7 percent in the age group 25-29 and for females was 8 percent in the age group 20-24. More males out-migrated than females in the age group (24-64). The consequence of the out migration of more males than females, particularly to urban areas is that the sex ratio of the population of the area has decreased from 103 in 1982 to 91 males per 100 females in 2005. More out migration of working age (15-59) group males to females (60 per 100 females in 1982 to 85 per 100 females in 2005) also caused a decline in the sex ratio over the period.

Both in-migration and out-migration rates decreased over those of 2004. The net loss of migrants was 17.6 per 1,000 in 2005, whereas it was 15.8 per 1,000 in 2004. Table 6.1 presents the age-specific migration rates, which are illustrated in Figure 6.1. The tables and figures show the bimodal 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, females for marriage and males for seeking jobs. 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, 2005  
(per 1,000 population)**

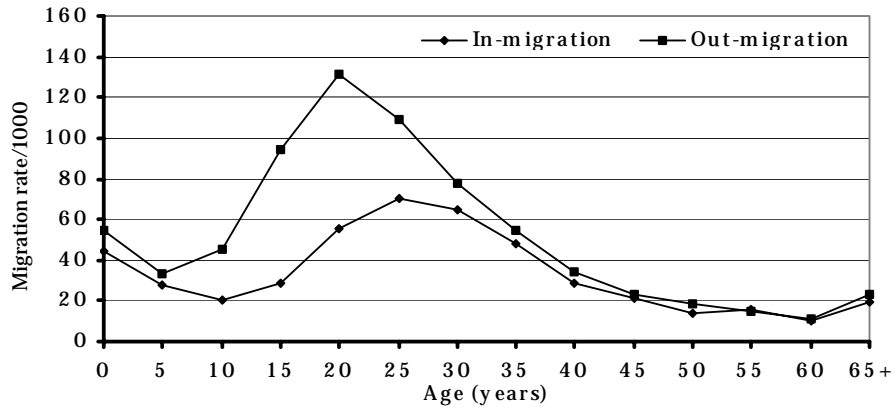
Age (years)	Both sexes		Male		Female	
	In	Out	In	Out	In	Out
All ages	35.7	53.3	34.1	55.7	37.1	51.1
0 – 4	44.8	54.1	44.1	54.5	45.5	53.8
5 – 9	27.6	34.5	27.5	33.6	27.8	35.3
10-14	22.5	40.9	20.6	45.5	24.4	36.3
15-19	57.4	105.3	29.1	94.0	83.2	115.6
20-24	71.2	126.3	55.4	130.9	83.4	122.8
25-29	64.4	90.4	70.0	109.0	60.3	76.9
30-34	45.0	58.3	64.7	77.7	29.3	42.7
35-39	30.4	38.0	47.9	54.2	17.3	25.9
40-44	19.1	26.9	28.7	34.5	10.6	20.2
45-49	15.1	18.0	20.8	22.8	9.1	13.0
50-54	11.3	14.9	14.2	18.3	8.4	11.7
55-59	11.0	12.2	15.3	14.7	7.3	10.1
60-64	10.1	11.8	10.3	10.7	9.8	12.7
65+	26.9	35.0	19.1	23.5	34.1	45.4

**Table 6.2. In- and out-migration by sex and month, 2005**

Month	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All months	8020	3648	4372	11981	5967	6014
January	1372	647	725	1541	745	796
February	794	356	438	1153	602	551
March	617	265	352	1040	530	510
April	525	222	303	845	413	432
May	516	236	280	786	372	414
June	535	238	297	930	476	454
July	459	196	263	741	365	376
August	484	231	253	924	458	466
September	707	325	382	1133	542	591
October	741	340	401	1065	577	488
November	794	385	409	1058	514	544
December	476	207	269	765	373	392

Fig. 6.1. Rates of in- and out-migration by sex and age, 2005

(a) Male



(b) Female

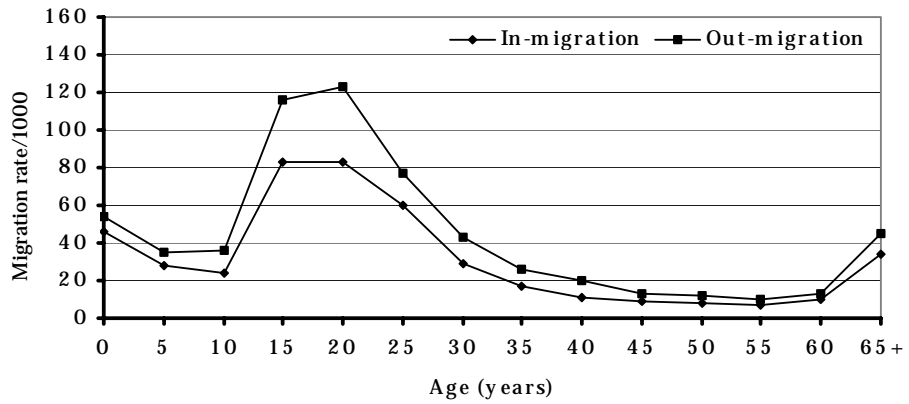
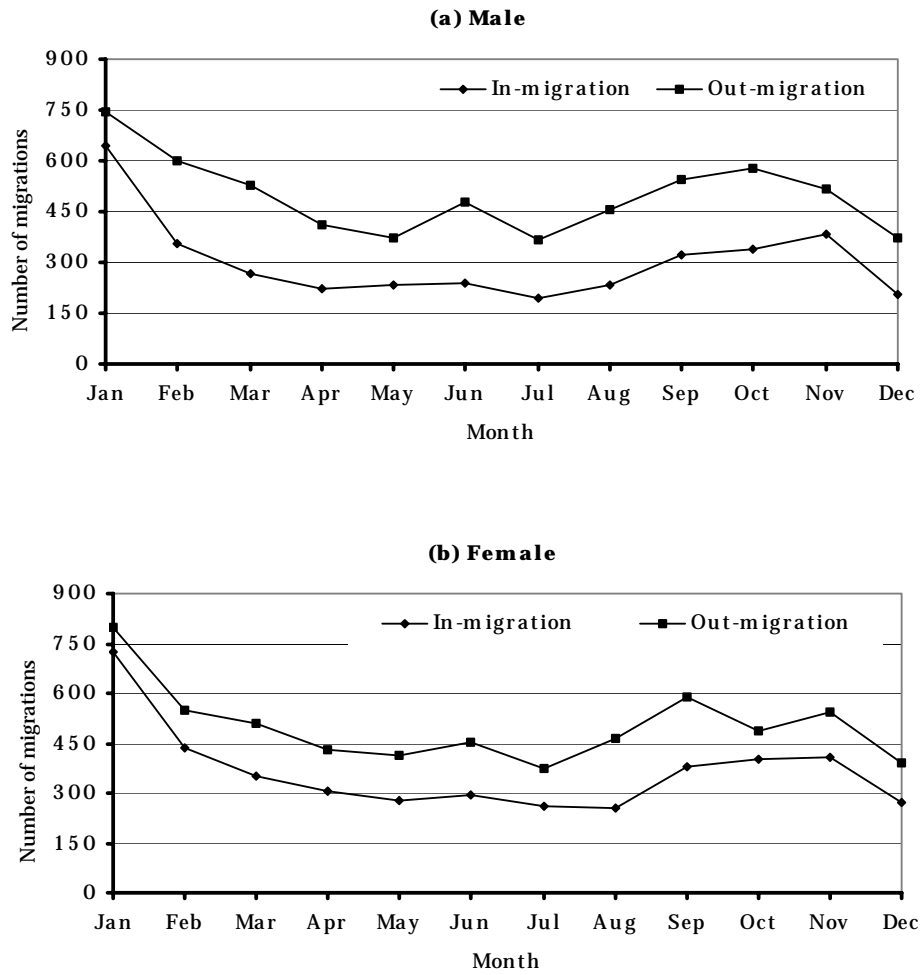


Fig. 6.2. Number of in- and out-migrations by sex and month, 2005





## FERTILITY REGULATION

In the ICDDR,B area, the CHRWs have been providing maternal and child health and family planning (MCH-FP) services including EPI from fixed-sites (usually in one room of their houses) since 2001 and maintain records of MCH-FP services they provide. They also refer the patients to ICDDR,B sub-centres. In the Government service area, services are provided from the Union Health and Family Welfare Centre and 8 Satellite Clinics monthly, and from 24 EPI Centres for vaccinations of children, adolescents, and women of reproductive ages.

The CHRWs in both ICDDR,B and Government service 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; 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 in the ICDDR,B area than in the Government service area.

In 2005 contraceptive use rate was 71.4% in the ICDDR,B area and 47.4% in the Government service area (Table 7.1). Contraceptive use rate in the Government service area was much lower than the national level use rate of 58.1% recorded in 2004. Table 7.2 shows the difference in contraceptive method-mix between the ICDDR,B and Government service areas in 2005 and the national-level estimates for selected years. At the national level and in the Government service area, the 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. Changes in the method-mix in the ICDDR,B area during 1991-2005 are shown in Table 7.3. The use of pill, and condom has increased with decreases in use of tubectomy and injectables over the years. The contraceptive-use rate increases with the increase in women's age in the ICDDR,B area (Table 7.4). In the ICDDR,B area, women aged 25 years and over are more likely to use injectables, undergo tubectomy or vasectomy, and adopt traditional methods than women aged less than 25 years, whereas in the Government service area (Table 7.5), the pill is the most popular method in all age groups except age group 45 years and over. Tubectomy and traditional methods are more popular in the age group 40 years and over.

**Table 7.1. Contraceptive use rate (%) of currently married women aged 15-49 years by area, 1982-2005**

Year	Matlab		National**
	ICDDR,B area	Government service 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	-	-
2001	69.7	-	50.8
2002	70.5	51.4	53.4
2003	69.6	47.2	-
2004	70.4	48.1	58.1
2005	71.4	47.4	-

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

HDSS census 1996; and HDSS 2002, 2003, 2004 and 2005

\*\*Sources: Contraceptive prevalence survey (CPS: 1983, 1986h fertility survey (BFS: 1989), Bangladesh demographic and health survey (BDHS: 1993/94, 1996/97, 1999/2000, 2004), Bangladesh maternal health services and maternal mortality survey (BMMS: 2001), and Bangladesh Bureau of Statistics (BBS)

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

Method	Matlab		BMMS 2001	BDHS 2004
	ICDDR,B area 2005	Government service area 2005		
Pill	33.0	48.3	51.2	45.1
Condom	10.8	4.2	6.4	7.2
Injectables	41.3	24.4	15.7	16.7
IUD	2.6	0.8	1.6	1.0
Tubectomy	7.4	11.5	10.6	9.0
Vasectomy	1.3	0.3	1.0	1.0
Norplant	0.3	1.8	1.0	1.4
Others*	3.3	8.7	12.5	18.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

BDHS=Bangladesh demographic and health survey

BMMS=Bangladesh maternal health services and maternal mortality survey

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

**Table 7.3. Contraceptive method mix\* (%) in ICDDR,B area, 1991-2005**

Method	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Pill	26.1	27.3	28.1	25.7	25.8	25.4	26.0	29.7	28.7	30.6	31.9	33.3	33.9	32.6	34.1
Condom	2.4	2.7	3.2	3.9	4.7	6.2	7.7	7.1	7.7	9.5	10.8	11.1	11.0	10.9	11.2
Injectables	51.3	51.4	50.2	52.9	54.3	54.4	53.1	50.0	50.4	47.8	45.7	44.5	44.4	45.2	42.7
IUD	4.2	3.6	3.6	3.1	2.7	2.2	1.8	2.3	3.3	2.4	1.9	1.8	1.9	2.4	2.6
Tubectomy	15.1	14.5	14.5	14.0	12.2	11.5	11.1	10.6	9.8	9.1	8.6	7.7	7.2	7.4	7.6
Vasectomy	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.6	1.1	1.5	1.5	1.4	1.4
Foam	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norplant	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.1
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\*Currently married women using any modern method

**Table 7.4. Method specific contraceptive use rate among currently married women by age in ICDDR,B area, 2005**

Age (years)	Not using	Any method used	Method used								No. of eligible women
			Pill	IUD	Injectables	Condom	Tubectomy	Vasectomy	Others*	Norplant	
Less 20	50.0	50.0	25.2	2.8	14.4	7.2	0.0	0.0	0.4	0.1	1322
20 - 24	42.4	57.6	24.8	3.6	23.0	5.8	0.0	0.0	0.3	0.1	3546
25 - 29	36.3	63.7	23.2	2.3	29.5	7.4	0.4	0.1	0.6	0.2	4029
30 - 34	28.2	71.8	24.2	1.6	34.2	7.3	2.7	0.6	0.7	0.3	3835
35 - 39	21.0	79.0	23.7	1.3	35.0	9.1	6.2	1.7	1.7	0.4	3989
40 - 44	16.2	83.8	23.4	0.9	32.0	9.0	10.4	2.5	5.5	0.2	3463
45 - 49	13.3	86.7	20.2	0.5	27.2	8.1	20.0	1.5	9.1	0.0	2236
Total	28.6	71.4	23.6	1.8	29.5	7.7	5.3	1.0	2.3	0.2	22420

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

**Table 7.5. Method specific contraceptive use rate among currently married women by age in Government service area, 2005**

Age (years)	Not using	Any method used	Method used								No. of eligible women
			Pill	IUD	Injectables	Condom	Tubectomy	Vasectomy	Others*	Norplant	
Less 20	77.1	22.9	14.3	0.2	3.2	4.2	0.0	0.0	0.9	0.0	1295
20 - 24	66.0	34.0	22.9	0.4	6.7	2.3	0.0	0.0	0.9	0.0	3478
25 - 29	59.5	40.5	24.7	0.4	10.8	1.6	0.5	0.0	1.8	0.0	3940
30 - 34	48.6	51.4	29.0	0.5	14.6	1.5	2.4	0.1	2.3	0.0	3505
35 - 39	40.5	59.5	25.9	0.3	17.8	2.3	6.4	0.1	5.2	0.0	3750
40 - 44	39.5	60.5	20.9	0.3	13.1	2.1	13.0	0.5	9.7	0.0	3158
45 - 49	50.1	49.9	11.6	0.4	7.4	1.0	20.0	0.5	8.9	0.0	1952
Total	52.6	47.4	22.9	0.4	11.6	2.0	5.4	0.2	4.1	0.0	21078

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

**USE OF MATERNAL AND CHILD HEALTH SERVICES****Immunization**

The Community Health Research Workers (CHRWs) started providing tetanus toxoid (TT) vaccination to all women of reproductive age in blocks A&C in 1981 and in blocks B&D in 1985 of the ICDDR,B area (see Figure 1 for map of Matlab ICDDR,B and Government services areas). Measles vaccination to all children started in blocks A&C and blocks B&D in 1982 and 1985, respectively. Vaccinations for DPT and polio started in 1986 in all four blocks (Appendix E). From the beginning of these interventions, vaccination records have been maintained by CHRWs in the ICDDR,B area. The Record Keeping System (RKS) was started in ICDDR,B and Government services areas in 1977 and 2000, respectively. In contrast, the CHRWs in the Government service 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 in Table 8.1 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 area.

