HEALTH AND DEMOGRAPHIC SURVEILLANCE SYSTEM – MATLAB

Volume Forty Nine
Registration of Health and Demographic Events 2014

Scientific Report No. 133 – May 2016

icddr,b

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icddr,b

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Cover page:
Peter Kim Streatfield, Head of the Matlab HDSS during 1999-2014, kicks off updating newly printed books of household members in HDSS area with demographic events after declaration of moving towards an auto-updated database of household members in future.

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Matlab HDSS is a founding member of INDEPTH (International Network of field sites with continuous Demographic Evaluation of Populations and their Health in developing countries), an international network of DSS field sites involved in demographic and health research in developing countries since 1998. Matlab HDSS makes use of WHO/HMN/LSHTM/INDEPTH Network/USAID/MEASURE Evaluation Standardized Verbal Autopsy (VA) tools. For more information on INDEPTH Network, please refer to INDEPTH Monograph Series and visit www.indepth-network.org.

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List of abbreviation

BCG	Bacillus Calmette–Guérin
CBR	Crude Birth Rate
CDR	Crude Death Rate
CHRW	Community Health Research Worker
COPD	Chronic Obstructive Pulmonary Disease
CPR	Contraceptive Prevalence Rate
CRL	Cholera Research Laboratory
DPT	Diphtheria, Pertussis and Tetanus
DSS	Demographic Surveillance System
FRS	Field Research Supervisor
FWV	Family Welfare Visitor
GIS	Geographical Information System
GPS	Global Positioning System
GAC	Global Affairs Canada
HDSS	Health and Demographic Surveillance System
HDSU	Health and Demographic Surveillance Unit
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IMR	Infant Mortality Rate
INDEPTH	International Network of field sites with continuous Demographic Evaluation of Population and Their Health in developing countries
IUD	Intra-uterine Device
MCH-FP	Maternal and Child Health and Family Planning
MDG	Millennium Development Goal
NGO	Non-government Organization
RKS	Record Keeping System
Sida	Swedish International Development Cooperation
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
U5MR	Under-five Mortality Rate
UESD	Utilization of Essential Service Delivery Survey
UKAid	Department of International Development, UK
VA	Verbal Autopsy
WHO	World Health Organization

SUMMARY

This report presents the vital registration and maternal and child health statistics gathered from Matlab, Bangladesh, in 2014. 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 health and family planning services. The icddr,b service area is sub-divided into four blocks, where family planning, immunization and limited curative services are provided to under-five children and women of reproductive age.

In the surveillance area as a whole, fertility slightly increased in 2014 compared to 2013. The crude birth rate (CBR) was 21.6 per 1,000 populations in 2014 whereas in 2013 the rate was 20.9 and total fertility rate (TFR) was 2.6 per woman in 2014 and 2.5 in 2013. In the icddr,b service area, CBR was 22.0 and TFR was 2.6 and in the Government service area, CBR and TFR were 21.1 and 2.6 respectively.

The crude death rate was 6.8 per 1,000 population in the icddr,b service area, and in Government service area it was 6.7 in 2014. The infant mortality rate was 25.2 per 1,000 live births in the icddr,b service area, and in the Government service area it was 29.8. The neonatal mortality rate increased to 19.5 from 17.3 in the icddr,b service area and 25.1 from 21.2 in the Government service area respectively in 2014 from 2013; post-neonatal mortality decreased in the icddr,b service area (from 5.9 to 5.7) and decreased in the Government service area (from 5.4 to 4.7). Under five mortality rate has increased from 31.6 in 2013 in the icddr,b service area to 34.0 in 2014, and in the Government service area, the increase was from 38.3 in 2013 to 39.6 in 2014. The overall rate of natural increase in population size was 14.8 per 1,000 in 2014.

The rate of in-migration increased to 47.4 per 1,000 populations in 2014 from 45.0 in 2013, and the rate of out-migration increased to 54.2 in 2014 from 47.3 in 2013. The overall annual population growth rate was 0.8%. The marriage rate was 14.6 per 1,000 population, and the divorce rate was 1.7 per 1,000 population.

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 (Figure 1.1). The Health and Demographic Surveillance System (HDSS), formerly Demographic Surveillance System (DSS), is one of the major components of this field programme. Today the Matlab HDSS is recognized worldwide by population experts and health scientists as one of the longest continuing demographic surveillance sites in a developing country.

Since 1966, the HDSS has maintained the registration of births, deaths, and migrations, in addition to carrying out periodical censuses. Registration of marital unions and dissolutions began in 1975, internal movement in 1982, and household headship as well as household dissolution in 1993. Later in 1998, the Record Keeping System (RKS) and Geographical Information System (GIS) were integrated into HDSS. The Community Health Research Workers (CHRWs) obtain vital demographic and health information by visiting each household in their assigned areas bi-monthly since 2007, monthly prior to that. HDSS data were collected using event registration forms since 2011 by using PDA (Personal Data Assistant), and since 2014 using Galaxy Tabs. The activities of CHRWs are supervised by Field Research Supervisors (FRSs), and quality of collected information is monitored through independent data verification in the field. A detailed description of the Matlab HDSS and its operation appears in the CRL Scientific Report No. 9 (1978)[1], icddr,b Special Publication No. 35 (1994), and 72 (1998)[2].

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 (Figure 1.1). Since the introduction of the icddr,b service programme, the CHRWs have collected data on child and reproductive health from female respondents, delivered maternal health care, provided information on contraception and contraceptives, and administered immunizations to mothers and children in the icddr,b service area. This system of collecting data on child and reproductive health is known as the Record-Keeping System (RKS), which was later expanded to Government service area in 2001. 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 service area were transferred to the Government service area.

This is the forty nineth volume of a series of scientific reports of the Matlab Health and Demographic Surveillance System produced by icddr,b. Data obtained from the Matlab HDSS area in 2014, along with brief notes and explanations of the tables, are presented in this volume.

[1] Available online at: http://www.icddrb.org/publication.cfm?classificationID=64&pubID=7869
[2] Available online at: http://www.icddrb.org/publication.cfm?year=1998&classificationID=64

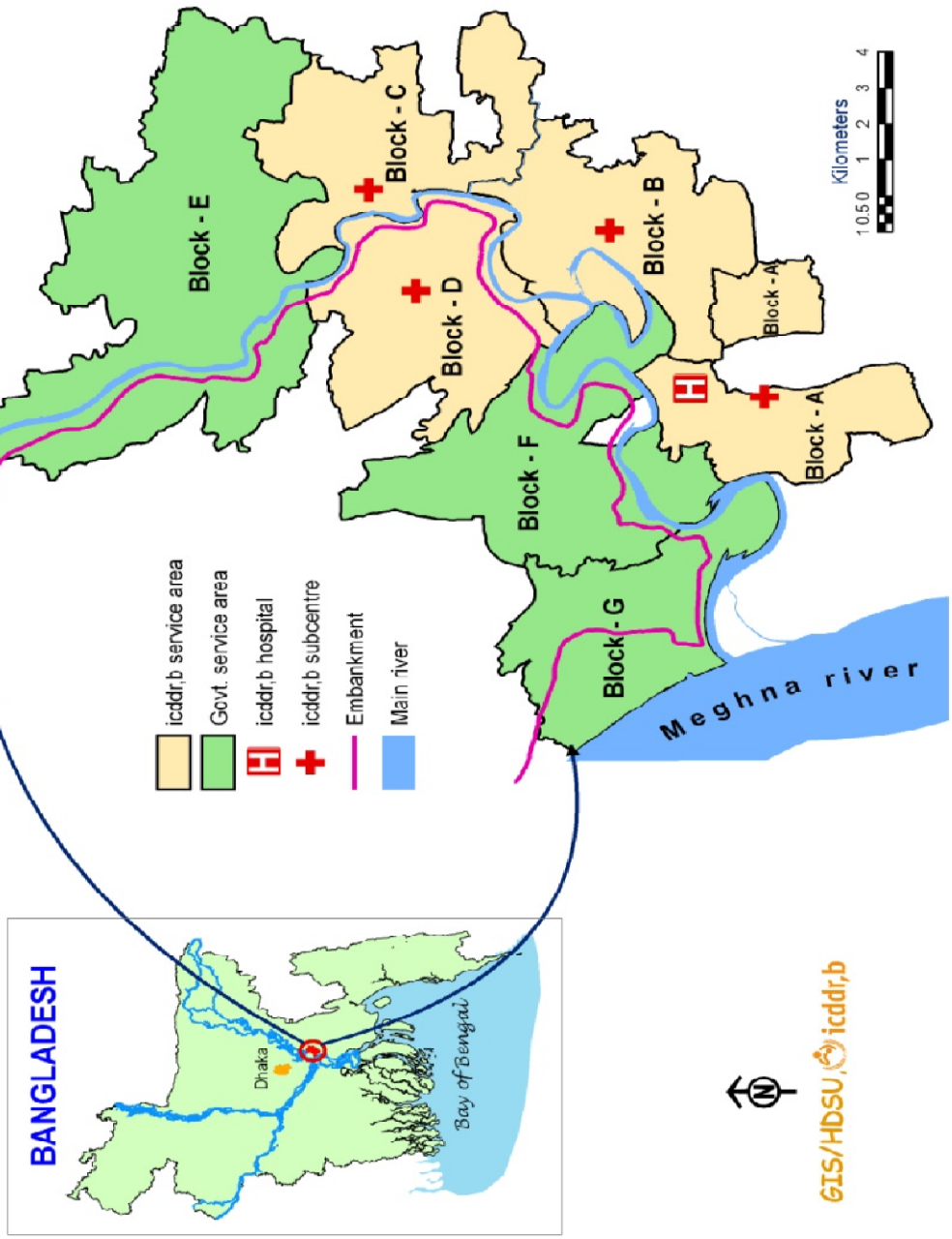


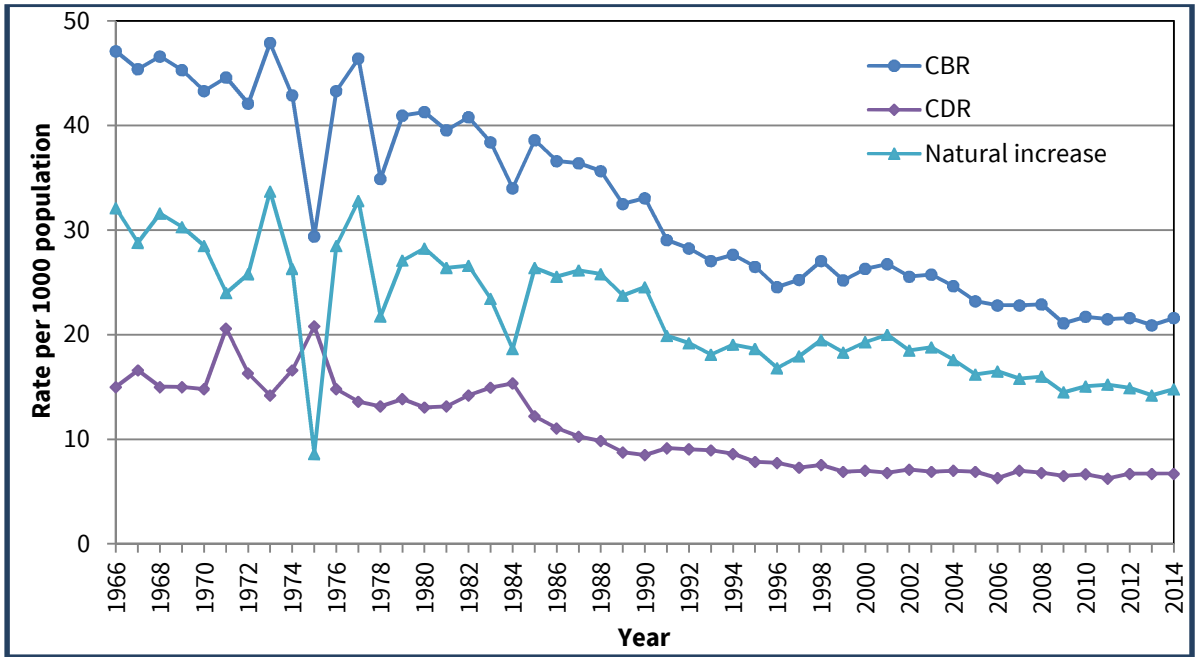
Figure 1.1 Map of Matlab study area showing icddr,b and Government service areas