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 in the ICDDR,B area from 1987 to 2005 and in the Government service area from 2000 to 2005. In 2005, the coverage of TT with at least two doses was 98.7% in the ICDDR,B area and 89.2% in the Government service area. According to the Bangladesh Demographic and Health Survey (BDHS) the national coverage of TT with two or more doses in 2004 was 64%. In the ICDDR,B area, in 2005, immunization of children was universal: 99.6% received BCG, 99.0% received three doses of DPT and polio, and 97.8% received measles vaccines. These rates are higher than the estimates of 97.9% for BCG, 94.6% for DPT and polio and 86.0% for measles in the Government service area. The BDHS estimates of immunization coverage were 93% for BCG, 81% for DPT, 82% for polio, and 76% for measles in 2004.

## **Child Morbidity and Health Service Use**

The CHRWs in the ICDDR,B area have long experience in recording child health information. For example, 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 monthly visit. An episode was termed bloody diarrhoea if blood was present in the stool, otherwise it was termed watery diarrhoea. For recording pneumonia, they asked mothers if their children had symptoms of pneumonia, such as 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 week. An episode of pneumonia was termed severe if chest indrawing was present in addition to other symptoms, otherwise it was termed simply pneumonia.

Oral rehydration solution (ORS) is the most simple and inexpensive tool to combat dehydration caused by diarrhoea. The CHRWs in the ICDDR,B area, during their home visits, advise caretakers to get ORS packets from *bari* mothers (who act as ORS depot holders) free of charge if they encounter any diarrhoea patients, advise to get treatment for minor illnesses of women and children from fixed site clinics, and refer severe illnesses to the ICDDR,B sub-centres or hospital in Matlab. In the Government service area, CHRWs deliver ORS packets as needed during their routine household visits. 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 do 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 record the most recent treatment taken, particularly type of medicine used and type of health providers consulted. As mentioned before, treatment taken against pneumonia may also be under-estimated because of right-censoring (home visit before use of health service).

### **(a) Prevalence of Diarrhoea and Use of ORS and Health Providers**

Table 8.2 shows the prevalence of diarrhoea in the past 24 hours per 100 children in the ICDDR,B and Government service areas. The overall prevalence of diarrhoea was 2.4% and 1.9% in the ICDDR,B area and in the Government service area respectively. The prevalence of diarrhoea was highest in the age group of 6-11 months and higher for boys than for girls in both the areas. BDHS (2004) reports that two-weekly prevalence of diarrhoea in under-five children was 7.5%, and it was higher for boys than for girls and highest in the age group 12-23 months.



Table 8.3 shows that overall use of ORS for children having watery or bloody diarrhoea in the preceding 24 hours is higher in the ICDDR,B area than in the Government service area. The longer the duration of episodes, the higher was 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 is highly related to the use of ORS to manage diarrhoea.

There is a marked difference in use of health providers for treating diarrhoea between the ICDDR,B and the Government service areas (Table 8.4). In both areas, parents adopt home-treatment at a higher rate for watery diarrhoea than for bloody diarrhoea, and consult untrained village doctors more often for bloody diarrhoea than for watery diarrhoea for treatment. They consult traditional healers and untrained village doctors, who are available in most villages around the clock, less frequently for both watery and bloody diarrhoea in the ICDDR,B area than in the Government service area. They consult ICDDR,B 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 service area. Young children are taken to health providers at a higher rate than older children in the Government service area, but not in the ICDDR,B area. The difference in management of diarrhoea may be the impact of the provision of the better quality health services in the ICDDR,B area compared with the Government service area.

#### **(b) Prevalence of Pneumonia and Service Uptake**

Table 8.5 shows the weekly prevalence of pneumonia per 100 children by illness and child's characteristics in 2005 in the ICDDR,B and the Government service areas. The prevalence was 1.1% in the ICDDR,B area and 0.9% in the Government service area. The prevalence was higher for children aged less than 24 months than for children aged 24-59 months. Also it was higher for boys than for girls, but similar across mothers' education groups. Compared to the two-weekly prevalence (20.8%) of pneumonia in children in BDHS 2004, weekly prevalence of pneumonia in HDSS area was much lower. One of the possible reasons for serious underestimation in HDSS is asking mothers about pneumonia compared to the BDHS 2004 which asks for symptoms of pneumonia prevalent in the past two weeks.

Table 8.6 shows the type of medicine used to combat pneumonia in the ICDDR,B and the Government service areas by illness and child's characteristics. Antibiotics are more frequently used in the ICDDR,B area than in the Government service area, and they are more frequently used for younger children than older children in the ICDDR,B area only. Boys with pneumonia are treated by antibiotics at a higher rate than girls with pneumonia in both the areas. Mothers' with secondary level education more frequently use antibiotic in both the areas.

Table 8.7 shows the treatment pattern of pneumonia by illness and child's characteristics in the ICDDR,B and the Government service areas. The provision of high quality services and severity of illness trigger choice of health providers. In the ICDDR,B area, pneumonia episodes are treated more often by field workers (mostly ICDDR,B CHRWs) followed by village doctors and in the Government service area treated by village doctors, followed by home treatment. Severe pneumonia episodes are particularly treated in hospitals and by untrained village doctors in both the areas. The results suggest that parents bypassed field workers for well trained providers for severe pneumonia.

The age of the child also influences choice of treatment provider to combat pneumonia. Infants with pneumonia are more likely to be taken to hospitals or health centres than their older counterparts. Sex of the child and mothers' education are not highly related to choice of treatment providers for children with pneumonia.

**Table 8.1. Immunization coverage (%) among pregnant mothers and children aged 12-23 months in ICDDR,B area, 1987-2005 and Government service area, 2000-2005**

Year	TT* coverage during last pregnancy of women giving live birth		Vaccination coverage rate of children aged 12-23 months							
	ICDDR,B area	Government area	BCG (1 dose)		DPT and Polio (3 doses)		Measles (1 dose)		All**	
			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
2002	97.1	60.7	99.3	96.7	98.5	90.6	95.7	84.5	95.4	83.1
2003	98.6	78.1	99.2	97.4	98.5	92.0	95.9	84.3	95.6	83.2
2004	98.4	88.8	99.3	97.6	98.2	93.1	96.6	86.2	95.9	85.3
2005	98.7	89.2	99.6	97.9	99.0	94.6	97.8	86.0	97.3	84.9

\*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 service area due to not checking of vaccination cards

**Table 8.2. Prevalence\* (%) of childhood diarrhoea in past 24 hours by child's Characteristics and area, 2005**

Characteristics	Watery diarrhoea		Bloody diarrhoea		Either		BDHS** 2004
	ICDDR,B area	Government area	ICDDR,B area	Government area	ICDDR,B area	Government area	
Child's age (months)							
<6	1.4	0.9	0.1	0.1	1.5	1.0	3.9
6-11	4.0	3.0	0.2	0.4	4.3	3.4	12.1
12-23	3.1	2.2	0.2	0.3	3.3	2.6	12.5
24-35	2.2	1.6	0.3	0.4	2.5	2.0	7.7
36-47	1.6	1.4	0.2	0.2	1.8	1.6	4.9
48-59	1.3	1.0	0.2	0.1	1.4	1.1	4.8
Sex							
Male	2.4	1.7	0.2	0.3	2.6	1.9	7.7
Female	2.0	1.6	0.2	0.2	2.2	1.8	7.3
Mother's education							
No education	2.1	1.5	0.2	0.2	2.3	1.8	7.6
Primary incomplete	2.3	1.7	0.3	0.3	2.6	2.0	9.0
Primary complete	2.4	1.9	0.2	0.2	2.6	2.2	6.6
Secondary+	2.1	1.6	0.2	0.3	2.3	1.8	6.5
All (%)	2.2	1.6	0.2	0.3	2.4	1.9	7.5
#diarrhoea episodes***	3230	2450	308	379	3538	2829	486

\*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 8.3. Distribution (%) of under five children who had diarrhoea in last 24 hours by use of ORS\* and IV-saline, child's characteristics, and area, 2005**

Illness and child's characteristics	ICDDR,B area				Government area			
	No ORS	Home made ORS	Packet ORS	IV-saline	No ORS	Home made ORS	Packet ORS	IV-saline
Types of diarrhoea								
Watery	56.6	0.6	42.7	0.1	55.9	4.2	39.9	0.1
Bloody	51.0	1.0	47.7	0.3	72.3	6.9	20.6	0.3
Duration of diarrhoea (days)								
1-3	63.3	0.5	36.1	0.1	60.3	4.3	35.4	0.0
4-6	48.0	0.8	51.1	0.1	54.7	5.5	39.4	0.4
7+	43.3	1.0	55.4	0.3	50.7	4.5	44.5	0.3
Child's age (months)								
<6	75.1	0.0	23.9	0.9	74.3	0.7	25.0	0.0
6-11	56.5	0.6	42.7	0.2	56.1	2.4	41.4	0.0
12-23	55.8	0.7	43.5	0.0	56.0	4.4	39.3	0.4
24-35	52.9	0.7	46.3	0.1	59.4	4.8	35.8	0.0
36-47	56.6	0.7	42.5	0.2	59.1	6.8	34.2	0.0
48-59	51.5	0.7	47.8	0.0	55.4	5.6	39.0	0.0
Sex								
Male	55.0	0.5	44.3	0.3	57.4	4.0	38.5	0.1
Female	57.4	0.9	41.7	0.0	58.9	5.1	35.9	0.1
Mother's education								
No education	57.4	0.8	41.7	0.2	58.7	5.0	35.9	0.4
Primary incomplete	57.7	0.0	42.3	0.0	57.3	5.4	37.3	0.0
Primary complete	51.5	0.8	47.5	0.2	59.6	4.0	36.2	0.2
Secondary+	56.8	0.8	42.3	0.2	57.4	4.2	38.4	0.0
All (%)	56.1	0.7	43.1	0.1	58.1	4.5	37.3	0.1
#diarrhoea episodes**	1985	23	1525	5	1643	128	1055	3

\*Oral rehydration solution (ORS) used during illness

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

**Table 8.4. Distribution (%) of treatment of diarrhoea episodes among under five children by type of treatment providers, illness and child's characteristics, and area, 2005**

Illness and characteristics	ICDDR,B area					Government service area				
	Home treatment	Traditional healer	Village doctor	Hospital	CHRW	Home treatment	Traditional healer	Village doctor	Hospital	Govt. Health Worker
Types of diarrhoea										
Watery	47.3	1.8	18.7	1.5	30.7	43.1	2.7	22.5	2.8	29.0
Bloody	26.9	2.9	39.6	1.6	28.9	27.2	5.3	51.2	2.4	14.0
Child's age (months)										
<6	50.2	8.5	27.2	1.4	12.7	39.3	8.6	30.7	0.0	21.4
6-11	42.9	2.8	24.3	2.8	27.1	33.7	4.3	31.2	4.3	26.5
12-23	46.0	1.6	20.2	1.1	31.1	39.4	3.3	27.4	2.9	27.0
24-35	43.3	1.3	22.5	1.3	31.6	42.1	2.0	27.2	2.5	26.2
36-47	48.3	0.6	17.1	1.3	32.7	45.7	2.5	21.4	2.3	28.2
48-59	46.1	0.5	13.2	1.0	39.2	46.3	0.8	20.9	2.3	29.7
Sex										
Male	44.2	2.2	21.4	1.5	30.7	39.0	2.9	27.1	3.3	27.7
Female	47.1	1.5	19.5	1.5	30.3	43.1	3.1	25.5	2.1	26.2
Mother's education										
No education	48.2	1.2	18.6	1.7	30.3	41.9	3.9	21.6	2.4	30.2
Primary incomplete	48.5	1.5	17.6	0.5	31.8	39.8	2.3	24.6	2.3	31.1
Primary complete	43.4	3.7	15.7	1.0	36.3	44.9	2.9	22.3	2.9	27.0
Secondary+	44.2	1.6	24.2	2.0	28.0	39.2	3.0	30.8	3.0	24.1
All (%)	45.5	1.9	20.5	1.5	30.6	40.9	3.0	26.3	2.7	27.0
#diarrhoea episodes*	1610	67	727	53	1081	1158	85	745	77	764

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

**Table 8.5. Prevalence\* (%) of pneumonia among under five children by child's characteristics and area, 2005**

Characteristics	Pneumonia		Severe pneumonia		Either		BDHS** 2004
	ICDDR,B area	Government area	ICDDR,B area	Government area	ICDDR,B area	Government area	
Child's age (months)							
<6	0.6	1.1	0.1	1.3	0.7	2.4	28.3
6-11	1.6	1.5	0.1	0.3	1.7	1.8	29.5
12-23	1.7	0.9	0.1	0.2	1.8	1.1	24.9
24-35	1.2	0.4	0.1	0.1	1.2	0.6	20.0
36-47	0.7	0.3	0.1	0.0	0.8	0.3	15.7
48-59	0.5	0.2	0.1	0.0	0.6	0.2	14.9
Sex							
Male	1.2	0.7	0.1	0.3	1.3	1.0	22.0
Female	0.9	0.5	0.0	0.2	1.0	0.7	19.6
Mother's education							
No education	1.2	0.5	0.1	0.2	1.3	0.7	21.0
Primary incomplete	1.2	0.7	0.1	0.3	1.3	0.9	25.2
Primary complete	1.1	0.7	0.1	0.3	1.2	0.9	18.9
Secondary+	0.9	0.6	0.1	0.2	1.0	0.8	18.0
All (%)	1.0	0.6	0.1	0.2	1.1	0.9	20.8
#pneumonia episodes***	1545	917	135	360	1680	1277	1350

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

\*\*Prevalence in previous two-weeks

\*\*\*Prevalence in previous one-week

BDHS=Bangladesh demographic and health survey

**Table 8.6. Distribution (%) of childhood pneumonia by type of medicine used, illness and child's characteristics, and area, 2005**

Illness and characteristics	ICDDR,B area			Government service area		
	Antibiotics	Other drugs	No drugs	Antibiotics	Other drugs	No drug
Types of pneumonia						
Mild	83.0	5.0	12.0	62.7	15.3	22.0
Severe	85.9	6.7	7.4	78.1	13.3	8.6
Child's age (months)						
<6	92.3	2.9	4.8	69.5	14.8	15.7
6-11	90.6	3.9	5.5	74.2	13.1	12.7
12-23	86.5	4.2	9.3	69.3	13.1	17.6
24-35	81.9	4.6	13.5	63.7	18.1	18.1
36-47	72.5	7.7	19.7	43.7	18.4	37.9
48-59	72.9	9.0	18.1	57.9	14.0	28.1
Sex						
Male	85.7	4.4	9.9	69.9	13.9	16.2
Female	80.0	6.1	14.0	63.2	15.8	21.0
Mother's education						
No education	80.5	5.7	13.8	66.5	13.5	20.0
Primary incomplete	78.4	5.3	16.3	56.6	19.3	24.1
Primary complete	82.0	4.5	13.5	69.5	12.7	17.8
Secondary+	87.0	5.0	8.0	70.3	14.2	15.4
All (%)	83.2	5.1	11.7	67.0	14.7	18.2
#pneumonia episodes*	1397	86	196	856	188	233

\*Prevalence in previous one-week



**Table 8.7. Distribution (%) of pneumonia episodes among under five children by type of treatment providers, illness and child's characteristics, and area, 2005**