CHAPTER 2

DEMOGRAPHIC TRENDS IN MATLAB

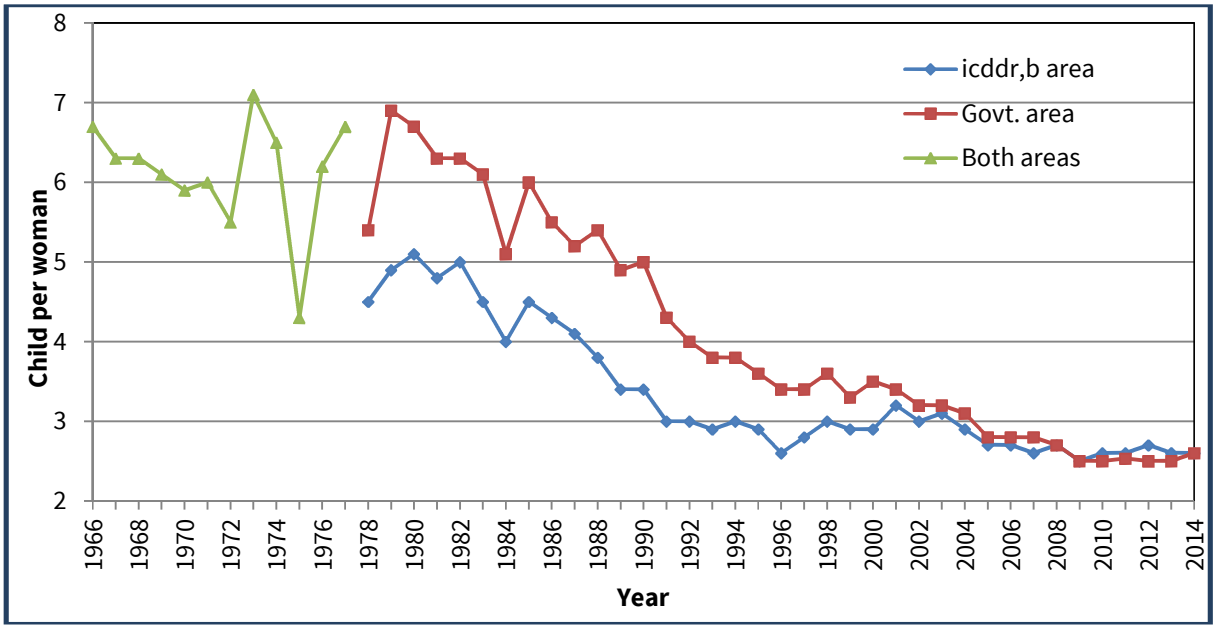
Long term Matlab HDSS data show the various transitions in the Matlab population over the period 1966-2014. In the early stages of demographic surveillance (1960s and 1970s), the Matlab population was characterized by high fertility, high mortality and high population growth. Apart from a Shigella outbreak in 1984 following the famine in 1974 and the Liberation War in 1971, there has been steady decline in natural increase, fertility and mortality to the present. Figure 2.1 shows that over the period 1966-2014, crude birth rate (CBR) has dropped by 54.1%, crude death rate (CDR) by 55.3%, and natural increase by 53.9%. Fertility in Matlab has remained at a moderate level since the early 1990s, and coupled with gradual declines in mortality, it is evident that Matlab is now at the third stage of the demographic transition.

Figure 2.1 Demographic transitions in Matlab, 1966-2014



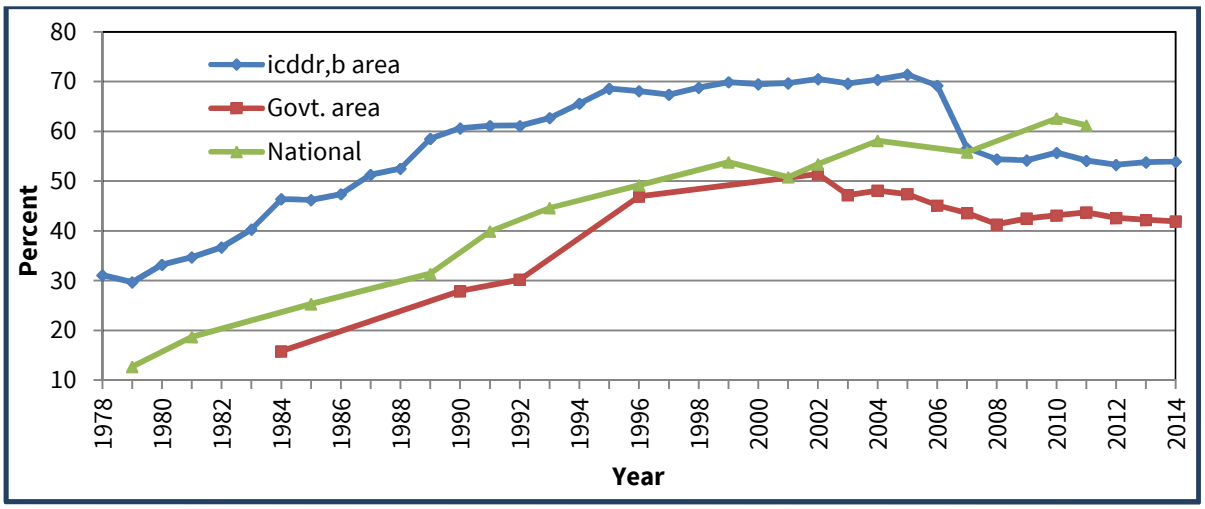
Matlab surveillance area started with a high fertility level of 6.7 children per women in 1966. After reorganization of the surveillance area into icddr,b and Government service areas in 1978, total fertility rate (TFR) in icddr,b service area remained substantially lower than the Government service area (on average 1.1 child less per woman during 1978-2000). But from 2005, TFR in both areas converged. It is 2.6 children per woman in icddr,b service area and Government service area in 2014 (Figure 2.2).

Figure 2.2 Total fertility rates (TFR) in Matlab by area, 1966-2014



Provision of contraceptive supply and advice has been carried out since the inception of the program by female CHRWs. They visited all households in the icddr,b service area on a regular basis and took this opportunity to meet with women in the household to advise and provide contraception and also to monitor the continuity of the chosen method till 2000. This method of service provision has dramatically increased women's access to contraceptive services in Matlab and is associated with a high contraceptive prevalence rate (CPR). From 2001, this home service delivery system has been switched to the fixed-site system. From 2007, half of the CHRWs were assigned to provide services and another half to carry out the surveillance work. CPR increased in the icddr,b service area from 33.2 in 1978 to 71.4 in 2005, but has declined since 2007 was 56.6 to 53.9 in 2014 and it is lower than the national level. In the Government service area CPR is even lower than the national level, however, CPR declined from 43.6 in 2007 to 41.9 in 2014 (Figure 2.3).

Figure 2.3 Contraceptive prevalence rates (CPR) in Matlab and Bangladesh, 1978-2014



A large part of the decline in mortality in Matlab since the mid-1960s is a result of substantial reductions in infant and child mortality. Figure 2.4 shows that in the icddr,b service area, infant mortality rate (IMR) fell by 78.0% over the period 1978-2014. In Government service area, IMR declined by 76.3% over the same period. Figure 2.5 shows that, during the same period, under-five mortality rate (U5MR) declined by 81.9% in icddr,b service area and 80.2% in Government service area. In both areas, the famine in 1974 had the greatest influence on the infant and child mortality followed by the shigella outbreak in 1984.

Figure 2.4 Infant mortality rates (IMR) in Matlab by area, 1966-2014

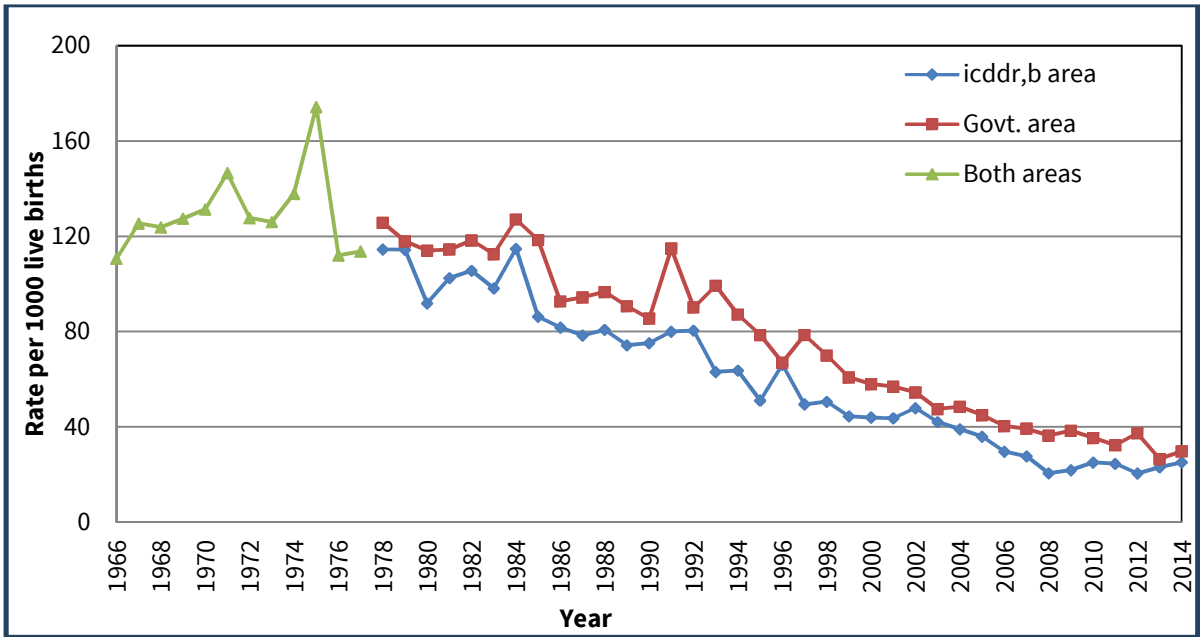
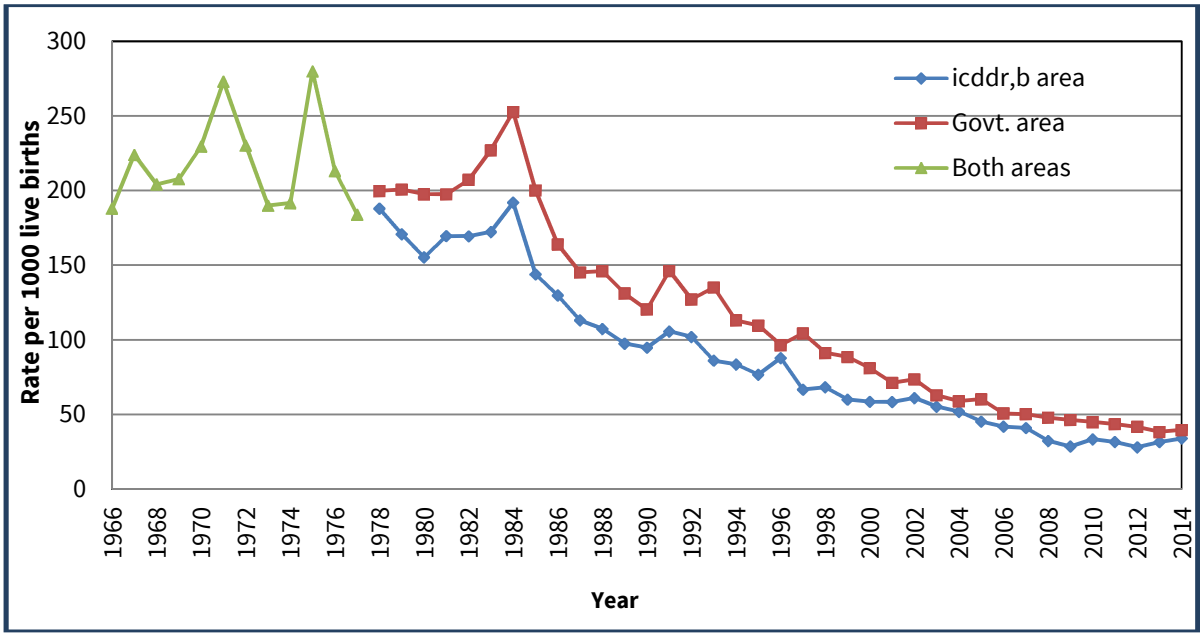
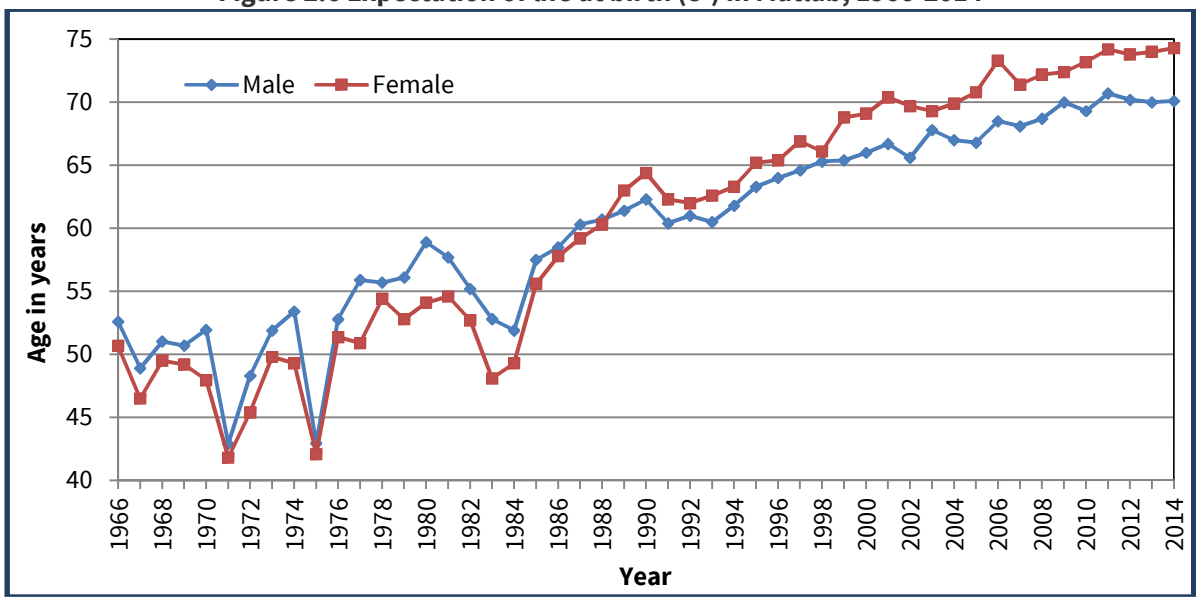