Illness and characteristics	ICDDR,B area					Government service area				
	Home treatment	Traditional healer	Village doctor	Hospital	CHRW	Home treatment	Traditional healer	Village doctor	Hospital	Govt. Health Worker
Types of pneumonia										
Mild	9.9	1.1	22.1	2.0	64.9	19.3	4.7	55.0	8.6	12.4
Severe	5.2	2.2	46.7	34.8	11.1	7.8	8.1	56.9	13.6	13.6
Child's age (months)										
<6	2.9	2.9	18.3	10.6	65.4	12.5	12.2	58.4	9.9	7.0
6-11	4.3	0.8	22.0	5.5	67.5	10.5	4.1	57.7	10.1	17.6
12-23	7.8	1.1	20.7	5.3	65.2	15.8	2.1	56.4	11.0	14.6
24-35	10.8	1.3	24.3	3.0	60.6	17.5	3.5	53.2	9.4	16.4
36-47	17.2	1.3	31.3	3.0	47.2	34.0	3.9	42.7	7.8	11.7
48-59	13.9	0.6	31.3	3.6	50.6	28.1	3.5	52.6	10.5	5.3
Sex										
Male	7.9	0.9	25.3	6.0	59.8	14.3	5.4	55.7	10.8	13.8
Female	11.6	1.5	22.4	2.9	61.6	18.4	5.9	55.2	9.0	11.4
Mother's education										
No education	10.6	1.3	19.0	4.2	64.9	17.4	7.4	51.3	13.0	10.9
Primary incomplete	14.2	1.1	22.0	2.8	59.9	22.8	4.8	48.2	9.6	14.5
Primary complete	11.4	1.0	22.8	5.5	59.3	15.7	4.7	57.2	9.3	13.1
Secondary+	6.4	1.2	28.1	5.3	59.1	13.0	5.7	59.3	9.3	12.7
All (%)	9.5	1.2	24.0	4.6	60.6	16.1	5.6	55.5	10.0	12.8
#pneumonia episodes*	160	20	404	78	1018	205	72	709	128	163

\*Prevalence in previous one-week

### Special Supplement on SES-2005

#### SOCIO-ECONOMIC CHANGES IN MATLAB OVER THE LAST 31 YEARS

##### INTRODUCTION

The Government of Bangladesh since its independence has introduced different development programs and policies related to population, health and social development. In the economic sector, besides government initiatives, a rapid change is evident in the Garment Sector, which generates employment prospects for rural young adults. A rapid expansion of micro-credit programs may improve the socio-economic status of the rural poor. Success in population reduction may change the economic burden of the population. Scholarships for secondary education for girls since 1994, and food for primary education for the poor since 2002, may increase the level of school enrolment, reduce disparities between the poor and rich, and between boys and girls. The Matlab Health and Demographic Surveillance (HDSS) has collected socio-economic information through four successive socio-economic censuses (1974, 1982, 1996, 2005) and provides an excellent opportunity to examine the changes that have occurred during this period. Thus, this chapter will highlight the changes in the field of economic and social development. More specifically in the field of economic burden of the population, education, employment, household assets, water use for drinking and micro-credit expansion. In addition, several new types of information like major sources of household income and hunger and food shortage that were collected in the recent socio-economic status census 2005 (SES-2005) are also included in the analysis.

##### 1. Economic Burden of the Population

A reduction in fertility has changed the age structure, and influenced the economic burden of the population. The dependency ratio (economic burden of a population) has been changed in both areas over the last 23 years (Table 1). The same table also demonstrates that the reduction in dependency ratio started earlier in the ICDDR,B area, Government service area followed the track<sup>2</sup> i.e. dependency ratio was the same in both areas in 1982 but reduced in the ICDDR,B area since 1996. In 2005, the dependency ratio was further reduced in the ICDDR,B area. In the Government service area, the dependency ratio also started to decline in 1996 but to a lesser extent. The difference, as expected, is due to reduction of younger population in this area. In contrast to the dependency ratio of the young population, the dependency ratio for older people has been rising but slowly in both areas.

**Table 1. Dependency ratios in the previous three socio-economic censuses 1982, 1996, and 2005**

Age (year)	ICDDR,B area			Government area			Both areas		
	1982	1996	2005	1982	1996	2005	1982	1996	2005
0-14	79.1	60.9	54.7	81.0	72.7	59.1	80.0	66.5	56.9
65+	8.5	7.7	9.5	6.3	7.5	9.7	7.4	7.6	9.6
Total	87.5	68.6	64.2	87.3	80.3	68.8	87.4	74.7	66.5

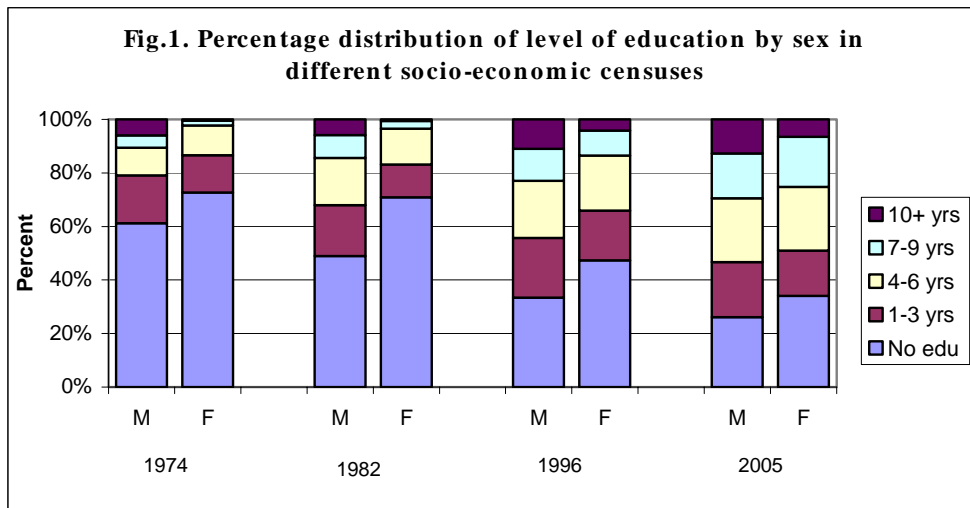
Dependency ratio is calculated with the formula:  $100 P_x/P_{15-64}$  where  $p_x$  is the population in age group x

## 2. Education

### 2.1. Level and trends in education

The distribution of population by years of schooling and sex in four socio-economic censuses are presented in Figure 1. It reveals that the level of education has improved substantially over the period for both males and females. Census 1974 reported a higher number of females with no formal education than males (about 75% and 60%), which reduced to 35 percent for females, and 26 percent for males in 2005. Similar trends have also appeared in 4-6 and 7-9 years of schoolings. In case of higher education (10+ years) the improvement is minimum. Figure 1 also reveals that though differential education level by males and females still exists in 2005, it has been greatly reduced between 1974 and 2005.

<sup>2</sup>A comprehensive Maternal and Child Health and Family Planning Program started in the ICDDR,B area since 1978



More detailed information on education by age and sex has been found in the SES-2005 (Table 2). It reveals that the proportion with no formal education increases with increasing age, except for those in the 15-24 years age group, which is probably a result of rising education levels among the young or might be related to higher out-migration of males in this age group. Such an education pattern by age was also observed in several previous socio-economic censuses in the Matlab area (Ruzicka et al. 1978; Razzaque et al. 1998). About 18 percent of the population was found to have education of more than six years of schooling, and 10 percent of the total population has completed 10 years of education. The same table demonstrates more females with no formal education than males and such difference is more noticeable in older than younger age groups.

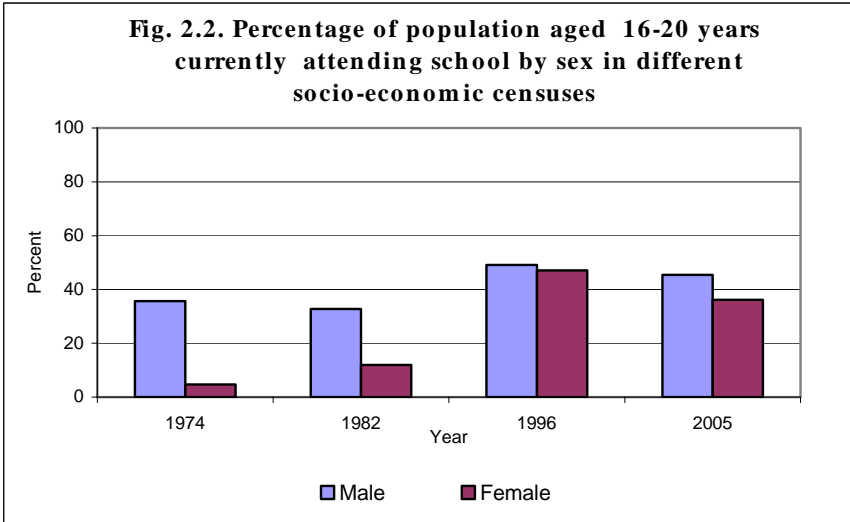
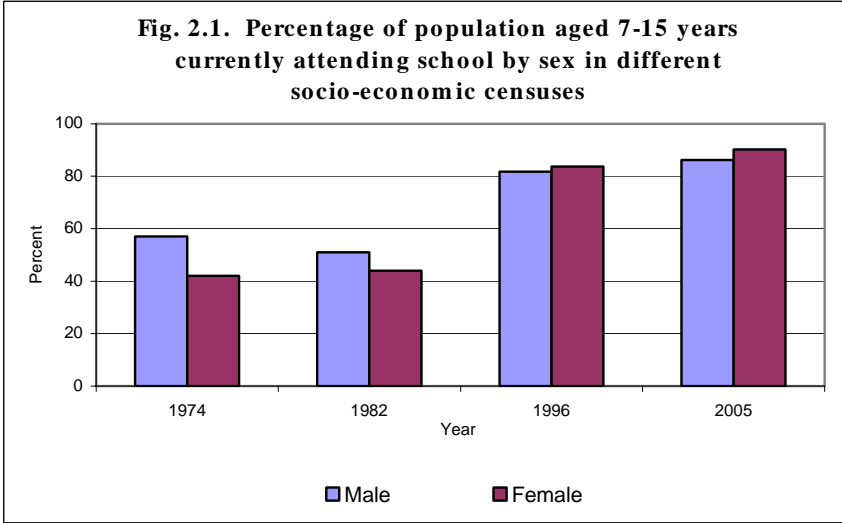
## 2.2 School attendance

Trends in school attendance presented in Figures 2.1 and 2.2 provide a clear picture of increasing school attendance during 1974-2005. It also shows a gradual overtaking of female school attendance compared to males over the years. Higher level of school attendance among boys of 7-15 years was evident in 1974 but the difference in school attendance between boys and girls was reduced in 1982. It was found higher among girls than boys in 1996 and this trend persisted in 2005. SES-2005 (forthcoming SES report, 2007) indicates that more than 90 percent of children (7-15 years age) are in school in the whole HDSS area. The school attendance rate was slightly higher for girls than boys in this age group but the reverse situation was evident for age group 16-20 years.

**Table 2. Distribution of population<sup>1</sup> (%) by years of schooling, age, and sex, SES-2005**

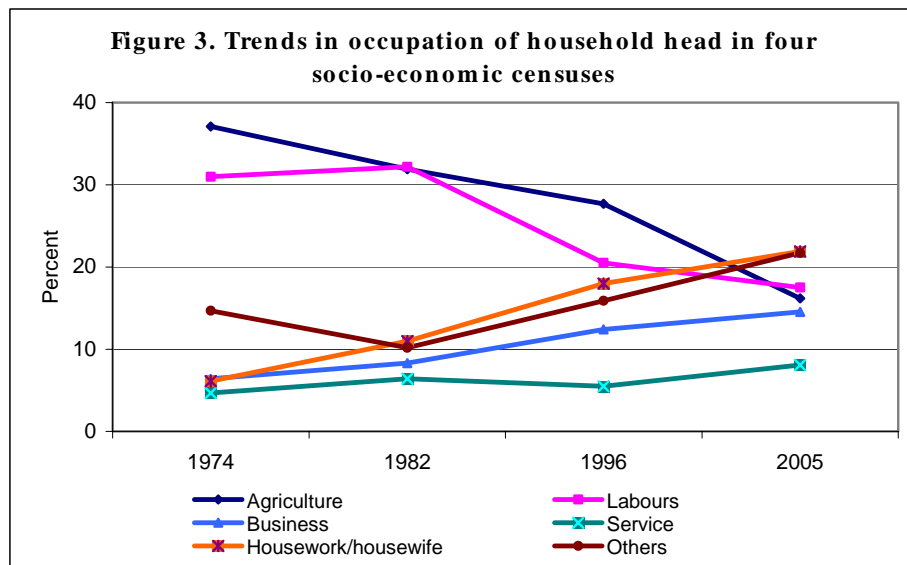
Education (year)	Male					Female					Both sexes				
	Age (year)					Age (year)					Age (year)				
	7-14	15-24	25-49	50+	Total	7-14	15-24	25-49	50+	Total	7-14	15-24	25-49	50+	Total
0	24.1	9.8	30.7	38.6	26.1	18.9	6.9	38.3	74.2	34.0	21.5	8.2	34.9	57.2	30.3
1-3	45.7	11.4	13.7	14.2	20.5	45.6	5.2	12.6	9.7	16.9	45.7	8.0	13.1	11.9	18.6
4-6	25.9	30.2	20.2	21.0	23.9	29.9	27.1	24.1	13.1	23.9	27.9	28.5	22.4	16.9	23.9
7-9	4.3	34.6	15.8	12.6	16.7	5.5	49.1	15.2	2.5	18.6	4.9	42.4	15.5	7.3	17.7
10+	0.0	14.1	19.6	13.5	12.8	0.0	11.8	9.7	0.4	6.6	0.0	12.8	14.2	6.7	9.5
Total	19961	19339	31945	16879	88124	19522	22587	38690	18525	99324	39483	41926	70635	35404	187448

<sup>1</sup>Age 7 years or more



### 3. Employment

Trends in major occupation of the household heads over the last 31 years presented in Figure 3 show a substantial change in the distribution of household head's major occupation in four successive socio-economic censuses. It is evident that farming is no longer a major occupation of the rural community of Matlab. Thirty five percent of the household heads were engaged in farming in 1974, which has been reduced to 12 percent in 2005. A substantial increase in business and housewife/housework as occupations was evident during 1974 to 2005.



Detailed information found in the recent SES-2005 (Table 3) shows that the distribution of major occupations of the household heads appeared to be three: housewife/housework, business and farming. About 22 percent of household heads reported to be housework/ housewife, followed by business (around 15%), owner-workers (farmer) and agricultural labour (12% each). The second set of occupation among heads included skilled services (8%) and skilled worker (4%). About 5 percent of the total household heads were found to be either retired or disabled. Other members of the household were mostly involved in housework or students.

**Table 3. Distribution of primary occupation<sup>1</sup> (%) of the household heads and other members by sex, SES-2005**

Occupation	Head			Others		
	Both sexes	Male	Female	Both sexes	Male	Female
Farm owner-worker	11.9	16.1	0.3	2.2	5.7	0.0
Rent or sharecropper	4.3	5.9	0.2	0.6	1.5	0.0
Fisherman	2.0	2.8	0.0	0.7	1.7	0.0
Fish seller	2.9	3.9	0.1	0.5	1.2	0.0
Boatman	0.4	0.6	0.0	0.0	0.1	0.0
Cottage industry	1.1	1.1	1.1	0.9	0.4	1.3
Business (established)	6.5	8.7	0.4	2.1	5.2	0.1
Business (small)	2.6	3.5	0.2	0.7	1.7	0.1
Business (others)	5.5	7.0	1.1	1.9	4.3	0.5
Doctor	0.3	0.4	0.0	0.0	0.1	0.0
Engineer/Lawyer	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural labour	12.2	15.5	2.9	2.6	5.9	0.6
Mill worker	0.5	0.6	0.1	0.4	0.9	0.1
Skilled worker	4.5	6.0	0.6	1.8	4.0	0.5
Rickshaw puller	3.0	4.1	0.0	0.4	1.2	0.0
Unskilled worker	0.4	0.5	0.0	0.3	0.8	0.0
Service	8.1	10.1	2.8	4.2	8.0	1.9
Social worker	0.1	0.2	0.0	0.0	0.0	0.0
Student	0.1	0.1	0.1	34.0	45.6	27.0
Housewife/housework	21.9	0.1	81.3	35.4	0.1	56.8
Retired	0.7	0.9	0.0	0.1	0.2	0.0
Disabled	8.6	9.7	5.6	2.8	1.5	3.6
Others	0.5	0.6	0.1	0.2	0.4	0.0
Unemployed	1.2	1.4	0.8	6.4	7.2	5.9
Beggar	0.8	0.2	2.2	0.1	0.0	0.2
Unknown	0.0	0.0	0.0	1.5	2.4	1.0
<b>Total</b>	<b>46715</b>	<b>34172</b>	<b>12543</b>	<b>135499</b>	<b>51249</b>	<b>84250</b>

<sup>1</sup>Age 8 years or more



#### 4. Household Economic Status

##### 4.1 Sources of household income

New information on sources of household income was collected in the SES-2005 only. The main source of income of households, presented in Table 4 shows that 15 percent of households reported agriculture as the major source of income. A higher percentage of households have reported to have business and agricultural labour (18% each) as their main source of income. One-fourth of the total households depend on remittances either from outside or from within the country. Income from Food for Works/VGD (0.5) or pension (0.7) was very few. Most of the households have more than one sources of income. Analysis shows (Table 5) that 65 percent of the households have two to three sources, while 19 percent have more than three sources of income. Households in the Government service area have more sources of income (24%) than ICDDR, B area (13%).

**Table 4. Major sources of household income by area, SES-2005**

Major income sources	Number			Percent		
	ICDDR,B area	Government area	Both areas	ICDDR,B area	Government area	Both areas
Agriculture	3389	3547	6936	14.2	15.5	14.8
Labour	4400	4030	8430	18.4	17.7	18.0
Handicraft work	1370	1191	2561	5.7	5.2	5.5
Business	4111	4344	8455	17.2	19.0	18.1
Service	3029	2313	5342	12.7	10.1	11.4
Pension	174	151	325	0.7	0.7	0.7
Remittance from country	2715	3224	5939	11.4	14.1	12.7
Remittance from outside	2523	2761	5284	10.6	12.1	11.3
Food for Work/VGD	113	109	222	0.5	0.5	0.5
Others	2070	1151	3221	8.7	5.0	6.9
Total	23894	22821	46715	100.0	100.0	100.0

**Table 5. Number of household income source by area, SES-2005**

# of sources of household income	Number			Percent		
	ICDDR,B area	Government area	Both areas	ICDDR,B area	Government area	Both areas
1	4536	2854	7390	19.0	12.5	15.8
2	9052	6862	15914	37.9	30.1	34.1
3	7094	7596	14690	29.7	33.3	31.4
4+	3212	5509	8721	13.4	24.1	18.7
Total	23894	22821	46715	100.0	100.0	100.0

#### 4.2 Land ownership

Table 6 shows the percentage distribution and average landholding of households by area. Average landholding of the household for both areas was about 93 decimal of land in 1982 and reduced to 42 decimal in 2005. There is not much difference in average land holding by areas during this period. The same table reveals that 43 percent of the households are landless and 31 percent of households have land less than 0.50 acres. Number of landless households increased from 27 percent in 1982 to 38 percent in 1996, and further to 43 percent in 2005. Possession of land is almost similar in the two areas. This is in contrast to the 1996 census, where there were slightly more landless households in the Government service area than in the ICDDR, B area.

**Table 6. Percentage distribution and average household land holding (decimals) by area, SES-2005**

Land (decimal)	1982 Census			1996 Census			2005 Census		
	ICDDR, B area	Govt. area	Both areas	ICDDR, B area	Govt. area	Both areas	ICDDR, B area	Govt. area	Both areas
No land	26.1	27.4	26.7	36.0	40.6	38.1	42.5	44.4	43.4
1-49	23.5	22.9	23.2	28.5	27.2	27.9	31.9	30.6	31.3
50-99	19.4	17.2	18.3	14.4	12.6	13.5	12.3	11.6	12.0
100-199	17.7	16.8	17.3	12.5	11.2	12.0	8.6	8.9	8.8
200+	13.3	15.7	14.5	8.6	8.4	8.5	4.7	4.5	4.6
Total	16,334	15,637	31,971	20,956	18,941	39,897	23,894	22,821	46,715
Average land per household	89.1	96.9	92.9	63.0	58.9	61.1	41.8	41.4	41.6

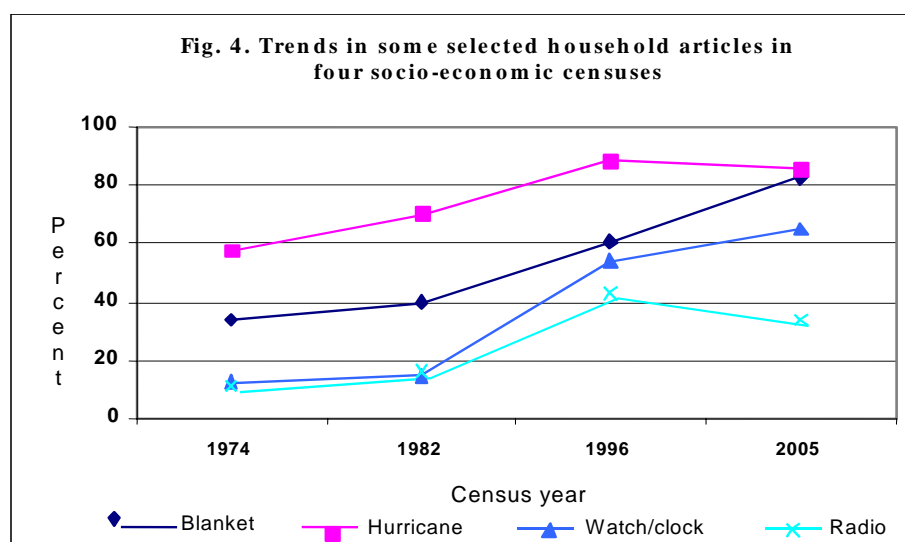
Definition of decimal = 1/100 acre

**Table 7. Percentage distribution of some selected household assets in 1996 and 2005 censuses**

Articles	1996 Census			2005 Census		
	ICDDR,B area	Govt. area	Both areas	ICDDR,B area	Govt. area	Both areas
Khat / bed	25.6	23.2	24.5	95.4	96.3	95.8
Chair / table	59.0	53.1	56.2	69.3	69.1	69.2
Almirah/showcase	32.9	31.3	32.2	63.4	64.5	63.9
Television	5.7	3.1	4.5	22.3	21.1	21.8
Bicycle	3.5	2.1	2.8	7.3	7.0	7.2
Boat	26.0	24.7	25.4	2.7	2.9	2.8
Cow / goat	30.3	34.7	32.4	32.9	34.8	33.8
Total	20,943	18,937	39,880	23,894	22821	46715

### 4.3. Household Assets

Information on possession of selected household assets were collected in all four censuses since 1974, and are presented in Figure 4. It shows that the possession of these four assets over the last 31 years has increased substantially.



Possession of quilt/blanket was reported to be 37 percent in 1974, which has increased to 63 percent in 1996 and more than 80 percent in 2005. The same was true for watches and radios. Possession of these assets increased from 13 percent and 12 percent in 1974 to 55 percent and 46 percent in 1996, respectively. In 2005 while possession of watch/clock increased further to 66 percent, the possession of radio reduced to 33 percent. But a remarkable improvement was evident in the ownership of television sets (Table 7), which rose from 5 percent in 1996 to 22 percent in 2005. Information on several other assets, which were collected only in 1996 and 2005, are presented in Table 7. It shows that use of wooden bed for sleeping is universal, as 96 percent of the households used some form of wooden furniture for sleeping.

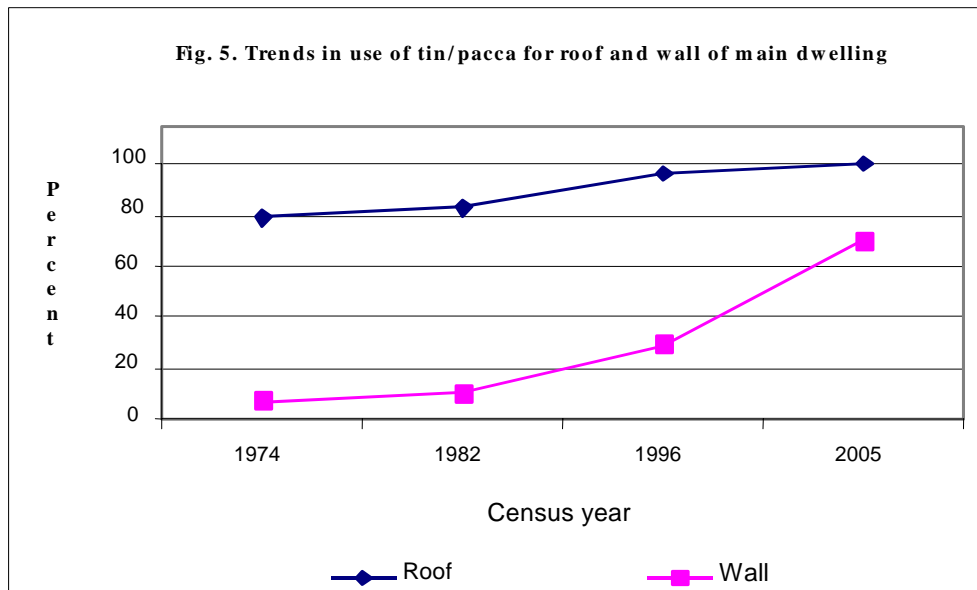
In the SES-2005, besides previously listed assets, a number of new household assets were collected, such as: *tosok* (mattress), sofa set, dining table; communication assets: television, mobile phone; transportation: engine boat; and modern amenities: fan, refrigerator; modern agricultural equipment. In addition, several other assets like fishing net, fishing boat; rickshaw and grocery shop and rearing chicken/duck were also collected. Table 8 suggests that among these new assets, majority of the households owned *tosok* (71%), and chicken/duck (75%). Fifteen percent of the household owned dining table and thirteen percent owned mobile phone and modern agricultural equipment each. Ownership of other assets ranges from 5 percent to 34 percent. Except for the ownership of fishing net and modern agricultural equipment, household assets in both ICDDR, B and Government service areas were almost similar.

#### **4.4 Dwelling Structure**

Changes in the materials used for roof and wall of the largest dwelling over the last 31 years since 1974 are presented in Figure 5. Figure 5 reveals a substantial change in materials used for roof and walls, especially the walls of the main dwelling. In 1974, only 7 percent of the dwelling used tin materials for wall and it increased to 29 percent in 1996 and further increased to 70 percent in 2005. Both areas have similar household condition when roof and wall materials were considered.

**Table 8. Distribution of the ownership of some new assets collected  
in SES-2005 by area**

Assets	Number			Percent		
	ICDDR,B Area	Govt. area	Both areas	ICDDR,B area	Govt. area	Both Areas
Chicken / duck	17221	17729	34950	72.1	77.7	74.8
Mattress	17515	15627	33142	73.3	68.5	70.9
Fan	8203	7621	15824	34.3	33.4	33.9
Cow / goat	7871	7940	15811	32.9	34.8	33.8
Fishing net	5229	6374	11603	21.9	27.9	24.8
Fishing boat	5464	5266	10730	22.9	23.1	23.0
Television	5340	4826	10166	22.3	21.1	21.8
Dining table	3988	3017	7005	16.7	13.2	15.0
Telephone / mobile	3402	2800	6202	14.2	12.3	13.3
Modern agricultural equipment	2286	3641	5927	9.6	16.0	12.7
Grocery shop	2389	2065	4454	10.0	9.0	9.5
Sewing machine	1253	1017	2270	5.2	4.5	4.9
Sofa set	1470	671	2141	6.2	2.9	4.6
Rickshaw/van	1091	915	2006	4.6	4.0	4.3
Refrigerator	1015	354	1369	4.2	1.6	2.9
Engine boat	304	546	850	1.3	2.4	1.8
Motor cycle	160	78	238	0.7	0.3	0.5
<b>Total</b>	<b>23894</b>	<b>22821</b>	<b>46715</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>



#### 4.5 Water use for drinking

Trends in water use for drinking over the last 31 years, as revealed in four censuses is that the use of tube-well water for drinking has increased remarkably over the period. It increased from 25 percent in 1974 to 95 percent in 1996. Drinking of tube well water was higher in the ICDDR, B area (33%) than in the Government services area (17%) in 1974. Similar trends appeared in 1982 but the drinking water pattern appeared to be the same in both areas in 1996. During 1996-2005, a drive for arsenic free water was launched. SES-2005 revealed that 90 percent of the households used tube-well water in both areas where 51 percent of the total households drink safe tube well (green) water, while the rest use arsenic contaminated (red tube-well) water, or drink from tube wells that were not tested against arsenic contamination. Only 4 percent of the households use pond sand or river sand filter (PSR/RSR), three pitchers or other water filtering process for drinking water. However, the use of drinking water by area reveals a higher percentage (59.3%) of population in the Government service area uses safe drinking water sources (green tube-well (56.6%) and filter water (2.7%)) than by the population of ICDDR,B area (52% where 46.3 percent from green tube-well and 5.7 percent from filter water).

**Table 9. Percentage distribution of households by sources of drinking water by area in four censuses**

Sources of drinking water	ICDDR, B area	Government area	Both areas
<b>1974 Census</b>			
Tube well	33.2	16.7	24.9
Others	66.8	83.3	75.1
Total	14,264	14,319	28,583
<b>1982 Census</b>			
Tube well	66.3	43.3	55.0
Others	33.7	56.7	45.0
Total	16,338	15,637	31,975
<b>1996 Census</b>			
Tube well	95.9	93.3	94.7
Others	4.1	6.7	5.3
Total	20,929	18,923	39,852
<b>2005 Census</b>			
Tube well	91.4	88.3	89.9
-Safe (Green)	46.3	56.6	51.3
-Contaminated (Red)	31.9	21.1	26.6
-Not tested	13.2	10.6	11.9
Filters	5.7	2.7	4.2
Others	2.9	9.0	5.9
Total	23,894	22,821	46,715

## 5. Poverty and Development

### 5.1 Micro-credit membership

Micro-credit membership has expanded in this area over the last few years. Membership in the whole HDSS was around 19 percent in 1996 (Razzaque, et al. 1998,) and it increased to 49 percent in 2005 (forthcoming SES-2005, 2007). Four leading micro-credit organizations, along with several localized ones, work in this area. Table 10 reveals that 12 percent of the households have membership in Bangladesh Rural Advancement Committee (BRAC), while 13 percent have in Grameen Bank, 8 percent in Association for Social Advancement (ASA) in both areas. The

lowest number of memberships was found for Bangladesh Rural Development Board (BRDB). The data show that 12 percent of the households have membership in smaller NGOs.