Figure 2.5 Under-five mortality rates (U5MR) in Matlab by area, 1966-2014



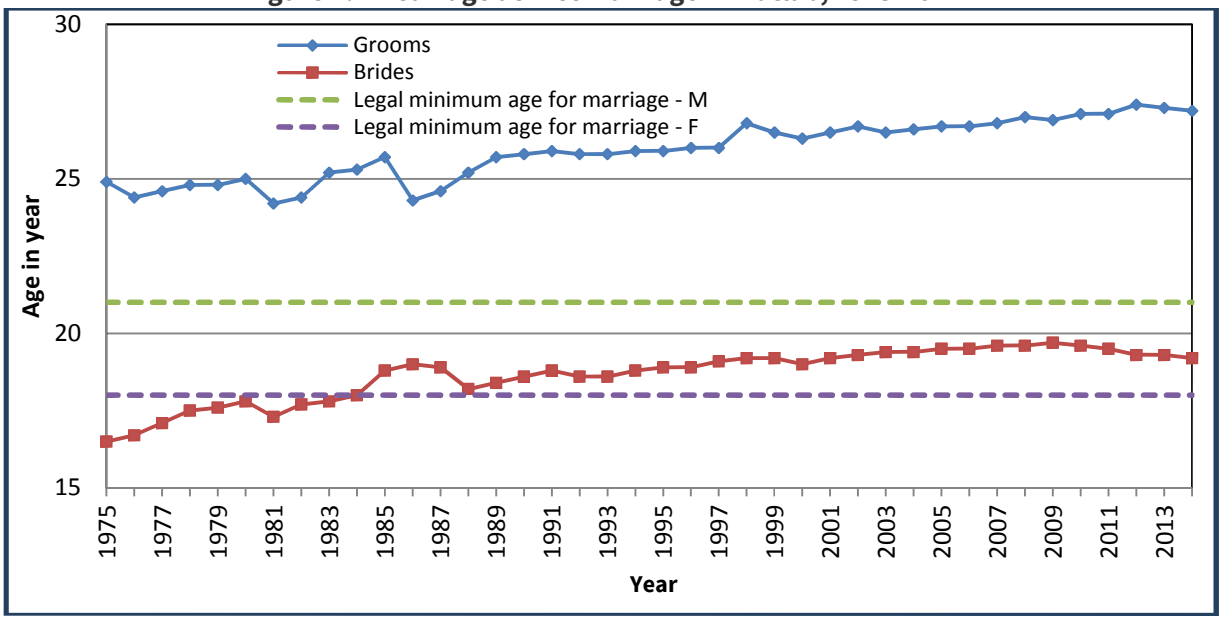
Massive reductions of infant and child mortality have resulted in a remarkable improvement in life expectancy at birth over the last 49 years. The life expectancy at birth for males rose from 53 years in 1966 to 70.0 in 2014, a gain of 17.0 years and for females, the improvement is even more evident, from 51 to 74.0, a gain of nearly 23.0 years for diminishing gender difference in childhood mortality and maternal mortality (Figure 2.6).

Figure 2.6 Expectation of life at birth (e^0) in Matlab, 1966-2014



The Figure 2.7 shows the trends in mean age at first marriage for brides and grooms in Matlab. Mean age at first marriage has increased in both areas during 1975-2014. During this period, brides' mean age at marriage increased by 2.7 years and for grooms, it increased by 2.3 years.

Figure 2.7 Mean age at first marriage in Matlab, 1975-2014



CHAPTER 3

POPULATION CHANGES

The principal vital statistics of the icddr,b and Government service areas from 2003 through 2014 are summarized in Table 3.1. The mid-year population and the demographic events registered in 2014 in both icddr,b and Government service areas are shown in Table 3.2. Appendix B shows the mid-year population, births, and deaths by village.

In 2014, the crude birth rate slightly increased to 22.0 and 21.1 in the icddr,b service area and in the Government service area from the 2013 level of 21.7 and 20.2 in the respective areas. The crude death rates are equal in 2014 (6.7) and in 2013 for both the areas. The TFR was 2.6 are equal in year 2014 and 2013 in icddr,b service area but in Government service area it was 2.6 in 2014 and 2.5 in 2013. The trends in the TFR in both areas are illustrated in Figure 2.2 of Chapter 2.

The infant mortality rate increased to 25.2 in 2014 from 23.1 in 2013 in the icddr,b service area, and 29.8 in 2014 from 26.6 in 2013 in the Government service area. In the icddr,b service area, neonatal mortality also increased to 19.5 in 2014 from 17.3 in 2013, and in the Government service area it was also increased to 25.2 in 2014 from 21.2 in 2013. The mortality rate of children aged 1-4 years in the icddr,b service area was 2.2 in 2013 and 2.3 in 2014, and in the Government service area it decreased from 3.1 to 2.5. As a result of these changes, under-five mortality increased in the icddr,b service area from 31.6 per 1,000 live births in 2013 to 34.0 in 2014, and in the Government service area it also increased slightly from 38.3 in 2013 to 39.6 in 2014. The trends in mortality of children aged less than 5 years are illustrated in Figures 2.4 and 2.5 in Chapter 2.

The numbers of in- and out-migrants registered in 2014 were 10,915 and 12,484 respectively, giving an in-migration rate of 47.4 per 1,000 population, out-migration rate of 54.2 and a net migration rate of 6.8 per 1,000 populations leaving the area. Out-migrants continued to out number in-migrants, thus offsetting the rate of natural increase and keeping the overall annual population growth rate to 0.8%.

The age-sex distribution of the mid-year population of the Matlab HDSS area is shown in Tables 3.3 and 3.4. Block-wise mid-year population in the icddr,b service area and government service area are shown in Appendix A.1a and A.1b respectively. The age-sex distribution of the mid-year population is illustrated by the population pyramid (Figure 3.1). The fertility decline in the surveillance area in the 1978-2014 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 service area at the beginning of the icddr,b service project in 1978. By 2014, this proportion had fallen to 32.1%. In the Government service area, the change in age structure was almost same in the icddr,b service area – children aged less than 15 years in the Government service area decreased from 43.3% of the total population in 1978 to 32.2% in 2014 . On the other hand, the percent of elderly population (60 years and over) in the surveillance area has increased from 5.6% in 1978 to 10.2% in 2014 due to the decline in both fertility and mortality. The net population increase was 8.0 per 1,000 in 2014 while it was 12.0 per 1,000 in 2013, due to the increase in the number of out-migrants. A major cause for men being fewer than women in age group

15-49, as shown in the population pyramid, could be higher out-migration rate among the men in that age group.