**Table 10. Percent of households and mean months membership in different NGOs by area, SES 2005**

Membership with NGOs	Percent			Mean (months)		
	ICDDR,B area	Govt. area	Both areas	ICDDR,B area	Govt. area	Both areas
BRAC	13.8	10.5	12.2	52.2	48.4	50.6
Grameen	12.3	13.4	12.8	29.9	30.7	30.3
BRDB	2.3	1.2	1.8	47.0	47.9	47.3
ASA	8.6	8.1	8.4	41.9	39.9	40.9
Smaller NGOs	10.6	13.0	11.8	26.4	27.0	26.9

The same table shows that mean months of household membership in BRAC is 52 months followed by BRDB (47 months) and ASA (42 months) in the ICDDR, B area. The lowest mean months were evident for the newly formed smaller NGOs. In the Government service area, in contrast to ICDDR, B area, the highest mean months of household memberships were found in both BRAC and BRDB (48 months each) followed by ASA (40 months). Micro-credit program started on an average 4 months earlier in the ICDDR, B area than in the Government services area.

## 5.2 Shortage of food supply

This is for the first time the Matlab socio-economic census has asked about food shortage as a proxy for economic vulnerability. Questions were asked about whether the family (household) had in the last year suffered chronic, occasional, or no food deficit, or food surplus. Overall shortage of food supply reported in the SES-2005 was about 11 percent, i.e. 11 percent of the households reported to have shortage of food at some point of time during the last 12 months. Food shortage in the ICDDR, B area was slightly higher than in the Government service area (12.3% vs.9.1%).



**Table 11: Percentage distribution and duration of food crisis by area, SES-2005**

Enough food	ICDDR,B area	Government area	Both areas
No	12.3	9.1	10.7
Yes	87.7	90.9	89.3
Total	23894	22821	46715
No food (actual days/ months)			
1-15 days	42.6	39.6	41.4
16-30 days	25.5	27.1	26.1
1-2-months	14.4	18.7	16.2
3-5 months	12.3	10.0	11.4
6-8 months	3.7	3.1	3.5
9-12months	1.5	1.5	1.5
Total	2942	2091	5033

Actual number of days of food shortage in the household was also presented in Table 11. It reveals that 41 percent of the households reported not to have enough food for 1-15 days, and 26 percent did not have enough food for a month, in both the areas. Around 5 percent of the households reported to have shortage of food throughout 6-12 months. Both areas are similar in terms of total days of food shortage. Table 12 reveals that asset quintiles have consistent inverse relationship with food shortage. Almost 50 percent of the food shortage households fall within the poorest quintile followed by the second poorest quintile with around 27 percent.

**Table 12: Percent of household with food shortage by asset index quintile and area, SES-2005**

Area	Poorest quintile	2 <sup>nd</sup> poorest quintile	3 <sup>rd</sup> poorest quintile	2 <sup>nd</sup> rich quintile	Rich quintile
ICDDR, B area	48.1	26.6	15.5	7.2	2.6
Government area	53.5	28.1	11.4	5.9	1.1

## SUMMARY AND CONCLUSIONS

The Matlab Health Demographic Surveillance System has collected household socio-economic information four times since 1974. A longitudinal analysis of some of the socio-economic status indicators has been undertaken in this chapter. The following paragraphs summarize the main findings.

The slowing down of the population growth has affected the age structure in ICDDR, B and Government service areas. Such change in age structure is reflected in the dependency ratio. The dependency ratio has been declining faster in the ICDDR,B area compared to the Government service area. By 2005, however, the difference in dependency ratio between the two areas has been reduced.

A substantial improvement is evident in the education level. The proportion illiterate declined to 30 percent from its earlier level of 69 percent in 1974 with both areas showing similar trends. The proportion receiving higher education has also been substantially increased. Significant reduction is evident in the male-female difference in education. The sex differential for education, especially 7 or more years of education, which was very high in the earlier periods, has also been substantially reduced by 2005.

Ownership of agricultural land has drastically reduced. Seventy five percent of the households were reported to be virtually landless. The pattern of employment has also shifted from predominantly farming to concentrate more in agricultural labour or other daily labour, and business. Most of the households in HDSS area have now adopted a wide range of occupations for their earning. Only 15 percent of the households reported to have income from one source only, and about 25 percent of the households reported to have dependency on remittances either from within the country or from outside. However, the employment patterns of the household heads were almost similar in both the areas.

Improvement over the last 31 years is evident in terms of the materials use for roof and wall. Ownership of household articles has become even better. Interestingly, radio ownership shows a declining trend until 2005, but ownership of television has increased from 7 percent in 1996 to 22 percent in 2005. Lastly, 34 percent of the households' own fans, 13 percent possess mobile telephones and 3 percent households own refrigerators.

Non-Government Organizations have established a wide network of micro-credit operations throughout the country. In Matlab HDSS area, 49 percent of the households have NGO membership, and some of these memberships (BRDB) are as old as 20 years. The situation of food shortage in this area is around 10 percent.

Finally, the socio-economic status of Matlab HDSS area found in SES-2005 was in some cases similar to that of the national level, and in some cases turn out to be better (Mitra, et al. 2005). Similarity was evident in cases of drinking water, construction materials used for roof and wall, and household assets but better in terms of food supply.

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## APPENDICES

**Appendix A-1. Mid-year population in ICDDR,B area by age,  
sex, and block, 2005**

Age	Block A			Block B		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	34487	16101	18386	30799	14544	16255
<1 year	802	406	396	782	410	372
1 – 4	3328	1664	1664	3090	1542	1548
1	856	445	411	785	415	370
2	811	391	420	748	357	391
3	836	407	429	836	407	429
4	825	421	404	721	363	358
5 – 9	3919	1962	1957	3464	1707	1757
10-14	3692	1843	1849	3299	1653	1646
15-19	3477	1508	1969	3198	1586	1612
20-24	2699	1075	1624	2467	1073	1394
25-29	2441	958	1483	2074	846	1228
30-34	2264	975	1289	1948	855	1093
35-39	2435	1043	1392	1999	839	1160
40-44	2346	1094	1252	2035	924	1111
45-49	1870	969	901	1533	801	732
50-54	1266	656	610	1156	554	602
55-59	1146	550	596	982	430	552
60-64	1013	456	557	917	389	528
65-69	691	373	318	737	344	393
70-74	522	263	259	546	287	259
75-79	327	173	154	333	170	163
80-84	145	79	66	148	75	73
85+	104	54	50	91	59	32

(continued)

**Appendix A-1 (contd.). Mid-year population in ICDDR,B area by  
age, sex, and block, 2005**

Age	Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	24565	11961	12604	22500	10843	11657
<1 year	564	276	288	524	261	263
1 – 4	2223	1127	1096	2141	1086	1055
1	548	254	294	531	279	252
2	602	322	280	546	296	250
3	551	289	262	537	256	281
4	522	262	260	527	255	272
5 – 9	2497	1258	1239	2347	1226	1121
10-14	2452	1261	1191	2296	1166	1130
15-19	2551	1255	1296	2207	1090	1117
20-24	2214	1046	1168	1666	683	983
25-29	1835	867	968	1577	709	868
30-34	1617	768	849	1477	659	818
35-39	1630	699	931	1529	673	856
40-44	1694	825	869	1584	758	826
45-49	1354	696	658	1290	680	610
50-54	988	485	503	941	474	467
55-59	781	387	394	741	337	404
60-64	782	343	439	737	335	402
65-69	564	264	300	593	267	326
70-74	435	209	226	416	210	206
75-79	190	103	87	258	130	128
80-84	131	61	70	120	66	54
85+	63	31	32	56	33	23

**Appendix A-2. Deaths in ICDDR,B area by age, sex, and block, 2005**

Age	Block A			Block B		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	213	132	81	216	118	98
<1 year	21	10	11	29	13	16
<1 month	13	5	8	22	11	11
1- 5 months	6	3	3	2	1	1
6-11 months	2	2	0	5	1	4
1 - 4 years	9	4	5	10	4	6
1	3	1	2	6	3	3
2	4	2	2	2	0	2
3	0	0	0	1	0	1
4	2	1	1	1	1	0
5 - 9	3	1	2	6	3	3
10-14	1	1	0	3	0	3
15-19	6	4	2	1	1	0
20-24	0	0	0	5	0	5
25-29	7	4	3	2	1	1
30-34	4	3	1	1	1	0
35-39	3	0	3	2	2	0
40-44	4	2	2	8	1	7
45-49	9	9	0	8	4	4
50-54	7	6	1	11	9	2
55-59	12	10	2	5	3	2
60-64	24	14	10	14	7	7
65-69	30	20	10	18	11	7
70-74	21	15	6	28	19	9
75-79	24	13	11	31	18	13
80-84	17	12	5	21	12	9
85+	11	4	7	13	9	4

(continued)



**Appendix A-2 (contd.). Deaths in ICDDR,B area by age, sex,  
and block, 2005**

Age	Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	189	104	85	157	78	79
<1 year	27	17	10	17	6	11
<1 month	25	17	8	9	3	6
1- 5 months	1	0	1	6	1	5
6-11 months	1	0	1	2	2	0
1 - 4 years	5	2	3	2	2	0
1	3	2	1	2	2	0
2	0	0	0	0	0	0
3	1	0	1	0	0	0
4	1	0	1	0	0	0
5 - 9	1	1	0	3	1	2
10-14	1	1	0	1	0	1
15-19	4	1	3	1	1	0
20-24	3	2	1	1	1	0
25-29	2	2	0	2	1	1
30-34	2	1	1	3	1	2
35-39	5	5	0	0	0	0
40-44	7	4	3	7	3	4
45-49	6	5	1	8	5	3
50-54	7	5	2	5	3	2
55-59	9	6	3	7	5	2
60-64	18	11	7	18	8	10
65-69	21	11	10	22	13	9
70-74	28	8	20	23	10	13
75-79	12	4	8	20	11	9
80-84	19	10	9	7	3	4
85+	12	8	4	10	4	6

**Appendix A-3. Abridged life table for ICDDR,B area by sex, 2005**

Age (years)	Male				Female			
	$nq_x$	$l_x$	$L_x$	$e^0_x$	$nq_x$	$l_x$	$L_x$	$e^0_x$
0	34.1	100000	97268	67.6	38.1	100000	96955	71.2
1	5.7	96585	96259	69.0	4.5	96193	95937	73.1
2	1.5	96032	95962	68.4	3.0	95760	95617	72.4
3	0.0	95891	95891	67.5	1.4	95474	95406	71.6
4	1.5	95891	95818	66.5	1.5	95338	95264	70.7
5	4.9	95744	477647	65.6	5.7	95191	474694	69.8
10	1.7	95278	476021	60.9	3.4	94644	472471	65.2
15	6.4	95118	474181	56.0	4.2	94319	470690	60.4
20	3.9	94507	471696	51.3	5.8	93926	468378	55.7
15	11.8	94142	468155	46.5	5.5	93383	465733	51.0
30	9.2	93034	463204	42.0	4.9	92870	463298	46.2
35	10.7	92181	458629	37.4	3.5	92413	461329	41.5
40	13.8	91194	453068	32.8	19.5	92094	456312	36.6
45	35.9	89936	442189	28.2	13.7	90295	448618	32.3
50	51.7	86703	423090	24.2	15.9	89057	442013	27.7
55	68.2	82217	398015	20.3	22.9	87639	433562	23.1
60	123.7	76611	360727	16.6	84.8	85634	411194	18.6
65	199.3	67137	303650	13.6	126.6	78375	368480	15.0
70	237.5	53755	237951	11.3	225.2	68454	305152	11.8
75	333.6	40986	171182	9.1	323.9	53036	222878	9.5
80	491.6	27315	101979	7.3	407.9	35859	142490	7.8
85+	1000.0	13887	98320	7.1	1000.0	21231	138504	6.5

**Appendix A-4. Abridged life table for Government service area  
by sex, 2005**

Age (years)	Male				Female			
	$nq_x$	$l_x$	$L_x$	$e^0_x$	$nq_x$	$l_x$	$L_x$	$e^0_x$
0	43.7	100000	96506	66.1	46.3	100000	96295	70.4
1	8.0	95633	95182	68.1	6.1	95369	95025	72.8
2	4.2	94868	94668	67.7	5.2	94786	94539	72.2
3	0.7	94468	94435	66.9	0.0	94292	94292	71.6
4	5.6	94402	94137	66.0	2.2	94292	94190	70.6
5	6.1	93872	468047	65.4	5.7	94087	469205	69.8
10	6.0	93303	465216	60.7	2.3	93553	467270	65.1
15	6.7	92740	462271	56.1	3.8	93338	465864	60.3
20	12.5	92120	457945	51.4	3.0	92980	464255	55.5
15	9.7	90969	452817	47.1	4.6	92700	462513	50.7
30	5.1	90090	449398	42.5	14.6	92271	458247	45.9
35	9.9	89634	446114	37.7	12.3	90924	452034	41.5
40	13.5	88743	440941	33.0	9.2	89803	447103	37.0
45	43.2	87541	428935	28.5	10.2	88974	442775	32.3
50	51.5	83761	408785	24.6	21.2	88066	436011	27.6
55	62.3	79449	385717	20.8	33.5	86197	424301	23.2
60	94.0	74498	356088	17.0	45.5	83312	407754	18.9
65	162.7	67497	311392	13.5	121.9	79519	374760	14.7
70	260.4	56513	246854	10.6	228.7	69827	310659	11.3
75	375.6	41795	169808	8.5	302.5	53857	229374	8.9
80	376.1	26095	105991	7.1	444.0	37567	145452	6.7
85+	1000.0	16281	78392	4.8	1000.0	20887	106251	5.1

**Appendix A-5. Male deaths by cause and age, 2005**

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+
<b>Communicable diseases</b>																				
Diarrhoea	9	2	1	0	0	0	0	0	0	0	0	2	0	0	0	0	3	1	0	0
Dysentery	3	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Tuberculosis	24	0	0	0	0	1	1	0	0	0	1	1	0	4	5	3	3	5	0	0
EPI related death	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningitis	5	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Hepatitis	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0
Respiratory infections	30	17	3	0	0	1	0	0	0	0	0	0	0	0	0	0	1	6	1	1
Other communicable	5	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0
<b>Maternal and neonatal conditions</b>																				
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neonatal condition																				
-premature and LBW	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	37	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Nutritional</b>	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<b>Non-communicable diseases</b>																				
Malignant neoplasm																				
-neoplasm	90	0	1	2	1	0	2	1	1	1	2	4	7	6	17	16	11	10	5	3
-neoplasm in female organ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-neoplasm other kinds	13	0	0	0	1	1	0	0	0	1	2	1	2	2	2	0	0	1	0	0
Endocrine disorder																				
-diabetes	23	0	0	0	0	0	0	0	0	0	1	1	2	4	1	7	2	1	4	4
Neuro-psychiatric	6	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	0

(continued)

Appendix A-5 (contd.). Male deaths by cause and age, 2005

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+
<b>Diseases of circulatory system</b>																				
-rheumatic heart disease	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-hypertensive disease	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1
-ischaemic heart disease	60	0	0	0	0	0	0	0	1	1	2	6	6	9	7	10	11	1	4	2
-stroke	192	0	0	0	1	1	0	1	1	4	4	8	10	9	15	29	38	33	14	24
-other cardiovascular	37	1	0	0	0	0	0	0	0	2	1	0	1	1	7	4	6	5	8	1
<b>Respiratory disease</b>																				
-COPD*	17	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	3	3	2	2
-asthma	24	0	0	0	0	0	0	0	0	0	0	3	1	1	4	3	3	7	0	2
-other respiratory	13	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3	2	3	1	1
<b>Digestive disease</b>																				
-renal failure	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
-nephri	3	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
-other urinary	8	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1	1	1
<b>Other communicable</b>																				
	9	3	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	2	0
<b>Injuries</b>																				
<b>Unintentional injuries</b>																				
-accident	66	0	4	5	5	3	7	6	4	2	3	10	3	4	1	1	2	0	4	2
-drowning	32	1	20	4	0	1	0	1	0	0	1	0	3	0	0	0	0	0	1	0
<b>Intentional injuries</b>																				
-suicide	3	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
-homicide	3	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
<b>Miscellaneous</b>																				
-senility	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
-fever of unknown origin	15	1	0	0	0	1	0	0	0	0	0	0	0	1	0	3	0	4	4	1
-Edema of unspecified origin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- septicemia	12	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	4	2	2	0
<b>Unknown</b>	19	1	2	0	0	0	0	0	0	1	0	2	3	1	0	3	1	4	0	1
<b>Total</b>	872	104	38	14	10	15	13	14	9	13	19	49	44	45	69	98	109	95	62	52

\*COPD=Chronic obstructive pulmonary disease

Appendix A-6. Female deaths by cause and age, 2005

Cause	Age at death (years)																			
	All ages	<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+
<b>Communicable diseases</b>																				
Diarrhoea	23	5	2	0	0	0	0	0	1	0	0	0	0	0	1	3	5	2	1	3
Dysentery	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0
Tuberculosis	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
EPI related death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningitis	6	1	2	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Hepatitis	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Respiratory infections	23	17	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0
Other communicable	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<b>Maternal and neonatal conditions</b>																				
Maternal death	12	0	0	0	0	1	2	2	2	2	2	1	0	0	0	0	0	0	0	0
Neonatal condition																				
-premature and LBW	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Nutritional</b>	13	1	3	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3	3	0
<b>Non-communicable diseases</b>																				
Malignant neoplasm																				
-neoplasm	33	0	0	1	0	0	1	2	3	2	3	1	2	3	5	4	2	3	1	0
-neoplasm in female organ	10	0	0	0	0	0	0	0	0	0	4	3	2	0	0	0	1	0	0	0
-neoplasm other kinds	6	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	1	1	0	0
Endocrine disorder																				
-diabetes	27	0	0	0	0	0	0	0	1	0	1	0	0	2	2	6	4	3	2	6
Neuro-psychiatric	7	0	1	0	1	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0

(continued)

**Appendix A-6 (contd.). Female deaths by cause and age, 2005**

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+
<b>Diseases of circulatory system</b>																				
-rheumatic heart disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-hypertensive disease	10	0	0	0	0	0	0	0	0	1	1	0	0	2	1	1	0	1	2	1
-ischaemic heart disease	19	0	0	0	0	0	0	0	0	0	1	1	0	0	5	3	5	2	2	0
-stroke	166	0	0	0	0	0	1	1	1	0	6	1	3	5	15	22	38	36	22	15
-Other cardiovascular	45	0	0	1	1	1	0	0	0	1	1	1	1	2	3	7	9	7	3	7
<b>Respiratory disease</b>																				
-COPD*	15	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	5	1	2	0
-asthma	17	0	0	0	0	1	0	0	0	0	0	0	1	3	2	3	3	0	3	1
-other respiratory	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	3
<b>Digestive disease</b>																				
	35	2	0	0	0	1	0	1	0	2	0	3	4	0	5	5	4	4	1	3
<b>Gentio-urinary disease</b>																				
-renal failure	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
-nephritic syndrome	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-other urinary	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
<b>Other non-communicable</b>																				
	9	3	2	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0
<b>Injuries</b>																				
<b>Unintentional injuries</b>																				
-accident	33	0	2	2	2	1	2	0	2	1	2	2	1	1	2	3	5	1	4	0
-drowning	24	0	14	6	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0
<b>Intentional injuries</b>																				
-suicide	11	0	0	0	1	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0
-homicide	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
<b>Miscellaneous</b>																				
-senility	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
-fever of unknown origin	6	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
- -Edema of unspecified origin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
- septicaemia	18	3	1	1	0	1	0	0	0	0	0	0	0	1	0	1	6	2	2	0
<b>Unknown/missing</b>	24	7	0	0	0	0	0	0	1	1	0	0	1	0	2	2	4	4	2	0
<b>Total</b>	690	107	32	14	7	10	9	9	15	13	23	14	16	22	52	72	101	78	52	44

\*COPD=Chronic obstructive pulmonary disease

Appendix A-7. Male deaths by cause, age and area, 2005

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.
<b>Communicable diseases</b>																
Diarrhoea	5	4	2	0	0	1	0	0	0	0	0	2	3	1	0	0
Dysentery	0	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0
Tuberculosis	12	12	0	0	0	0	0	0	1	2	6	4	5	6	0	0
EPI related death	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Meningitis	2	3	1	0	0	1	0	0	0	1	0	0	1	1	0	0
Hepatitis	2	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Respiratory infections	12	18	7	10	2	1	0	0	0	1	0	0	3	5	0	1
Other communicable	2	3	0	2	0	0	0	0	1	0	0	1	1	0	0	0
<b>Maternal and neonatal conditions</b>																
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neonatal condition																
-premature and LBW	14	13	14	13	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	2	4	2	4	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	14	23	14	23	0	0	0	0	0	0	0	0	0	0	0	0
<b>Nutritional</b>	2	3	1	1	1	1	0	0	0	0	0	0	0	1	0	0
<b>Non-communicable diseases</b>																
Malignant neoplasm																
-neoplasm	47	43	0	0	1	0	1	2	3	4	22	12	20	22	0	3
-neoplasm in female organ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-neoplasm other kind	8	5	0	0	0	0	0	1	1	1	4	3	3	0	0	0
Endocrine disorder																
-diabetes	14	9	0	0	0	0	0	0	0	0	5	3	6	5	3	1
Neuro-psychiatric	3	3	0	0	0	1	0	0	1	0	0	0	2	2	0	0

(continued)



Appendix A-7 (contd.). Male deaths by cause, age and area, 2005

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.
<b>Diseases of circulatory system</b>																
-rheumatic heart disease	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
-hypertensive disease	5	2	0	0	0	0	0	0	0	0	0	0	5	1	0	1
-ischaemic heart disease	31	29	0	0	0	0	0	0	2	2	13	15	14	12	2	0
-stroke	85	107	0	0	0	0	0	1	5	6	20	22	50	64	10	14
-other cardiovascular	26	11	0	1	0	0	0	0	2	1	7	2	16	7	1	0
<b>Respiratory disease</b>																
-COPD*	11	6	0	0	0	0	0	0	0	0	3	2	7	3	1	1
-asthma	17	7	0	0	0	0	0	0	0	0	7	2	9	4	1	1
-other respiratory	5	8	0	0	0	0	0	0	1	0	0	2	3	6	1	0
<b>Digestive disease</b>																
	31	28	0	0	0	0	1	0	6	5	6	9	16	12	2	2
<b>Gentio-urinary disease</b>																
-renal failure	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
-nephritic syndrome	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0
-other urinary	3	5	0	0	0	0	0	0	0	0	1	1	1	4	1	0
Other non-communicable	4	5	2	1	0	1	0	0	0	1	0	1	2	1	0	0
<b>Injuries</b>																
<b>Unintentional injuries</b>																
-accident	30	36	0	0	1	3	2	8	10	15	11	7	5	2	1	1
-drowning	13	19	1	0	6	14	3	1	2	1	1	2	0	1	0	0
<b>Intentional injuries</b>																
-suicide	1	2	0	0	0	0	0	1	1	1	0	0	0	0	0	0
-homicide	2	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0
<b>Miscellaneous</b>																
-senility	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	2
-fever of unknown origin	11	4	0	1	0	0	0	0	0	1	1	0	9	2	1	0
-edema of unspecified origin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- septicaemia	4	8	1	0	0	1	0	0	0	0	0	2	3	5	0	0
<b>Unknown/missing</b>	9	10	0	1	1	1	0	0	1	0	2	4	4	4	1	0
<b>Total</b>	432	440	46	58	12	26	8	16	41	42	110	97	190	174	25	27

\*COPD=Chronic obstructive pulmonary disease

Appendix A-8. Female deaths by cause, age and area, 2005

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.
	<b>Communicable diseases</b>															
Diarrhoea	15	8	4	1	0	2	0	0	0	1	1	0	8	3	2	1
Dysentery	1	4	0	0	0	0	0	0	0	0	0	0	1	4	0	0
Tuberculosis	2	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0
EPI related death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningitis	3	3	0	1	1	1	1	0	0	0	0	1	1	0	0	0
Hepatitis	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Respiratory infections	10	13	7	10	0	1	1	0	0	0	1	0	1	2	0	0
Other communicable	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
<b>Maternal and neonatal conditions</b>																
Maternal death	6	6	0	0	0	0	0	0	5	6	1	0	0	0	0	0
Neonatal condition																
-premature and LBW	13	11	13	11	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	4	3	4	3	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	12	24	12	24	0	0	0	0	0	0	0	0	0	0	0	0
<b>Nutritional</b>	4	9	0	1	1	2	0	2	0	0	0	0	3	4	0	0
<b>Non-communicable diseases</b>																
Malignant neoplasm																
-neoplasm	19	14	0	0	0	0	1	0	5	6	5	6	8	2	0	0
-neoplasm in female organ	4	6	0	0	0	0	0	0	2	2	2	3	0	1	0	0
-neoplasm other kinds	4	2	0	0	0	0	0	0	0	1	1	0	3	1	0	0
Endocrine disorder																
-diabetes	13	14	0	0	0	0	0	0	1	1	2	2	7	8	3	3
Neuro-psychiatric	4	3	0	0	0	1	1	0	1	1	0	1	2	0	0	0

(continued)

Appendix A-8 (contd.). Female deaths by cause, age and area, 2005

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.
	Diseases of circulatory system															
-rheumatic heart disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-hypertensive disease	7	3	0	0	0	0	0	0	1	1	1	2	4	0	1	0
-ischaemic heart disease	10	9	0	0	0	0	0	0	1	0	3	3	6	6	0	0
-stroke	90	76	0	0	0	0	0	0	6	3	17	7	59	59	8	7
-other cardiovascular	19	26	0	0	0	0	1	1	1	2	2	5	10	16	5	2
Respiratory disease																
-COPD*	8	7	0	0	0	0	0	0	0	0	3	1	5	6	0	0
-asthma	11	6	0	0	0	0	0	0	0	1	4	2	6	3	1	0
-other respiratory	1	8	0	0	0	1	0	0	0	0	0	0	1	4	0	3
Digestive disease	15	20	2	0	0	0	0	0	1	3	8	4	4	10	0	3
Gentio-urinary disease																
-renal failure	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0
-nephritic syndrome	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
-other urinary	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Other non-communicable	4	5	1	2	1	1	0	0	0	1	1	0	1	1	0	0
<b>Injuries</b>																
Unintentional injuries																
-accident	15	18	0	0	0	2	2	2	4	4	4	2	5	8	0	0
-drowning	13	11	0	0	8	6	3	3	1	2	0	0	1	0	0	0
Intentional injuries																
-suicide	8	3	0	0	0	0	0	1	8	2	0	0	0	0	0	0
-homicide	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0
<b>Miscellaneous</b>																
-senility	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
-fever of unknown origin	5	1	0	0	3	0	0	0	0	0	0	1	1	0	1	0
-edema of unspecified origin	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
- septicemia	10	8	2	1	0	1	1	0	0	1	0	1	7	4	0	0
<b>Unknown/missing</b>	9	15	3	4	0	0	0	0	1	1	1	2	4	8	0	0
<b>Total</b>	<b>343</b>	<b>347</b>	<b>48</b>	<b>59</b>	<b>14</b>	<b>18</b>	<b>11</b>	<b>10</b>	<b>39</b>	<b>40</b>	<b>58</b>	<b>46</b>	<b>152</b>	<b>151</b>	<b>21</b>	<b>23</b>

\*COPD=Chronic obstructive pulmonary disease

**Appendix A-9. Age-specific fertility rates and indices for ICDDR,B  
area by block, 2005**

Age (years)	Block A		Block B		Block C		Block D	
	Births	Rate	Births	Rate	Births	Rate	Births	Rate
All ages	775	78.2	767	92.1	555	82.4	511	84.1
15-19*	112	56.9	86	53.3	85	65.6	68	60.9
20-24	232	142.9	278	199.4	161	137.8	171	174.0
25-29	208	140.3	204	166.1	149	153.9	117	134.8
30-34	133	103.2	114	104.3	106	124.9	94	114.9
35-39	84	60.3	65	56.0	45	48.3	55	64.3
40-44	6	4.8	19	17.1	6	6.9	6	7.3
45-49**	0	0.0	1	1.4	3	4.6	0	0.0
Total fertility rate		2542		2989		2710		2780
General fertility rate		78		92		82		84
Gross reproduction rate		1253		1449		1274		1338