Table 3.1. Vital statistics of icddr,b and Government service areas*, 2003-2014

Vital rate (per 1,000)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Crude birth rate												
icddr,b area	26.4	24.5	23.2	22.9	22.6	23.5	21.6	22.0	21.8	22.6	21.7	22.0
Government area	25.1	24.8	23.1	22.7	23.0	22.1	20.5	21.4	21.1	20.5	20.2	21.1
Both areas	25.7	24.7	23.2	22.8	22.8	22.9	21.1	21.7	21.5	21.6	20.9	21.6
Total fertility rate**												
icddr,b area	3.1	2.9	2.7	2.7	2.6	2.7	2.5	2.6	2.6	2.7	2.6	2.6
Government area	3.2	3.1	2.8	2.8	2.8	2.7	2.5	2.5	2.5	2.5	2.5	2.6
Both areas	3.1	3.0	2.8	2.7	2.7	2.7	2.5	2.6	2.6	2.6	2.5	2.6
Crude death rate												
icddr,b area	6.8	6.7	6.9	6.3	6.8	6.4	6.2	6.7	6.1	6.6	6.7	6.8
Government area	7.0	7.4	7.0	6.4	7.1	7.2	6.9	6.7	6.4	6.7	6.7	6.7
Both areas	6.9	7.0	6.9	6.3	7.0	6.8	6.5	6.7	6.2	6.7	6.7	6.7
Neonatal mortality***												
icddr,b area	31.5	29.6	26.5	23.5	20.3	15.8	16.2	18.5	18.2	15.6	17.3	19.5
Government area	33.8	35.3	35.4	30.1	29.9	26.1	33.5	27.3	25.5	30.3	21.2	25.1
Both areas	32.6	32.5	30.9	26.8	25.1	20.7	24.4	22.7	21.7	22.4	19.1	22.1
Post-neonatal mortality***												
icddr,b area	10.6	9.5	9.6	6.2	7.4	4.9	5.7	6.7	6.3	4.9	5.9	5.7
Government area	13.7	13.2	9.6	10.3	9.4	10.4	4.9	8.1	6.9	7.1	5.4	4.7
Both areas	12.1	11.4	9.6	8.2	8.4	7.5	5.3	7.4	6.6	5.9	5.7	5.2
Infant mortality***												
icddr,b area	42.1	39.1	36.0	29.7	27.7	20.6	21.9	25.1	24.6	20.5	23.1	25.2
Government area	47.5	48.5	45.0	40.4	39.3	36.4	38.4	35.4	32.4	37.4	26.6	29.8
Both areas	44.8	43.9	40.5	35.0	33.5	28.1	29.8	30.1	28.3	28.3	24.7	27.4
Child mortality (1-4yrs) #												
icddr,b area	3.6	3.4	2.4	3.2	3.4	3.0	1.7	2.1	1.8	1.9	2.2	2.3
Government area	4.1	2.7	4.0	2.6	2.8	2.9	2.1	2.5	2.9	1.1	3.1	2.5
Both areas	3.9	3.1	3.2	2.9	3.1	3.0	1.9	2.3	2.3	1.5	2.6	2.4
Under five mortality***												
icddr,b area	55.2	51.9	45.3	41.9	41.0	32.3	28.6	33.4	31.6	28.0	31.6	34.0
Government area	62.9	58.9	60.2	50.7	50.3	47.9	46.4	45.0	43.6	41.7	38.3	39.6
Both areas	59.1	55.4	52.8	46.2	45.7	39.7	37.1	39.0	37.4	34.2	34.7	36.6
Rate of natural increase												
icddr,b area	19.6	17.8	16.3	16.6	15.8	17.1	15.4	15.3	15.7	16.0	15.0	15.3
Government area	18.0	17.5	16.1	16.3	15.9	14.9	13.7	14.7	14.8	13.8	13.5	14.4
Both areas	18.8	17.6	16.2	16.5	15.8	16.0	14.5	15.1	15.2	14.9	14.2	14.8
In-migration	40.4	42.1	35.7	43.5	40.0	44.0	54.1	48.5	41.5	44.6	45.0	47.4
Out-migration	55.4	57.9	53.3	57.3	63.5	65.7	58.0	59.5	57.6	53.5	47.3	54.2
Growth (%)	0.4	0.2	-0.1	0.3	-0.8	-0.6	1.1	0.4	-0.1	0.6	1.2	0.8

*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

Table 3.2. Mid-year population, events registered, and population changes, 2014

Demographic indicator	Number			(per 1,000 live births or per 1000 population)		
	Total	Male	Female	Total	Male	Female
Total Population (as of 30 June 2014)						
icddr,b service area	118926	55120	63806	-	-	-
Government service area	111259	51581	59678	-	-	-
Both areas	230185	106701	123484	-	-	-
Events registered (Jan-Dec. 2014)						
Births**						
icddr,b service area	2621	1315	1306	22.0	-	-
Government service area	2347	1223	1124	21.1	-	-
Both areas	4968	2538	2430	21.6	-	-
Deaths						
Infants deaths*						
icddr,b service area	66	38	28	25.2	28.9	21.4
Government service area	70	43	27	29.8	35.2	24.0
Both areas	136	81	55	27.4	31.9	22.6
All deaths**						
icddr,b service area	806	440	366	6.8	8.0	5.7
Government service area	744	413	331	6.7	8.0	5.5
Both areas	1550	853	697	6.7	8.0	5.6
In-migration**	10915	5189	5726	47.4	48.6	46.4
Out-migration**	12484	5990	6494	54.2	56.1	52.6
Marriage**	3365	-	-	14.6	-	-
Divorce**	383	-	-	1.7	-	-
Population change (Jan-Dec. 2014)						
Net migration**	-1569	-801	-768	-6.8	-7.5	-6.2
Natural increase**						
icddr,b service area	1815	875	940	15.3	15.9	14.7
Government service area	1603	810	793	14.4	15.7	13.3
Both areas	3418	1685	1733	14.8	15.8	14.0
Net increase**	1849	884	965	8.0	8.3	7.8

*Per 1,000 live births
**Per 1,000 populations

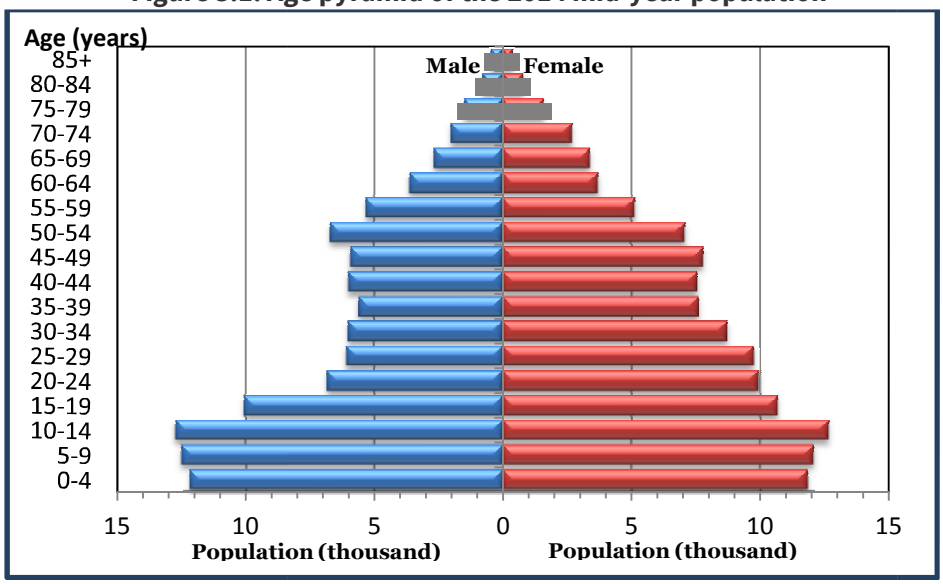
Table 3.3. Mid-year population by age and sex, 2014

Age (years)	Number			Percent		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	230185	106701	123484	100.0	100.0	100.0
<1 year	4881	2498	2383	2.1	2.3	1.9
1 – 4	19125	9657	9468	8.3	9.1	7.7
1	*4781*	*2396*	*2385*	*2.1*	*2.2*	*1.9*
2	*5036*	*2561*	*2475*	*2.2*	*2.4*	*2.0*
3	*4724*	*2387*	*2337*	*2.1*	*2.2*	*1.9*
4	*4584*	*2313*	*2271*	*2.0*	*2.2*	*1.8*
5 – 9	24579	12486	12093	10.7	11.7	9.8
10-14	25377	12695	12682	11.0	11.9	10.3
15-19	20732	10040	10692	9.0	9.4	8.7
20-24	16779	6826	9953	7.3	6.4	8.1
25-29	15822	6075	9747	6.9	5.7	7.9
30-34	14721	5995	8726	6.4	5.6	7.1
35-39	13195	5592	7603	5.7	5.2	6.2
40-44	13555	5998	7557	5.9	5.6	6.1
45-49	13692	5898	7794	5.9	5.5	6.3
50-54	13789	6689	7100	6.0	6.3	5.7
55-59	10454	5306	5148	4.5	5.0	4.2
60-64	7316	3599	3717	3.2	3.4	3.0
65-69	6033	2659	3374	2.6	2.5	2.7
70-74	4700	2001	2699	2.0	1.9	2.2
75-79	3059	1472	1587	1.3	1.4	1.3
80-84	1546	771	775	0.7	0.7	0.6
85+	830	444	386	0.4	0.4	0.3

Table 3.4. Mid-year population by age, sex, and area, 2014

Age (years)	icddr,b service area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	118926	55120	63806	111259	51581	59678
<1 year	2597	1317	1280	2284	1181	1103
1 – 4	10001	5088	4913	9124	4569	4555
1	*2521*	*1259*	*1262*	*2260*	*1137*	*1123*
2	*2672*	*1360*	*1312*	*2364*	*1201*	*1163*
3	*2393*	*1226*	*1167*	*2331*	*1161*	*1170*
4	*2415*	*1243*	*1172*	*2169*	*1070*	*1099*
5 – 9	12738	6534	6204	11841	5952	5889
10-14	12837	6307	6530	12540	6388	6152
15-19	10411	4964	5447	10321	5076	5245
20-24	8642	3360	5282	8137	3466	4671
25-29	8264	3185	5079	7558	2890	4668
30-34	7656	3130	4526	7065	2865	4200
35-39	7104	3051	4053	6091	2541	3550
40-44	7150	3210	3940	6405	2788	3617
45-49	7231	3122	4109	6461	2776	3685
50-54	7124	3497	3627	6665	3192	3473
55-59	5335	2754	2581	5119	2552	2567
60-64	3756	1852	1904	3560	1747	1813
65-69	3032	1343	1689	3001	1316	1685
70-74	2327	1026	1301	2373	975	1398
75-79	1509	734	775	1550	738	812
80-84	783	405	378	763	366	397
85+	429	241	188	401	203	198

Figure 3.1. Age pyramid of the 2014 mid-year population



CHAPTER 4

MORTALITY

The age and sex specific distribution of death cases is shown in Tables 4.1 and 4.2 respectively. Of the 1,550 deaths, 8.9% were infants, 3.0% were children aged 1-4 years, and 64.3% were aged 60 years and above.

Table 4.3 shows difference in mortality rates per 1000 mid-year population and per 1000 person-years. Except for infant mortality the age-specific death rates did not differ for changing units from mid-year population to person-years. Henceforth, subsequent tables provide death rates per 1000 mid-year population. Table 4.4 shows the corresponding age-sex-specific mortality rates by service area. In 2014, the overall death rates for males and females were 8.0 and 5.6 respectively. Infant mortality rate was 31.9 per 1,000 live births for males and 22.6 for females. It was lower in the icddr,b service area (28.9 and 21.4, respectively) than in the Government service area (35.2 and 24.0, respectively), a result of improvements in the neonatal mortality in the icddr,b service area. Block-wise deaths in the icddr,b and government service areas by age and sex are shown in Appendix A.2a and A.2b respectively.

Table 4.5 shows the abridged life tables for males and females derived from age-sex specific death rates, and the survival (lx) times are plotted in Figure 4.1 (for Life Table Equations see Appendix C). The expectation of life at birth was 70.1 years for males and 74.3 for females in 2014 and 70.0 for males and 74.0 for females in 2013. The level of adult (15-59 years) mortality increased in 2014 compared to 2013. The probability of dying for males aged 15-59 years (45q15) was 162.0, and for females it was 104.4 per 1,000 populations in 2014 and in 2013 it was 147.0 and 99.0 for males and females respectively. In most of the age-groups, expectation of life is longer for females than males.

The expectation of life at birth was higher for females than males in both areas. In 2014, the gender difference in expectation of life was lower in the icddr,b service area (3.5 years) than in the Government service area (4.8 years). Expectation of life at most of the age-groups in each area was higher for females than for males (Appendices A.3 and A.4).

Table 4.6 shows the distribution of deaths by age and month of occurrence. Deaths of those aged 5-64 years tend to peak in the months October-December, January, March and May. Neonatal deaths were most frequent in January, April, June and September. Post-neonatal deaths and child deaths, on the other hand, does not show any seasonal pattern. Figure 4.1 shows that the probability of survival for males and females started to differ from age 40 with females having a higher probability of survival in later age-groups.

Deaths by underlying causes, sex, age, and by areas are shown in Appendix A.5 – A.8. Table 4.7 gives the age-standardized mortality rates by cause of death (obtained using Verbal Autopsy) 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 led by tuberculosis occurred more in males than females in both service areas. Septicaemia occurred more in females than males in the Government service area. Prematurity and low birth weights 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 other cardiovascular disesase), neoplasms, COPD and digestive diseases were more prominent in both sexes and in both the areas. Accidents, drowning and suicide were the major causes of death in the injury category, irrespective of sex and area.

Table 4.1. Deaths by age and sex in both areas, 2014

Age (years)	Both sexes		Male		Female	
	Number	Cumulative percentage	Number	Cumulative percentage	Number	Cumulative percentage
All ages	1550	-	853	-	697	-
<1 year	136	-	81	-	55	-
< 7 days	87	5.6	53	6.2	34	4.9
7 - 29 days	23	7.1	15	8.0	8	6.0
1- 5 months	24	8.6	13	9.5	11	7.6
6-11 months	2	8.8	0	9.5	2	7.9
1 – 4 years	46	-	23	-	23	-
1	25	10.4	14	11.1	0	7.9
2	11	11.1	4	11.6	11	9.5
3	7	11.5	3	12.0	7	10.5
4	3	11.7	2	12.2	4	11.0
5 – 9	13	12.6	8	13.1	5	11.8
10-14	6	13.0	3	13.5	3	12.2
15-19	18	14.1	6	14.2	12	13.9
20-24	10	14.8	3	14.5	7	14.9
25-29	23	16.3	14	16.2	9	16.2
30-34	21	17.6	7	17.0	14	18.2
35-39	16	18.6	9	18.1	7	19.2
40-44	20	19.9	11	19.3	9	20.5
45-49	53	23.4	26	22.4	27	24.4
50-54	94	29.4	55	28.8	39	30.0
55-59	112	36.6	78	38.0	34	34.9
60-64	92	42.6	65	45.6	27	38.7
65-69	134	51.2	81	55.1	53	46.3
70-74	192	63.6	86	65.2	106	61.5
75-79	256	80.1	137	81.2	119	78.6
80-84	167	90.9	86	91.3	81	90.2
85+	141	100.0	74	100.0	67	100.0

Table 4.2. Deaths by area, age, and sex, 2014

Age (years)	icddr,b service area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	806	440	366	744	413	331
<1 year	66	38	28	70	43	27
< 7 days	36	22	14	*51*	31	20
7 - 29 days	*15*	*10*	*5*	*8*	5	3
1- 5 months	*13*	*6*	*7*	*11*	7	4
6-11 months	*2*	*0*	*2*	*0*	0	0
1 – 4 years	23	11	12	23	12	11
1	*12*	*7*	*5*	*13*	7	6
2	*7*	*3*	*4*	*4*	1	3
3	*4*	*1*	*3*	*3*	2	1
4	*0*	*0*	*0*	*3*	2	1
5 – 9	3	1	2	10	7	3
10-14	2	0	2	4	3	1
15-19	10	1	9	8	5	3
20-24	4	2	2	6	1	5
25-29	10	8	2	13	6	7
30-34	12	5	7	9	2	7
35-39	6	4	2	10	5	5
40-44	10	6	4	10	5	5
45-49	33	17	16	20	9	11
50-54	53	28	25	41	27	14
55-59	62	41	21	50	37	13
60-64	46	35	11	46	30	16
65-69	74	41	33	60	40	20
70-74	100	44	56	92	42	50
75-79	136	75	61	120	62	58
80-84	86	45	41	81	41	40
85+	70	38	32	71	36	35

Table 4.3. Death rates per 1,000 mid-year population and per 1,000 person- years by age and sex in both areas, 2014

Age (years)	Deaths per 1,000 mid-year population			Deaths per 1,000 person-years		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	6.7	8.0	5.6	6.7	8.0	5.6
<1 year*	27.4	31.9	22.6	27.4	31.9	22.6
*<7 days**	17.5	20.9	14.0	17.5	20.9	14.0
*7 - 29 days**	4.6	5.9	3.3	4.6	5.9	3.3
*1- 5 months**	4.8	5.1	4.5	4.8	5.1	4.5
*6-11 months**	0.4	0.0	0.8	0.4	0.0	0.8
1 – 4 years	2.4	2.4	2.3	2.4	2.4	2.4
1	5.2	5.8	0.0	5.2	5.8	0.0
2	2.2	1.6	4.4	2.2	1.6	4.5
3	1.5	1.3	3.0	1.5	1.2	3.0
4	0.7	0.9	1.8	0.7	0.9	1.7
5 – 9	0.5	0.6	0.4	0.5	0.6	0.4
10-14	0.2	0.2	0.2	0.2	0.2	0.2
15-19	0.9	0.6	1.1	0.9	0.6	1.1
20-24	0.6	0.4	0.7	0.6	0.4	0.7
25-29	1.5	2.3	0.9	1.5	2.3	0.9
30-34	1.4	1.2	1.6	1.4	1.2	1.6
35-39	1.2	1.6	0.9	1.2	1.6	0.9
40-44	1.5	1.8	1.2	1.5	1.8	1.2
45-49	3.9	4.4	3.5	3.9	4.4	3.5
50-54	6.8	8.2	5.5	6.8	8.2	5.5
55-59	10.7	14.7	6.6	10.7	14.7	6.6
60-64	12.6	18.1	7.3	12.5	18.0	7.2
65-69	22.2	30.5	15.7	22.2	30.5	15.7
70-74	40.9	43.0	39.3	40.5	42.7	39.0
75-79	83.7	93.1	75.0	83.5	93.1	74.7
80-84	108.0	111.5	104.5	107.5	111.1	103.9
85+	169.9	166.7	173.6	168.7	165.1	172.9

* Deaths per 1,000 live births or 1,000 person-years of <1 year

Table 4.4. Death rates by area, age, and sex, 2014 (per 1,000 population)

Age (years)	icddr,b service area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	6.8	8.0	5.7	6.7	8.0	5.5
<1 year	25.2	28.9	21.4	29.8	35.2	24.0
*<7 days**	13.7	16.7	10.7	21.7	25.3	17.8
*7 - 29 days**	*5.7*	*7.6*	*3.8*	*3.4*	*4.1*	*2.7*
*1- 5 months**	*5.0*	*4.6*	*5.4*	*4.7*	*5.7*	*3.6*
*6-11 months**	*0.8*	*0.0*	*1.5*	*0.0*	*0.0*	*0.0*
1 – 4 years	2.3	2.2	2.4	2.5	2.6	2.4
1	*4.8*	*5.6*	*4.0*	*5.8*	*6.2*	*5.3*
2	*2.6*	*2.2*	*3.0*	*1.7*	*0.8*	*2.6*
3	*1.7*	*0.8*	*2.6*	*1.3*	*1.7*	*0.9*
4	*0.0*	*0.0*	*0.0*	*1.4*	*1.9*	*0.9*
5 – 9	0.2	0.2	0.3	0.8	1.2	0.5
10-14	0.2	0.0	0.3	0.3	0.5	0.2
15-19	1.0	0.2	1.7	0.8	1.0	0.6
20-24	0.5	0.6	0.4	0.7	0.3	1.1
25-29	1.2	2.5	0.4	1.7	2.1	1.5
30-34	1.6	1.6	1.5	1.3	0.7	1.7
35-39	0.8	1.3	0.5	1.6	2.0	1.4
40-44	1.4	1.9	1.0	1.6	1.8	1.4
45-49	4.6	5.4	3.9	3.1	3.2	3.0
50-54	7.4	8.0	6.9	6.2	8.5	4.0
55-59	11.6	14.9	8.1	9.8	14.5	5.1
60-64	12.2	18.9	5.8	12.9	17.2	8.8
65-69	24.4	30.5	19.5	20.0	30.4	11.9
70-74	43.0	42.9	43.0	38.8	43.1	35.8
75-79	90.1	102.2	78.7	77.4	84.0	71.4
80-84	109.8	111.1	108.5	106.2	112.0	100.8
85+	163.2	157.7	170.2	177.1	177.3	176.8

*Deaths per 1,000 live births

Table 4.5. Abridged life table by sex, 2014

Age (years)	Male				Female			
	$_nq_x$	l_x	L_x	$e0_x$	$_nq_x$	l_x	L_x	$e0_x$
0	31.9	100000	97287	70.1	22.6	100000	98076	74.3
1	5.8	96809	96476	71.4	0.0	97737	97737	75.0
2	1.6	96244	96169	70.8	4.4	97737	97520	74.0
3	1.3	96094	96034	69.9	3.0	97303	97158	73.3
4	0.9	95974	95932	69.0	1.8	97012	96927	72.5
5	3.2	95891	478747	68.1	2.1	96841	483747	71.7
10	1.2	95584	477659	63.3	1.2	96641	482944	66.8
15	3.0	95471	476699	58.4	5.6	96527	481391	61.9
20	2.2	95186	475449	53.5	3.5	95987	479158	57.2
25	11.5	94977	472375	48.6	4.6	95650	477234	52.4
30	5.8	93889	468183	44.2	8.0	95209	474292	47.6
35	8.0	93342	464984	39.4	4.6	94448	471242	43.0
40	9.1	92594	461018	34.7	5.9	94014	468786	38.2
45	21.8	91748	454113	30.0	17.2	93456	463572	33.4
50	40.3	89746	440334	25.6	27.1	91850	453488	28.9
55	71.1	86126	416350	21.6	32.5	89359	440065	24.7
60	86.6	80005	383807	18.0	35.7	86453	425109	20.4
65	142.1	73073	340808	14.5	75.8	83365	402078	16.1
70	194.9	62691	284240	11.5	179.6	77049	352264	12.1
75	377.6	50475	204800	8.6	316.6	63214	266876	9.2
80	434.8	31414	122453	7.3	413.6	43203	170983	7.3
85+	1000.0	17755	106532	6.0	1000.0	25332	145944	5.8

Table 4.6. Deaths by month and age, 2014

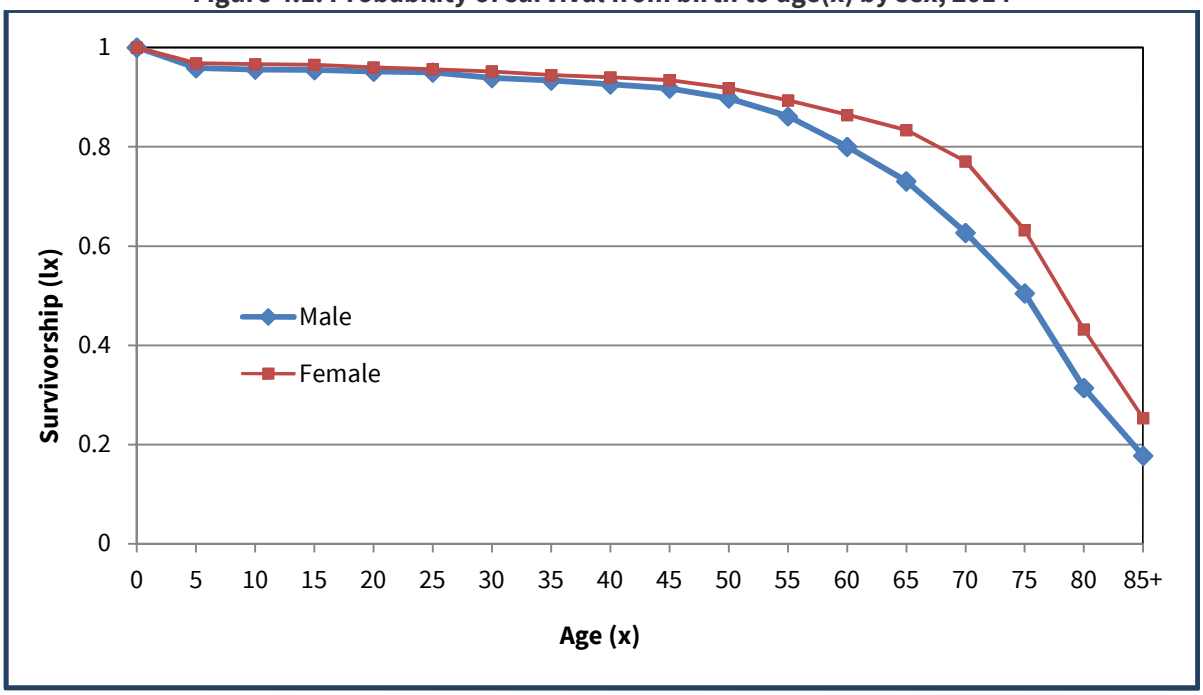
Months	All ages	Age at death				
		<1 month	1-11 months	1-4 years	5-64 years	65 years and above
January	152	11	2	3	40	96
February	130	8	3	3	39	77
March	148	7	0	8	44	89
April	115	12	5	1	36	61
May	110	9	0	4	44	53
June	115	11	3	5	32	64
July	116	8	2	2	38	66
August	89	5	2	4	34	44
September	125	18	4	6	32	65
October	133	9	0	2	49	73
November	157	6	2	7	46	96
December	160	6	3	1	44	106
Total	**1550**	**110**	**26**	**46**	**478**	**890**