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

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

**Appendix A.10. Births by mothers' age, live birth order, and area, 2005**

Age (years)	Total women	Total births	Live birth order									
			1	2	3	4	5	6	7	8	9	10+
<b>Both areas</b>												
<15	12325	6	6	0	0	0	0	0	0	0	0	0
15-19	12500	701	641	58	2	0	0	0	0	0	0	0
20-24	10152	1683	879	669	126	6	1	2	0	0	0	0
25-29	8859	1437	222	589	457	140	21	8	0	0	0	0
30-34	7791	858	48	128	305	246	101	22	7	1	0	0
35-39	8372	451	9	45	93	128	98	39	21	10	8	0
40-44	7830	70	2	2	5	16	19	9	8	5	1	3
45-49	5829	4	0	0	0	1	0	2	0	0	0	1
<b>Total</b>		<b>5210</b>	<b>1807</b>	<b>1491</b>	<b>988</b>	<b>537</b>	<b>240</b>	<b>82</b>	<b>36</b>	<b>16</b>	<b>9</b>	<b>4</b>
<b>ICDDR,B area</b>												
<15	5816	4	4	0	0	0	0	0	0	0	0	0
15-19	5994	351	327	23	1	0	0	0	0	0	0	0
20-24	5169	829	431	349	44	2	1	2	0	0	0	0
25-29	4547	702	108	316	217	55	6	0	0	0	0	0
30-34	4049	432	28	73	174	112	36	5	4	0	0	0
35-39	4339	246	4	28	51	74	55	18	7	5	4	0
40-44	4058	41	2	1	4	13	7	7	3	4	0	0
45-49	2901	3	0	0	0	0	0	2	0	0	0	1
<b>Total</b>		<b>2608</b>	<b>904</b>	<b>790</b>	<b>491</b>	<b>256</b>	<b>105</b>	<b>34</b>	<b>14</b>	<b>9</b>	<b>4</b>	<b>1</b>
<b>Government area</b>												
<15	6509	2	2	0	0	0	0	0	0	0	0	0
15-19	6506	350	314	35	1	0	0	0	0	0	0	0
20-24	4983	854	448	320	82	4	0	0	0	0	0	0
25-29	4312	735	114	273	240	85	15	8	0	0	0	0
30-34	3742	426	20	55	131	134	65	17	3	1	0	0
35-39	4033	205	5	17	42	54	43	21	14	5	4	0
40-44	3772	29	0	1	1	3	12	2	5	1	1	3
45-49	2928	1	0	0	0	1	0	0	0	0	0	0
<b>Total</b>		<b>2602</b>	<b>903</b>	<b>701</b>	<b>497</b>	<b>281</b>	<b>135</b>	<b>48</b>	<b>22</b>	<b>7</b>	<b>5</b>	<b>3</b>

**Appendix A.11. Age-order-specific fertility rates by area, 2005**

Age (years)	Live-birth order										
	Total	1	2	3	4	5	6	7	8	9	10+
<b>Both areas</b>											
<15	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0561	0.0513	0.0046	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1658	0.0866	0.0659	0.0124	0.0006	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000
25-29	0.1622	0.0251	0.0665	0.0516	0.0158	0.0024	0.0009	0.0000	0.0000	0.0000	0.0000
30-34	0.1101	0.0062	0.0164	0.0391	0.0316	0.0130	0.0028	0.0009	0.0001	0.0000	0.0000
35-39	0.0539	0.0011	0.0054	0.0111	0.0153	0.0117	0.0047	0.0025	0.0012	0.0010	0.0000
40-44	0.0089	0.0003	0.0003	0.0006	0.0020	0.0024	0.0011	0.0010	0.0006	0.0001	0.0004
45-49	0.0007	0.0000	0.0000	0.0000	0.0002	0.0000	0.0003	0.0000	0.0000	0.0000	0.0002
Total	2.7909	0.8545	0.7954	0.5753	0.3274	0.1478	0.0504	0.0221	0.0098	0.0054	0.0028
<b>ICDDR,B area</b>											
<15	0.0007	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0586	0.0546	0.0038	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1604	0.0834	0.0675	0.0085	0.0004	0.0002	0.0004	0.0000	0.0000	0.0000	0.0000
25-29	0.1544	0.0238	0.0695	0.0477	0.0121	0.0013	0.0000	0.0009	0.0000	0.0000	0.0000
30-34	0.1067	0.0069	0.0180	0.0430	0.0277	0.0089	0.0012	0.0010	0.0000	0.0000	0.0000
35-39	0.0567	0.0009	0.0065	0.0118	0.0171	0.0127	0.0041	0.0016	0.0012	0.0009	0.0000
40-44	0.0101	0.0005	0.0002	0.0010	0.0032	0.0017	0.0017	0.0007	0.0010	0.0000	0.0000
45-49	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000	0.0003
Total	2.7427	0.8535	0.8279	0.5606	0.3020	0.1240	0.0409	0.0211	0.0107	0.0046	0.0017
<b>Government area</b>											
<15	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0538	0.0483	0.0054	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1714	0.0899	0.0642	0.0165	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25-29	0.1705	0.0264	0.0633	0.0557	0.0197	0.0035	0.0019	0.0000	0.0000	0.0000	0.0000
30-34	0.1138	0.0053	0.0147	0.0350	0.0358	0.0174	0.0045	0.0008	0.0003	0.0000	0.0000
35-39	0.0508	0.0012	0.0042	0.0104	0.0134	0.0107	0.0052	0.0035	0.0012	0.0010	0.0000
40-44	0.0077	0.0000	0.0003	0.0003	0.0008	0.0032	0.0005	0.0013	0.0003	0.0003	0.0008
45-49	0.0003	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.8432	0.8575	0.7604	0.5898	0.3543	0.1735	0.0607	0.0280	0.0089	0.0063	0.0040

**Appendix A-12. Marriages and divorces by month, 2005**

Month	Marriage		Divorce	
	No.	Percentage	No.	Percentage
January	272	8.6	31	10.2
February	290	9.2	22	7.3
March	318	10.1	23	7.6
April	291	9.2	27	8.9
May	243	7.7	19	6.3
June	272	8.6	28	9.2
July	305	9.7	25	8.3
August	286	9.1	24	7.9
September	282	8.9	26	8.6
October	141	4.5	23	7.6
November	273	8.7	34	11.2
December	179	5.7	21	6.9
Total	3152	100.0	303	100.0

**Appendix A-13. In- and out-migrations by age and sex, 2005**

Age (years)	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	8020	3648	4372	11981	5967	6014
0-4	1211	605	606	1464	748	716
5 - 9	690	350	340	860	428	432
10-14	559	258	301	1018	571	447
15-19	1372	332	1040	2518	1073	1445
20-24	1282	435	847	2275	1028	1247
25-29	987	453	534	1386	705	681
30-34	630	402	228	816	483	333
35-39	445	300	145	556	339	217
40-44	281	198	83	396	238	158
45-49	180	127	53	215	139	76
50-54	95	59	36	126	76	50
55-59	79	51	28	88	49	39
60-64	69	31	38	81	32	49
65+	140	47	93	182	58	124



**Appendix A-14. In-migration by age, sex, and area, 2005**

Age (years)	ICDDR,B area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	3941	1720	2221	4079	1928	2151
0-4	622	298	324	589	307	282
5 - 9	342	175	167	348	175	173
10-14	284	128	156	275	130	145
15-19	659	124	535	713	208	505
20-24	602	181	421	680	254	426
25-29	476	197	279	511	256	255
30-34	312	200	112	318	202	116
35-39	223	148	75	222	152	70
40-44	144	101	43	137	97	40
45-49	107	74	33	73	53	20
50-54	42	30	12	53	29	24
55-59	41	31	10	38	20	18
60-64	27	12	15	42	19	23
65+	60	21	39	80	26	54

**Appendix A-15. Out-migration by age, sex, and area, 2005**

Age (years)	ICDDR,B area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	5475	2588	2887	6506	3379	3127
0-4	718	374	344	746	374	372
5 - 9	408	203	205	452	225	227
10-14	440	244	196	578	327	251
15-19	1086	402	684	1432	671	761
20-24	1006	407	599	1269	621	648
25-29	660	308	352	726	397	329
30-34	411	231	180	405	252	153
35-39	267	161	106	289	178	111
40-44	187	109	78	209	129	80
45-49	87	54	33	128	85	43
50-54	55	37	18	71	39	32
55-59	40	22	18	48	27	21
60-64	28	11	17	53	21	32
65+	82	25	57	100	33	67

**Appendix A.16. Male out-migration by cause of movement and age, 2005**

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	5967	748	428	571	1073	1028	705	483	339	238	139	76	49	32	58
<b>Work/Economic/Educational</b>															
-acquired/seeking job	3154	0	1	108	622	782	577	411	271	181	94	56	23	13	15
-job completion/retirement	23	0	0	5	2	1	2	4	1	1	1	1	1	2	2
-to acquire education	613	8	62	152	255	109	23	0	0	3	1	0	0	0	0
-educ. completed/interrupted	5	0	0	3	2	0	0	0	0	0	0	0	0	0	0
-student lodging	12	0	0	0	3	3	2	0	2	0	1	0	1	0	0
<b>Housing/Environmental</b>															
-acquired/seeking new land/house	109	0	0	0	4	5	17	16	20	15	13	6	4	5	4
-river erosion	13	0	0	0	0	0	0	1	0	2	2	1	5	0	2
<b>Move as Dependent</b>															
-join with/ follow spouse	48	0	0	0	8	7	4	3	6	6	5	2	2	3	2
-join with/follow parents	1529	702	334	245	132	68	27	9	9	3	0	0	0	0	0
-join with son/ daughter/sister/brother	128	12	14	23	20	17	10	2	0	0	0	2	2	4	22
-join with other relatives	101	25	15	20	2	7	7	2	9	6	3	1	3	1	0
<b>Marriage/Familial</b>															
-marriage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-separation/divorce/widow	7	0	0	0	0	1	3	1	1	1	0	0	0	0	0
-adoption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	100	0	0	4	14	20	19	18	8	8	5	2	1	0	1
-health or old age care	10	0	0	0	0	0	1	0	1	1	1	0	0	1	5
<b>Legal Problems</b>	52	0	0	2	4	3	6	8	7	8	6	2	3	0	3
<b>Other and Not Stated</b>															
-others n.e.c.*	59	1	2	7	4	5	7	8	3	3	7	3	4	3	2
-unknown or not stated	4	0	0	2	1	0	0	0	1	0	0	0	0	0	0

\*n.e.c.=Not elsewhere classified

**Appendix A.17. Female out-migration by cause of movement and age, 2005**

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	6014	716	432	447	1445	1247	681	333	217	158	76	50	39	49	124
<b>Work/Economic/Educational</b>															
-acquired/seeking job	693	0	5	76	309	134	78	34	26	23	3	2	3	0	0
-job completion/retirement	18	0	0	7	1	1	7	0	2	0	0	0	0	0	0
-to acquire education	248	4	53	68	76	34	5	3	3	2	0	0	0	0	0
-educ. completed/interrupted	4	0	0	1	3	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
<b>Housing/Environmental</b>															
-acquired/seeking new land/house	47	0	0	0	2	4	7	7	6	10	2	2	1	3	3
-river erosion	3	0	0	0	0	0	1	0	0	0	0	0	0	1	1
<b>Move as Dependent</b>															
-join with/ follow spouse	1553	0	0	0	250	484	338	188	127	85	36	20	8	13	4
-join with/follow parents	1637	663	335	206	186	125	66	24	16	3	5	3	1	0	4
-join with son/ daughter/sister/brother	385	20	19	36	77	40	17	5	6	12	14	14	17	26	82
-join with other relatives	163	18	16	20	19	21	22	19	11	8	3	2	2	1	1
<b>Marriage/Familial</b>															
-marriage	883	0	0	27	450	297	80	24	2	3	0	0	0	0	0
-separation/divorce/widow	116	0	0	0	28	36	17	13	7	5	2	5	1	0	2
-adoption	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	133	0	2	0	27	44	27	10	5	3	4	1	2	0	8
-health or old age care	38	0	0	0	2	3	5	3	2	2	2	0	2	3	14
<b>Legal Problems</b>	6	0	0	0	1	1	0	0	1	1	2	0	0	0	0
<b>Other and Not Stated</b>															
-others n.e.c.*	77	1	2	6	14	23	11	3	3	1	3	1	2	2	5
-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, 2005**

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	3648	605	350	258	332	435	453	402	300	198	127	59	51	31	47
<b>Work/Economic/Educational</b>															
-acquired/seeking job	653	0	0	14	60	100	151	118	89	58	32	13	10	1	7
-job completion/retirement	602	0	0	2	31	89	97	109	91	71	48	20	21	12	11
-to acquire education	186	3	54	67	39	16	4	1	0	2	0	0	0	0	0
-educ. Completed/interrupted	9	0	1	0	6	2	0	0	0	0	0	0	0	0	0
-student lodging	19	0	0	2	6	3	4	0	2	0	0	0	0	1	1
<b>Housing/Environmental</b>															
-acquired/seeking new land/house	287	0	0	0	17	52	56	57	32	26	17	7	9	6	8
-river erosion	15	0	0	0	0	0	1	4	2	2	0	2	0	2	2
<b>Move as Dependent</b>															
-join with/follow spouse	164	0	0	0	7	21	38	39	25	10	13	6	1	1	3
-join with/follow parents	1129	529	259	136	89	64	32	12	4	2	1	0	0	1	0
-join with son/ daughter/sister/brother	98	24	21	13	13	8	2	4	2	2	1	1	1	1	5
-join with other relatives	193	39	13	5	5	27	30	28	22	13	6	2	1	0	2
<b>Marriage/Familial</b>															
-marriage	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
-separation/divorce/widow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-adoption	9	7	1	0	0	0	0	0	0	0	0	0	0	1	0
-family friction/breakdown	31	0	0	0	3	5	8	5	4	1	3	0	1	1	0
-health or old age care	102	0	0	3	16	17	10	14	10	8	4	6	5	3	6
<b>Legal Problems</b>	27	0	0	0	0	6	7	5	3	1	2	2	0	1	0
<b>Other and Not Stated</b>															
-others n.e.c.*	123	3	1	16	40	25	13	6	13	2	0	0	2	0	2
-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, 2005**

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	4372	606	340	301	1040	847	534	228	145	83	53	36	28	38	93
<b>Work/Economic/Educational</b>															
-acquired/seeking job	186	0	0	24	21	34	56	17	15	9	6	0	1	1	2
-job completion/retirement	100	0	0	3	47	27	9	5	6	1	1	1	0	0	0
-to acquire education	174	0	61	70	33	6	3	0	0	1	0	0	0	0	0
-educ. completed/interrupted	2	0	0	0	2	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
<b>Housing/Environmental</b>															
-acquired/seeking new land/house	84	0	0	0	4	17	13	7	11	5	2	4	4	5	12
-river erosion	3	0	0	0	0	1	0	0	1	0	0	0	1	0	0
<b>Move as Dependent</b>															
-join with/ follow spouse	1078	0	0	0	265	315	231	100	61	37	27	16	9	9	8
-join with/follow parents	1434	528	233	144	254	138	80	32	15	6	1	1	1	0	1
-join with son/daughter/sister/brother	187	28	25	21	17	15	8	5	1	2	7	2	3	13	40
-join with other relatives	272	33	13	21	54	60	37	20	11	5	2	1	5	2	8
<b>Marriage/Familial</b>															
-marriage	452	0	0	7	265	139	29	6	5	1	0	0	0	0	0
-separation/divorce/widow	128	0	0	2	24	26	26	19	9	8	4	6	1	1	2
-adoption	24	17	5	1	0	0	0	0	1	0	0	0	0	0	0
-family friction/breakdown	71	0	0	0	12	26	14	6	5	3	0	1	0	2	2
-health or old age care	53	0	0	0	12	12	7	3	1	3	0	1	2	2	10
<b>Legal Problems</b>	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<b>Other and Not Stated</b>															
-others n.e.c.*	123	0	3	8	30	31	20	8	3	2	3	3	1	3	8
-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, 2005**