Table 4.7. Age-standardized mortality rates by cause of death, 2014 (per 100,000 population)*

Cause of death	Male		Female	
	icddr,b area	Govt. area	icddr,b area	Govt. area
Communicable diseases				
Diarrhoeal	(8.75)	(1.53)	(6.59)	(1.85)
Dysentery	(2.22)	0.00	0.00	0.00
Tuberculosis	20.21	27.71	(3.72)	(3.20)
Meningitis	0.00	0.00	(4.13)	(1.54)
Hepatitis	(7.49)	(4.37)	(1.78)	(1.57)
EPI related death	0.00	0.00	0.00	(1.54)
Septicaemia	31.09	16.79	30.03	35.05
Respiratory infections	8.25	8.77	(1.42)	(3.80)
Other communicable	0.00	0.00	0.00	(1.48)
Maternal and neonatal conditions				
Maternal death	-	-	(4.80)	11.24
Premature and LBW	(4.10)	(3.05)	0.00	0.00
Birth asphyxia	10.93	16.77	9.84	14.69
Other neonatal	23.23	25.91	15.47	19.58
Nutritional	(5.91)	12.94	(6.25)	(6.24)
Non-communicable diseases				
Neoplasm	95.29	118.36	43.24	33.18
Neoplasm in female organ	0.00	0.00	8.16	10.77
Congenital malformation	6.81	(4.57)	(4.24)	(3.17)
Diabetes	16.64	14.79	12.91	17.07
Other endocrine	(3.29)	0.00	0.00	(1.40)
Neuro-psychiatric	(4.16)	10.47	0.00	(3.03)
Rheumatic heart disease	0.00	0.00	(1.49)	0.00
Hypertensive disease	(6.33)	(2.03)	(1.56)	((1.57)
Ischaemic heart disease	148.72	105.16	101.02	64.60
Stroke	226.55	218.52	237.35	190.35
Other cardiovascular	40.83	44.64	43.39	45.45
COPD**	61.87	42.12	20.90	21.88
Asthma	0.00	0.00	(4.98)	(1.78)
Other respiratory	(4.46)	16.69	(4.07)	(6.51)
Digestive disease	27.81	25.32	22.18	8.75
Renal failure	9.56	14.06	11.78	(5.45)
Other non-communicable	(2.04)	(4.40)	(3.24)	0.00
Accident/injury				
Accident	25.27	24.74	14.07	15.65
Drowning	16.90	20.36	11.53	11.16
Suicide	(6.54)	(4.41)	9.68	15.40
Homicide	(4.02)	(6.98)	(1.41)	(5.25)
Miscellaneous causes				
Fever of unknown origin	(4.67)	0.00	(1.78)	0.00
Sudden infant death	(2.73)	(3.05)	(1.41)	(3.26)
Unknown/missing/unspecified	40.16	72.69	50.29	70.56
Total	**876.88**	**871.20**	**694.69**	**638.02**

*Age distribution of standard population is given in Appendix D
** Chronic obstructive pulmonary disease
() Less than 5 deaths

Figure 4.1. Probability of survival from birth to age(x) by sex, 2014



CHAPTER 5

FERTILITY

In 2014, there were 4,968 live births in the Matlab HDSS area as outcomes of 5,733 pregnancy terminations recorded. Table 5.1 shows the number of pregnancy terminations and their outcomes in 2014. In the Matlab HDSS area as a whole, 86.1% of pregnancies resulted in a live birth, a proportion that remains almost the same from year to year; pregnancies resulting in fetal wastage show no definite trend. Among the pregnancies resulting in live births, 32 were multiple births. Among these 30 had two live births and others are single live births.

Table 5.2 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 July, October, November and December. The sex ratio of live births was 104 males per 100 females; there is no definite trend over the period. Figure 5.1 shows births and deaths by month of occurrence. Seasonality of births peaks in natural increase in population in September, October, November and December.

Table 5.3 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 5.2 shows the age-specific fertility rates for both icddr,b and Government service areas. In the age groups 20-34, the fertility rates were higher in both areas. The age-specific fertility rates and related fertility measures for the icddr,b service 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 age-specific 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 service area and the Government service area. There is very little difference between the two areas for every birth order.

Table 5.4 shows marked variation in the distribution of live birth pregnancies by place of delivery and area. Institutional delivery accounts for 86.1% in the icddr,b service area and 49.1% in the Government service area. More commonly used places for institutional delivery in the Government service area were private clinic/nursing home (41.4%) and Upazila Health Complex (3.9%), and in icddr,b service area, private clinic/nursing home, icddr,b hospital, and sub-centre are 39.9%, 32.8% and 6.0% respectively. Table 5.5 shows the distribution of live birth pregnancies by birth attendants[3] and area. In the icddr,b service area, deliveries assisted by MBBS doctor ware the highest (44.3%) followed by nurse (30.5%) and Family Welfare Visitor (FWV) (12.1%) of the live-birth deliveries as

[3] The most qualified attendant was considered if there was more than one in attendance.

opposed to TBAs (30.0%), and MBBS doctor (38.6%) in the Government service area. The respective figures for trained TBAs were 3.3% and 16.6% in the icddr,b service area and Government service area, respectively. Medically trained birth attendants (doctors, nurses or midwives, female family planning visitors or family welfare visitors) assisted 86.9% of the live birth deliveries in the icddr,b service area and 52.5% in the Government service area.

Table 5.6 illustrates the mode of delivery of live births by area. Normal vaginal delivery (including use of drug and saline and/or Episiotomy) accounted for 57.9% in the icddr,b service area and 63.3% in the Government service area. Instrumental deliveries, especially caesarean were 42.1% and 36.7% respectively in the icddr,b service area and government service area.

Matlab HDSS recorded antenatal care received by mothers in different stages of pregnancy in 2014. Table 5.7 shows antenatal care received by mothers who had a live birth in 2014 in three trimesters by type of service providers. In the icddr,b service area, in first trimester 60.0% of the mothers did not receive any antenatal care as opposed to 83.5% in the Government service area. The respective figures for 2nd and 3rd trimester were 4.0% and 1.7% in the icddr,b service area and 35.8% & 12.8% in the Government service area. In the icddr,b service area, seeking antenatal care from skilled providers accounts for 39.3% in first trimester and 95.9%-98.0% in second and third trimesters. In this area, providers of antenatal care are icddr,b sub-centres (52.6% and 25.5% in 2nd and 3rd trimesters respectively) and icddr,b Matlab hospital (30.7% and 53.1% in 2nd and 3rd trimesters respectively). In the Government service area, skilled providers of antenatal care are private clinics (40.6% and 72.7% in 2nd and 3rd trimesters respectively), community clinics or Health family welfare centres (9.0% and 4.2% in 2nd and 3rd trimesters respectively) and government hospitals (3.1% and 2.5% in 2nd and 3rd trimesters respectively). In this area, others (that include untrained village doctors, herbalists (kabiraj) and homeopaths) are common providers of antenatal care.

Figure 5.1. Number of births and deaths by month, 2014

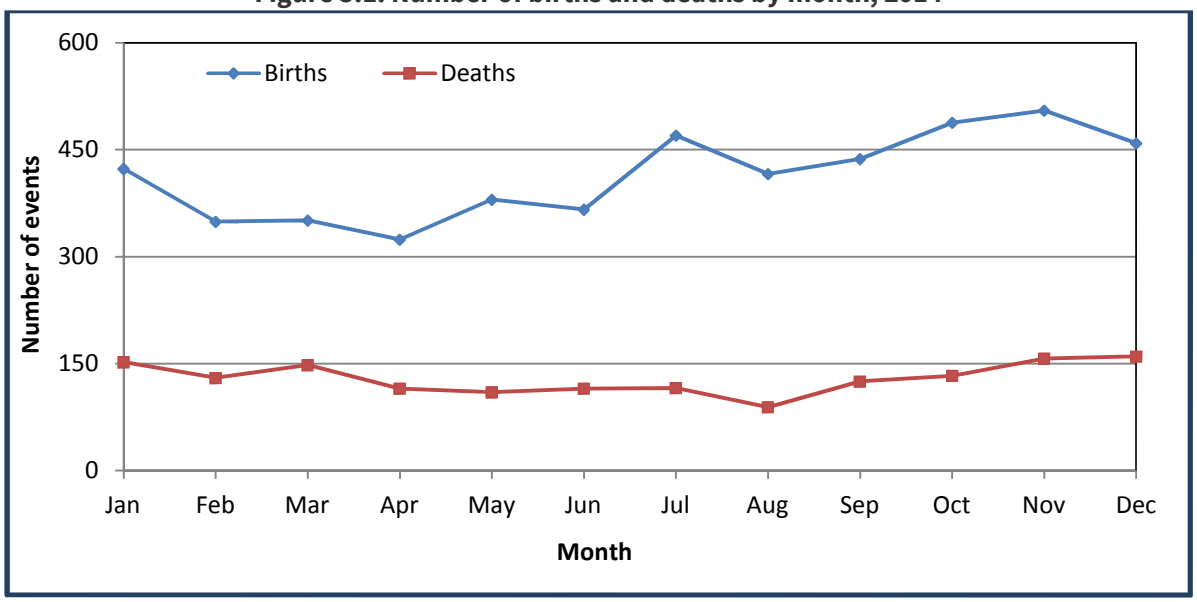


Table 5.1. Numbers and rates of pregnancy outcomes by type and area, 2014

Type of pregnancy outcome	Both areas		icddr,b area		Government area	
	Number	Rate	Number	Rate	Number	Rate
Total pregnancies*	5733	92.4	3023	93.2	2710	91.4
Live birth preg.**	4938	861.3	2610	863.4	2328	859.0
Fetal wastage**	795	138.7	413	136.6	382	141.0
Early(miscarriage)***	708	123.5	385	127.4	323	119.2
Induced	200	34.9	77	25.5	123	45.4
Spontaneous	508	88.6	308	101.9	200	73.8
Late (still birth)	87	15.2	28	9.3	59	21.8
Multiple birth pregnancy	34		14		20	
Multiple live birth pregnancy	32		12		20	
Three live births	0		0		0	
Two live births	30		11		19	
One live birth	2		1		1	
Still birth pregnancies	0		0		0	
Three still births	0		0		0	
Two still births	0		0		0	
Miscarriage pregnancies	2		2		0	

*Per 1000 women of age 15-49 years (GFR)
**Per 1000 total pregnancies
***Less than 28 weeks

Table 5.2. Pregnancy outcomes by month, 2014

Months	Pregnancy outcome					No. of live born children			
		Miscarriage		Still	Live	Both			
	All	Induced	Spon.	birth	birth[a]	sexes	Male	Female	Ratio
All months	**5733**	**200**	**508**	**87**	**4938**	**4968**	**2538**	**2430**	**1.04**
January	490	13	48	6	423	423	218	205	1.06
February	417	20	41	11	345	349	186	163	1.14
March	427	17	49	10	351	351	177	174	1.02
April	391	17	44	9	321	324	160	164	0.98
May	444	20	43	4	377	380	192	188	1.02
June	440	21	48	6	365	366	191	175	1.09
July	546	28	42	7	469	470	255	215	1.19
August	477	16	41	8	412	416	203	213	0.95
September	488	10	34	7	437	437	230	207	1.11
October	541	11	40	7	483	488	262	226	1.16
November	552	14	32	7	499	505	241	264	0.91
December	520	13	46	5	456	459	223	236	0.94