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	139	170	78	47	26	460	147	101	94	46	31	419
	Urban	713	1098	437	202	148	2598	393	354	346	152	110	1355
Chittagong	Rural	620	262	167	115	78	1242	479	166	150	91	55	941
	Urban	155	167	79	38	36	475	101	76	60	38	35	310
Sylhet	Rural	16	6	6	7	2	37	11	5	5	9	1	31
	Urban	35	25	13	6	9	88	33	22	13	9	6	83
Khulna	Rural	7	6	3	1	3	20	5	4	5	0	4	18
	Urban	8	4	3	2	3	20	4	5	7	2	5	23
Rajshahi	Rural	4	7	3	2	1	17	8	0	3	6	0	17
	Urban	5	3	4	0	2	14	6	0	2	0	0	8
Barisal	Rural	11	5	5	2	2	25	4	0	3	2	0	9
	Urban	6	5	6	0	2	19	8	2	4	5	0	19
India		17	21	9	5	9	61	6	6	4	2	1	19
Asia		2	55	64	42	6	169	3	2	38	29	14	86
Middle-east		6	258	300	105	22	691	2	24	121	106	51	304
Others		0	3	8	2	1	14	0	0	0	0	1	1
Unknown		3	6	3	1	4	17	3	0	0	1	1	5
<b>Total</b>		<b>1747</b>	<b>2101</b>	<b>1188</b>	<b>577</b>	<b>354</b>	<b>5967</b>	<b>1213</b>	<b>767</b>	<b>855</b>	<b>498</b>	<b>315</b>	<b>3648</b>

**Appendix A.21. Female migration by destination or origin, 2005**

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	145	215	70	38	28	496	123	152	86	28	36	425
	Urban	614	916	402	161	158	2251	388	423	253	71	95	1230
Chittagong	Rural	600	1188	409	115	83	2395	519	1109	311	90	72	2101
	Urban	143	244	70	31	23	511	123	124	62	19	21	349
Sylhet	Rural	11	17	7	2	6	43	15	6	8	4	4	37
	Urban	21	18	15	3	10	67	29	23	14	7	5	78
Khulna	Rural	3	3	4	2	2	14	5	6	1	1	2	15
	Urban	8	11	3	2	4	28	2	6	1	1	2	12
Rajshahi	Rural	9	12	4	2	3	30	8	8	4	1	2	23
	Urban	5	7	4	1	1	18	10	5	5	2	1	23
Barisal	Rural	5	9	3	1	1	19	7	8	3	0	0	18
	Urban	4	5	2	1	1	13	3	0	4	0	0	7
India		18	21	6	8	15	68	8	6	3	1	6	24
Asia		0	2	0	1	1	4	1	0	1	0	1	3
Middle-east		5	16	12	6	0	39	5	5	5	3	1	19
Other		0	3	3	0	1	7	0	0	0	0	0	0
Unknown		4	5	0	1	1	11	1	6	1	0	0	8
<b>Total</b>		<b>1595</b>	<b>2692</b>	<b>1014</b>	<b>375</b>	<b>338</b>	<b>6014</b>	<b>1247</b>	<b>1887</b>	<b>762</b>	<b>228</b>	<b>248</b>	<b>4372</b>



## Appendix B

## Mid-year population, births, and deaths by village, 2005

Village Code	Village name	Population	Live births	Deaths	Birth rate	Death rate
<b>ICDDR,B area:</b>						
D00	Charmukundi	2422	51	11	21.1	4.5
W00	Kaladi	6194	123	31	19.9	5.0
V10	Dhakirgaon	1784	36	9	20.2	5.0
V11	Nabakalash	2593	42	11	16.2	4.2
V31	Dighaldi	9351	206	69	22.0	7.4
V32	Mobarakdi	3229	96	20	29.7	6.2
V60	Suvankardi	989	23	6	23.3	6.1
V61	Munsabdi	689	11	5	16.0	7.3
V62	Shilmondi	934	27	4	28.9	4.3
V72	Upadi	6302	160	47	25.4	7.5
<b>Block A</b>		<b>34487</b>	<b>775</b>	<b>213</b>	<b>22.5</b>	<b>6.2</b>
H00	Lamchari	1247	15	6	12.0	4.8
V12	Bhangerpar	644	18	2	28.0	3.1
V13	Baburpara	730	19	3	26.0	4.1
V19	Lakshmipur	3000	85	27	28.3	9.0
V20	Dagorpur	1335	25	7	18.7	5.2
V21	Khadergaon	562	23	9	40.9	16.0
V22	Beloti	641	18	4	28.1	6.2
V23	Baluchar	627	8	3	12.8	4.8
V24	Machuakhal	2982	70	20	23.5	6.7
V26	Narayanpur	3007	72	22	23.9	7.3
V56	Pailpara	1525	34	12	22.3	7.9
V59	Doshpara	1580	45	6	28.5	3.8
V82	Dhanarpar	1709	48	14	28.1	8.2
V83	Padmapal	614	13	4	21.2	6.5
V85	Bhanurpara	491	12	3	24.4	6.1
V87	Hurmaisha	699	16	1	22.9	1.4
VBB	Nagda	4454	122	33	27.4	7.4
VBC	Naogaon	4952	124	40	25.0	8.1
<b>Block B</b>		<b>30799</b>	<b>767</b>	<b>216</b>	<b>24.9</b>	<b>7.0</b>

(continued)

Village code	Village name	Population	Live births	Deaths	Birth rate	Death rate
K00	Shahpur	946	24	9	25.4	9.5
L00	Tatkhana	581	16	3	27.5	5.2
M00	Char Nayergaon	204	5	3	24.5	14.7
N00	Aswinpur	2166	46	18	21.2	8.3
O00	Nayergaon	1920	39	15	20.3	7.8
P00	Titerkandi	2141	38	16	17.7	7.5
Q00	Char Shibpur	252	7	2	27.8	7.9
V27	Panchghoria	949	18	5	19.0	5.3
V28	Khidirpur	1596	46	14	28.8	8.8
V30	Harion	564	13	1	23.0	1.8
V39	Gobindapur	353	7	3	19.8	8.5
V40	Masunda	796	21	2	26.4	2.5
V41	Paton	1811	40	12	22.1	6.6
V42	Adhara (South)	750	15	5	20.0	6.7
V44	Panchdona	627	15	8	23.9	12.8
V86	Adhara	931	23	2	24.7	2.1
V88	Datikara	519	11	3	21.2	5.8
VBA	Meharon	2448	42	28	17.2	11.4
DX0	Barogaon	3645	96	25	26.3	6.9
DX1	Naojan	1366	33	15	24.2	11.0
<b>Block C</b>		<b>24565</b>	<b>555</b>	<b>189</b>	<b>22.6</b>	<b>7.7</b>
R00	Nandalalpur	1490	47	15	31.5	10.1
S00	Tatua	942	20	3	21.2	3.2
T00	Amuakanda	1670	47	9	28.1	5.4
V15	Bhati Rasulpur	748	19	7	25.4	9.4
V16	Binandapur	865	20	7	23.1	8.1
V17	Hatighata	1098	23	4	20.9	3.6
V18	Torkey	3982	68	28	17.1	7.0
V25	Char Pathalia	1349	35	14	25.9	10.4
V29	Shibpur (South)	505	13	1	25.7	2.0
V33	Shibpur (North)	457	7	4	15.3	8.8
V34	Satparia	820	16	6	19.5	7.3

(continued)

Village code	Village name	Population	Live births	Deaths	Birth rate	Death rate
V52	Nayakandi	215	1	2	4.7	9.3
V54	Balairkandi	612	11	8	18.0	13.1
V55	Induria	528	13	3	24.6	5.7
V63	Islamabad (East)	2113	47	8	22.2	3.8
V67	Majlishpur	627	7	6	11.2	9.6
V81	Sonaterkandi	700	24	6	34.3	8.6
V84	Shahbajkandi	2299	55	15	23.9	6.5
V89	Islamabad (Middle)	1480	38	11	25.7	7.4
<b>Block D</b>		<b>22500</b>	<b>511</b>	<b>157</b>	<b>22.7</b>	<b>7.0</b>
<b>ICDDR,B area: Total</b>		<b>112351</b>	<b>2608</b>	<b>775</b>	<b>23.2</b>	<b>6.9</b>
<b>Government area:</b>						
A00	Uddamdi	3277	75	15	22.9	4.6
B00	Charmasua	2071	40	13	19.3	6.3
C00	Sarderkandi	4007	96	29	24.0	7.2
F00	Sepoykandi	1486	24	11	16.2	7.4
G00	Thatalia	2987	67	17	22.4	5.7
J00	Char Harigope	746	20	7	26.8	9.4
U00	Baispur	8874	195	42	22.0	4.7
V01	Kadamtali	409	11	2	26.9	4.9
V02	Nilokhi	493	11	3	22.3	6.1
V03	Char Nilokhi	636	18	3	28.3	4.7
V04	Char Pathalia	335	7	2	20.9	6.0
V05	Gazipur	3286	71	28	21.6	8.5
V06	Fatepur	2480	67	18	27.0	7.3
V07	Nayakandi	312	7	1	22.4	3.2
V08	Goalbhar	1155	21	7	18.2	6.1
V09	Naburkandi	1207	21	7	17.4	5.8
V14	Enayetnagar	797	18	8	22.6	10.0
V35	Durgapur	3877	86	27	22.2	7.0
V36	Ludhua	5565	112	27	20.1	4.9
V37**	Charputia	-	-	-	-	-
V38	Galimkha	1594	49	11	30.7	6.9
V43	Kanachak	1027	21	5	20.4	4.9

(continued)

Village						
code	Village name	Population	Live births	Deaths	Birth rate	Death rate
V45	Bakchar	1080	32	6	29.6	5.6
V46	Silinda	397	8	3	20.2	7.6
V47	Tulatali	1855	47	18	25.3	9.7
V48	Gangkanda	585	18	6	30.8	10.3
V49	Harina Bhabanipur	1275	27	7	21.2	5.5
V50	Bakharpur	57	1	0	17.5	0.0
V51	Induriakandi	555	17	6	30.6	10.8
V53	Chhoto Haldia	3015	75	32	24.9	10.6
V57	Baluchar	1081	25	11	23.1	10.2
V58**	Mohishmari	-	-	-	-	-
V64	Kawadi	4671	120	33	25.7	7.1
V65	Nayachar	809	13	6	16.1	7.4
V66	Thatalia	861	14	8	16.3	9.3
V68	Sobahan	1072	21	10	19.6	9.3
V69**	Naobangha	-	-	-	-	-
V70**	South Joypur	-	-	-	-	-
V71	Khamarpara	498	5	1	10.0	2.0
V73	Sadardia	854	19	6	22.2	7.0
V74	Ketundi	1477	46	8	31.1	5.4
V75	Mukundi	321	3	1	9.3	3.1
V76	Chosoi	1805	57	14	31.6	7.8
V78	Soladana	243	5	1	20.6	4.1
V79	Pitambordi	364	7	2	19.2	5.5
V80	Daribond	1249	35	8	28.0	6.4
V90	Narinda	1249	30	7	24.0	5.6
V95	Baluchar	2300	63	14	27.4	6.1
V96	Rampur	687	26	3	37.8	4.4
V97	Dhanagoda	350	10	2	28.6	5.7
V98	Santoshpur	128	2	0	15.6	0.0
V99	Baluakandi	547	20	5	36.6	9.1
VB1	Taltoli	1104	20	11	18.1	10.0
VB2	Sree Rayerchar	1158	25	9	21.6	7.8
VB3	Rayerkandi	3043	64	34	21.0	11.2

(continued)

Village code	Village name	Population	Live births	Deaths	Birth rate	Death rate
VB4	Ramdaspur	3640	79	34	21.7	9.3
VB5	Thakurpara	865	18	7	20.8	8.1
VB6	Sarkerpara	516	8	7	15.5	13.6
VB7	Mirpur	340	11	4	32.4	11.8
VB8	Farazikandi	1334	28	11	21.0	8.2
VB9**	Ramanathgonj	-	-	-	-	-
VB0	South Rampur	2858	63	20	22.0	7.0
D28	Bazarkhola	1113	32	13	28.8	11.7
D29	Kirtonkhola	194	5	0	25.8	0.0
D30	Banuakandi	777	20	8	25.7	10.3
D31	Harina Bazarkhola	1085	26	12	24.0	11.1
D32	Khalisha	773	21	4	27.2	5.2
D33	Nayanagar	1079	29	9	26.9	8.3
D34	Saidkharkandi	1396	29	11	20.8	7.9
D35	Mollah Kandi	624	14	4	22.4	6.4
D88	Sankibhanga	1534	40	9	26.1	5.9
D89	Namapara	1162	27	7	23.2	6.0
D90	Zahirabad	968	27	9	27.9	9.3
D91**	North Joypur	-	-	-	-	-
D92**	West Joypur	-	-	-	-	-
D93	Maizkandi	1341	27	10	20.1	7.5
D94	Hazipur	1514	35	4	23.1	2.6
D95	Tapaderpara	590	11	4	18.6	6.8
D96	Sakharipara	1105	28	5	25.3	4.5
D97	Nayakandi	762	18	5	23.6	6.6
D98	Bara Haldia	3451	68	25	19.7	7.2
D99	Mandertoli	2067	46	10	22.3	4.8
<b>Government area: Total</b>		<b>112399</b>	<b>2602</b>	<b>787</b>	<b>23.1</b>	<b>7.0</b>

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

\*\*Lost due to river erosion in 1987

## Appendix C

### Life table equations

$$1. \quad {}_nq_x = \frac{{}_nm_x}{\frac{1}{n} + {}_nm_x \left[ \frac{1}{2} + \frac{n}{12} ({}_nm_x - \ln C) \right]} \quad \text{if } X > 0$$

$q_0$  = Infant death rate per 1000 live births.

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

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

$$3. \quad L_0 = 0.20 l_0 + 0.80 l_1$$

$$L_1 = 0.410 l_1 + 0.590 l_2$$

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

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

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

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

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 .50.)

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
<b>Total</b>	<b>100000</b>	<b>100</b>

Source: Age standardization of rates: a new WHO standard (2000)  
[www.who.int/whosis/statistics/discussion\\_papers/pdf/paper31.pdf](http://www.who.int/whosis/statistics/discussion_papers/pdf/paper31.pdf)

Appendix E

Interventions in child and reproductive health in ICDDR,B area					
Date	Activity	MCH-FP Block			
		A	B	C	D
Oct 1977	Family planning	X	X	X	X
Mar 1978	Tetanus toxoid to pregnant women	X	X	X	X
Jan 1979	ORT	X	X	X	X
Dec 1981	Tetanus toxoid to all women	X		X	
Dec 1985		X	X	X	X
Mar 1982	Measles vaccine	X		X	
Dec 1985		X	X	X	X
Sep 1982	Antenatal care	X		X	
Jan 1986		X	X	X	X
Jan 1985	Iron/folic acid to pregnant women	X		X	
Jan 1986		X	X	X	X
Mar 1986	EPI immunizations (BCG, DPT, Polio)	X	X	X	X
Sep 1988	Nutritional rehabilitation	X	X	X	X
Jan 1986	Vitamin A distribution	X	X	X	X
Mar 1987	Maternity care			X	X
Apr 1988	ARI		X		X
Jul 1991		X	X	X	X
Apr-Dec 1989	Dysentery		X		X
1991	Dysentery stopped	-	-	-	-
1997	Sub-centre delivery			X	
1998					X
2000			X		
2001		X			
2000	Fixed Site Clinic			X	X
2001		X	X		



## Appendix F

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