[a]For any multiple birth pregnancy, the outcome is recorded as live birth, if at least one of the issue is live born

Table 5.3. Age-specific fertility rates (per 1,000 women) and indices by area, 2014

Age (years)	Both areas		icddr,b area		Government area	
	Births	Rate	Births	Rate	Births	Rate
All ages	**4968**	**80.0**	**2621**	**80.8**	**2347**	**79.2**
15-19*	782	73.1	449	82.4	333	63.5
20-24	1594	160.2	857	162.2	737	157.8
25-29	1419	145.6	726	142.9	693	148.5
30-34	808	92.6	403	89.0	405	96.4
35-39	287	37.7	147	36.3	140	39.4
40-44	71	9.4	36	9.1	35	9.7
45-49**	7	0.9	3	0.7	4	1.1
Total fertility rate		2598		2614		2582
General fertility rate		80		81		79
Gross reproduction rate		1271		1303		1236
Net reproduction rate		1213		1245		1177

*Births to mothers under age 15 were included in this group
**Births to mothers age 50 and above were included in this group

Table 5.4. Distribution of pregnancies that ended with live birth by place of delivery by area, 2014

Place of Delivery	Both areas		icddr,b area		Government area	
	Number	Percent	Number	Percent	Number	Percent
Home	1536	31.1	354	13.6	1182	50.8
icddr,b sub-centre	156	3.2	156	6.0	0	0.0
icddr,b hospital	860	17.4	857	32.8	3	0.1
Upazila health complex	100	2.0	9	0.3	91	3.9
District hospital	226	4.6	182	7.0	44	1.9
Clinic/nursing home	2004	40.6	1041	39.9	963	41.4
Union Health and Family Welfare Centre	44	0.9	3	0.1	41	1.8
Others	12	0.2	8	0.3	4	0.2
Total	4938	100.0	2610	100.0	2328	100.0

Source: Birth registration form

Figure 5.2. Age-specific fertility rates by area, 2014

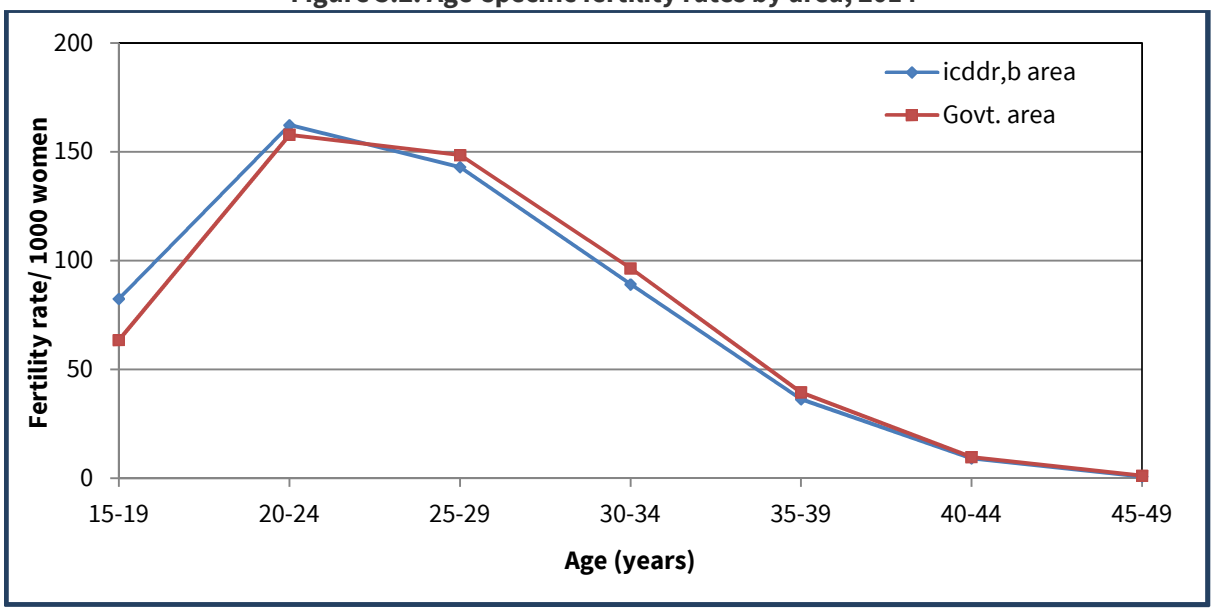


Table 5.5. Distribution of pregnancies that ended with live birth by attendant and area, 2014

Birth attendant	Both areas		icddr,b area		Government area	
	Number	Percent	Number	Percent	Number	Percent
TBA	953	19.3	242	9.3	711	30.5
Trained TBA	474	9.6	87	3.3	387	16.6
FWV	410	8.3	317	12.1	93	4.0
Nurse	1026	20.8	795	30.5	231	9.9
MBBS doctor	2055	41.6	1156	44.3	899	38.6
Others	15	0.3	9	0.3	6	0.3
None	5	0.1	4	0.2	1	0.0
Total	4938	100.0	2610	100.0	2328	100.0

TBA=Traditional Birth Attendant
FWV= Family Welfare Visitor

Table 5.6. Distribution of mode of delivery of live birth by area, 2014

Mode of Delivery	Both areas		icddr,b area		Government area	
	Number	Percent	Number	Percent	Number	Percent
Normal vaginal	2984	60.4	1511	57.9	1473	63.3
Operation (C/S)	1954	39.6	1099	42.1	855	36.7
Total	**4938**	**100.0**	**2610**	**100.0**	**2328**	**100.0**

Table 5.7. Percentage of prenatal care in different trimesters by area, 2014

Sources	icddr,b service area			Government service area		
	1st trimester	2nd trimester	3rd trimester	1st trimester	2nd trimester	3rd trimester
Trained TBA	0.0	0.0	0.0	0.0	0.3	0.1
CC/H &FWC/Sat. Clinic	0.9	0.0	0.0	2.5	9.0	4.2
icddr,b Sub-centre	26.6	52.6	25.5	0.3	1.1	0.6
Govt. Hospital/UHC	2.6	3.5	3.3	0.7	2.5	1.5
icddr,b Hospital	5.9	30.7	53.1	0.3	0.9	0.8
Chandpur MCWC	0.3	2.6	3.1	0.0	0.1	0.2
Private Clinic	3.2	6.5	13.1	10.6	40.4	72.7
Others	0.2	0.2	0.2	2.2	9.9	7.0
No care	60.4	4.0	1.7	83.5	35.8	12.8
No. of live birth	**2610**	**2610**	**2610**	**2328**	**2328**	**2328**

CC=Community Clinic, H&FWC=Health and Family Welfare Centre, UHC= Upazila Health Complex
MCWC=Maternal and Child Welfare Centre

CHAPTER 6

MARRIAGE AND DIVORCE

The procedures 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 2014 was 3,365, giving a crude marriage rate of 14.6 per 1,000 populations. This rate was 14.3 in 2013.

Tables 6.1 and 6.2 show the distribution of grooms and brides by age at marriage and previous marital status. The mean ages at marriage were 28.2 and 19.9 years for all grooms and brides respectively; 27.2 and 19.2 years for those marrying for the first time—are almost the same as those of 2013. One-third (35.2%) of the brides, who are married for the first time aged below 18 years and 5.6% of the grooms who are married the first time aged below 21 years . In general there has been a long-term gradual rise in age at first marriage of female in Matlab over 18 years for every year since 1985, while prior to that date it was consistently below that age.

Table 6.3 shows the marriage rates by age and sex. Among males, the marriage rate was 41.0 per 1,000 males aged 10 years and above, and for females the rate was 33.8 per 1,000 females aged 10 years and above. For females, the highest rate was 225.6 per 1,000 at the age of 18 years, while for males the highest rate was 287.3 per 1,000 at the age of 26 years. The age for the highest rate of marriage for males changed to age 26 years in 2014 from 28 years in 2013, but the age for the highest rate of marriage for female was the same to age 18 years in 2014 that of in 2013. Table 6.4 shows distribution of current marital status of the study population by age and sex in 2014. Of the total population 46.0% were currently married and it was higher for females than males (51.5% vs 46.0%). Widows also constituted a higher proportion for females (10.0%) than males (1.0%) - this difference, along with age-difference at marriage and life expectancy, maybe due to remarriage, which is more common for men than for women.

Table 6.6 shows the distribution of marriages by type of gifts received from bridal party at the time of marriage in 2010-2014. Groom's party received marriage gifts from the bride's father in half of all marriages. Gifts were received under two different contracts: there was a clear negotiation with the bridal party about the gift prior to the marriage or there was no such negotiation, but a gift was given for daughter's happiness. The first contract can be regarded as dowry and its incidence was 45.0% in 2014. Incidence of giving dowry shows a declining trend over time from 2010-2014 which indicates the improvement of social awareness. Dowry was paid in full at the time of marriage for one-sixth of the marriages and partially for one-fourth of all marriages.

The state law requires legal registration of marriages and divorces of Muslims and Christians (no such law exists for Hindus in Bangladesh). Table 6.7 shows increasing trend in registration of Muslim marriage. It increased to 91.5% in 2014 from 87.4% in 2002. The number of divorces was less than 300 each year during 1998-2001. Since 2002, this figure has been more than 300. In general, the incidence of divorce in Matlab has fallen. HDSS recorded 383 divorces in 2014 (Appendix A.12) and of them, 79.9% were registered with Kazi -the marriage register (Table 6.8). Table 6.5 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 42.0 months. Figure 6.1 shows the distribution of

marriages and divorces by month. There has been no strong seasonal pattern for marriages or divorces in 2014 but marriages were high in March, August and October and low in July. Table 6.9 shows the distribution of causes of divorce by area. CHRWs interviewed male and female partners (if available) and neighbors to determine the cause of the divorce. Most common cause was wife maladjustment with husband or husband's family (32.1%) followed by husband's affairs with other woman (18.8%) and wife's affairs with other man (16.4%).

Figure 6.1. Number of marriages and divorces by month, 2014

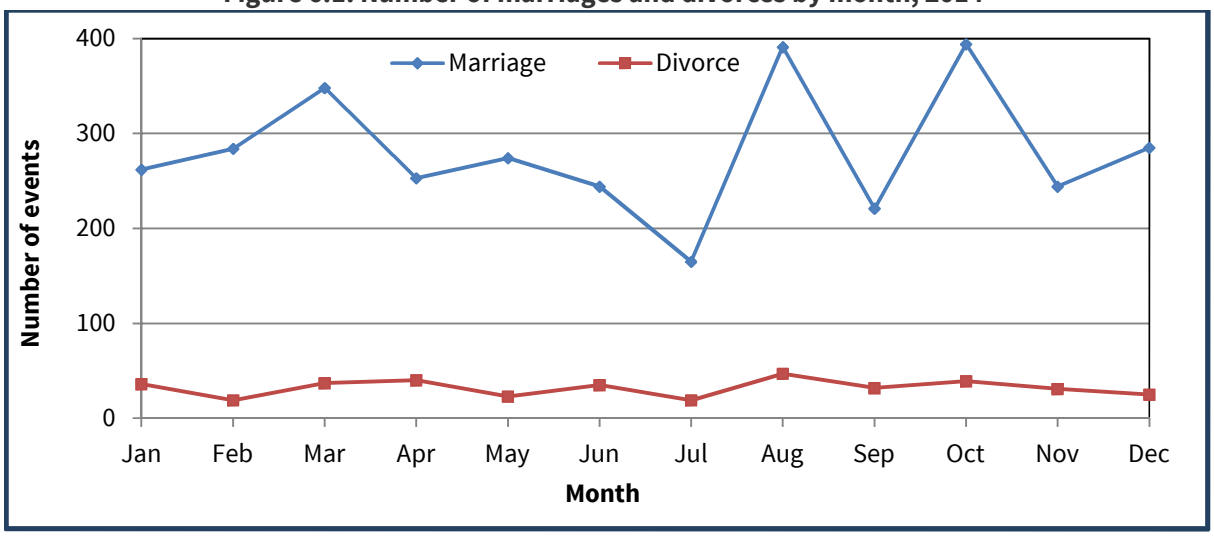


Table 6.1 Groom's age at marriage by previous marital status, 2014

Age (years)	All grooms	Previous marital status (%)			
		Single	Married	Divorced	Widowed
All ages	100 (n=3365)	86.9 (n=2925)	2.3 (n=78)	8.3 (n=279)	2.5 (n=83)
10-14	0.0	0.0	0.0	0.0	0.0
15-17	0.9	1.0	1.3	0.7	0.0
18	1.0	1.1	0.0	0.0	0.0
19	1.6	1.8	1.3	0.4	0.0
20	2.1	2.4	0.0	0.7	0.0
21	2.8	3.0	1.3	0.7	1.2
22-24	15.4	16.6	9.0	8.2	4.8
25-29	43.4	46.4	23.1	29.4	3.6
30-34	23.6	23.6	17.9	29.0	10.8
35-39	5.0	3.1	15.4	17.2	18.1
40-44	2.1	1.0	10.3	8.6	12.0
45-49	0.9	0.0	12.8	2.9	14.5
50-54	0.5	0.0	5.1	1.1	12.0
55-59	0.3	0.0	0.0	0.7	9.6
60-64	0.2	0.0	2.6	0.0	6.0
65+	0.2	0.0	0.0	0.4	7.2
Median age*	27.0	27.0	34.0	31.0	44.0
Mean age*	28.2	27.2	35.0	32.0	45.1
Standard deviation*	6.1	4.3	9.9	7.1	12.7

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

Table 6.2 Bride's age at marriage by previous marital status, 2014

Age (years)	All brides	Previous marital status (%)			
		Single	Married	Divorced	Widowed
All ages	100 (n=3365)	88.9 (n=2991)	-	10.2 (n=344)	0.9 (n=30)
10-14	3.8	4.3	-	0.3	0.0
15	5.8	6.4	-	1.2	3.3
16	9.7	10.8	-	1.7	0.0
17	12.5	13.7	-	2.9	6.7
18	13.7	14.8	-	5.2	0.0
19	11.0	11.6	-	5.8	6.7
20-24	31.2	31.0	-	34.0	26.7
25-29	8.8	6.5	-	27.6	16.7
30-34	2.0	0.7	-	12.5	6.7
35-39	0.8	0.3	-	5.2	0.0
40-44	0.3	0.0	-	2.0	13.3
45-49	0.2	0.0	-	0.9	16.7
50-54	0.1	0.0	-	0.6	0.0
55-59	0.0	0.0	-	0.0	3.3
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	27.5
Mean age*	19.9	19.2	-	25.4	31.1
Standard deviation*	4.6	3.5	-	6.5	11.8

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

Table 6.3 Marriage rates by age and sex, 2014

Age (years)	Male			Age (years)	Female		
	Marriages	Population	Rate*		Marriages	Population	Rate*
All ages (10+ yrs)	3365	82060	41.0	All ages (10+ yrs)	3365	99540	33.8
10-14	0	12695	0.0	10-14	129	12682	10.2
15-19	118	10040	11.8	15	196	2313	84.7
20-24	684	6826	100.2	16	328	2206	148.7
25	258	1267	203.6	17	421	2067	203.7
26	347	1208	287.3	18	460	2039	225.6
27	317	1251	253.4	19	369	2067	178.5
28	266	1245	213.7	20-24	1051	9953	105.6
29	271	1104	245.5	25-29	295	9747	30.3
30-34	793	5995	132.3	30-34	66	8726	7.6
35-39	167	5592	29.9	35-39	28	7603	3.7
40-44	72	5998	12.0	40-44	11	7557	1.5
45+	72	28839	2.5	45+	11	32580	0.3

*per 1000 population per year

Table 6.4. Distribution of current marital status (%) by age and sex, 2014

Age (years)	Male					Female				
	NM	PM	WID	DIV	Total	NM	PM	WID	DIV	Total
0-4	100.0	0.0	0.0	0.0	12155	100.0	0.0	0.0	0.0	11851
5-9	100.0	0.0	0.0	0.0	12486	100.0	0.0	0.0	0.0	12093
10-14	100.0	0.0	0.0	0.0	12695	98.9	1.1	0.0	0.0	12682
15-19	98.3	1.6	0.0	0.1	10040	66.5	32.2	0.1	1.2	10692
20-24	79.9	19.7	0.0	0.4	6826	18.7	79.2	0.1	2.0	9953
25-29	38.2	60.7	0.2	1.0	6075	5.2	92.5	0.4	1.9	9747
30-34	11.9	87.0	0.1	0.9	5995	1.4	96.3	0.9	1.4	8726
35-39	2.8	96.1	0.2	0.9	5592	0.7	96.0	2.3	0.9	7603
40-44	1.3	97.8	0.2	0.7	5998	0.4	94.1	4.3	1.1	7557
45-49	0.5	98.6	0.4	0.5	5898	0.4	89.2	9.1	1.4	7794
50-54	0.4	98.4	0.9	0.4	6689	0.3	80.9	17.0	1.8	7100
55-59	0.4	97.6	1.7	0.3	5306	0.1	69.6	28.4	1.9	5148
60-64	0.1	96.4	3.1	0.4	3599	0.1	53.3	45.4	1.3	3717
65-69	0.3	93.9	5.5	0.3	2659	0.1	38.1	60.5	1.3	3374
70-74	0.1	91.7	8.1	0.0	2001	0.0	22.9	76.1	0.9	2699
75-79	0.1	84.3	15.3	0.3	1472	0.1	10.4	89.0	0.5	1587
80-84	0.0	73.5	26.3	0.1	771	0.0	3.2	95.9	0.9	775
85+	0.0	56.3	43.7	0.0	444	0.0	1.8	97.2	1.0	386
All (%)	52.5	46.0	1.2	0.3	100.0	37.4	51.5	10.0	1.0	100.0
Total	**56008**	**49099**	**1256**	**338**	**106701**	**46235**	**63649**	**12334**	**1266**	**123484**

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

Table 6.5. Duration (months) of all marriages at divorce by age and sex, 2014

Age at divorce (years)	Male				Female			
	No.	Mean	Median	SD	No.	Mean	Median	SD
< 20	13	7.8	0.0	11.9	114	13.1	13.0	15.0
20 - 24	36	14.3	13.0	17.3	126	29.4	13.0	34.7
25 - 29	113	24.5	13.0	25.3	85	61.3	52.0	48.5
30 - 34	110	39.9	26.0	42.0	39	79.3	65.0	58.9
35 - 39	51	57.9	39.0	55.5	9	93.9	39.0	94.8
40 - 49	42	86.7	78.0	80.1	10	175.5	143.0	148.5
50+	17	101.5	39.0	125.1	0	0.0	0.0	0.0
Unknown	1	13.0	13.0	.	-	-	-	-
All ages	**383**	**42.0**	**26.0**	**55.6**	**383**	**42.0**	**26.0**	**55.6**

Table 6.6. Marriages by type of gifts received by grooms party from bridal party, 2010-2014

Type of gift received	Year				
	2010	2011	2012	2013	2014
None	43.2	57.6	48.5	48.5	53.6
Gift without prior negotiation	0.6	0.9	1.1	0.9	1.4
Gift after prior negotiation	56.2	41.5	50.3	50.6	45.0
Gift payment					
Full	18.8	13.2	16.7	18.8	16.1
Partial	31.1	22.4	26.8	25.9	24.4
Not paid yet*	6.3	5.8	6.8	5.9	4.5

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

Table 6.7. Registration status of Muslim marriages, 2002-2014

Year	Registered with Kazi		Not registered	
	Number	Percent	Number	Percent
2002	2620	87.4	376	12.6
2003	2469	87.3	359	12.7
2004	2483	91.7	224	8.3
2005	2563	91.1	251	8.9
2006	2521	92.5	205	7.5
2007	2726	94.0	175	6.0
2008	2442	92.6	196	7.4
2009	2760	94.6	158	5.4
2010	2643	92.3	221	7.7
2011	2620	93.2	192	6.8
2012	2666	93.4	187	6.6
2013	2687	94.2	165	5.8
2014	2716	91.5	251	8.5

Table 6.8. Registration status of divorces of Muslim marriages, 2002-2014

Year	Registered with Kazi		Not registered	
	Number	Percent	Number	Percent
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
2006	270	88.2	36	11.8
2007	278	83.2	56	16.8
2008	223	83.2	45	16.8
2009	239	77.1	71	22.9
2010	319	82.6	67	17.4
2011	302	84.4	56	15.6
2012	299	82.4	64	17.6
2013	239	76.6	73	23.4
2014	303	79.9	76	20.1

Table 6.9. Cause of divorces by area, Matlab, 2014

Cause of Divorce	Both areas		icddr,b area		Government area	
	Number	Percent	Number	Percent	Number	Percent
Dowry	9	2.3	3	1.6	6	3.0
Domestic violence	21	5.5	8	4.3	13	6.6
Husband affairs with other woman	72	18.8	40	21.5	32	16.2
Wife affairs with other man	63	16.4	41	22.0	22	11.2
Maladjustment with husband/his family	123	32.1	52	28.0	71	36.0
Husband addicted to drugs/gambling	9	2.3	5	2.7	4	2.0
No trace of husband	8	2.1	1	0.5	7	3.6
Husband/wife not good looking	19	5.0	12	6.5	7	3.6
Husband mentally/physically disabled	23	6.0	10	5.4	13	6.6
Wife mentally/physically disabled	11	2.9	3	1.6	8	4.1
Others /unspecified	25	6.5	11	5.9	14	7.1
Total	**383**	**100.0**	**186**	**100.0**	**197**	**100.0**

CHAPTER 7

MIGRATION

An out-migrant is defined as a person originally listed on a Matlab HDSS census as a resident, or a person who became a resident by birth or immigration, who subsequently moved out of the Matlab surveillance area and did not came back to the HDSS area in six months of the departure or came in the area but never stayed overnight. Likewise, an in-migrant is an individual neither recorded in the last census nor born or lived in the Matlab 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. Exceptions are made if someone move into the area due to marriage or divorce or settlement. These definitions are used in the surveillance area as a whole.

During 2014, the total of 10,915 persons (5,189 males and 5,726 females) moved into the HDSS area, which represented an annual average in-migration of 47 per 1000 mid-year population for both males and females. On the other hand, 12,484 persons (5,990 males and 6,494 females) left the HDSS area or on an average 54 per 1000 mid-year population for both males and females (Table 7.1 and Appendix A.13). The highest incidence of in-migration for males was 12.0% in the age group 25-29 and for females was 11.5% in the age group 15-19. The highest out-migrated was in the age group 20-24 for both sex, 13.7% for males and 13.9% for females . More males out-migrated than females in the age group (0-64). The higher out migration of males affected sex ratio of the population in the area – the sex ratio decreased from 103 in 1982 to 86 males per 100 females in 2014. More out-migration of working age (15-59) group males compared to females caused a decline in the sex ratio over the period.

In- and out-migration rates are increased in 2014 over those of 2013. The net loss of migrants was 6.8 per 1,000 population in 2014, whereas it was 2.3 per 1,000 population in 2013. Table 7.1 presents the age-specific migration rates, which are illustrated in Figure 7.1. The tables and figures show the distribution of age commonly found for migrant populations, with a primary peak of young children moving with their parents. Male out-migrants were rather younger than male in-migrants. For females the pattern of age distribution was similar. Table 7.2 and Figure 7.2 show the numbers moving in and out by month. January is the preferred month for migration for both men and women. 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 the rural area, females predominantly for marriage and males predominantly for seeking jobs. There is a net loss of both men and women to urban area, primarily of young adults. Migration to the Middle East and other Asian countries is heavily concentrated among out-migrating males aged 15-44 years (Appendices A.20).

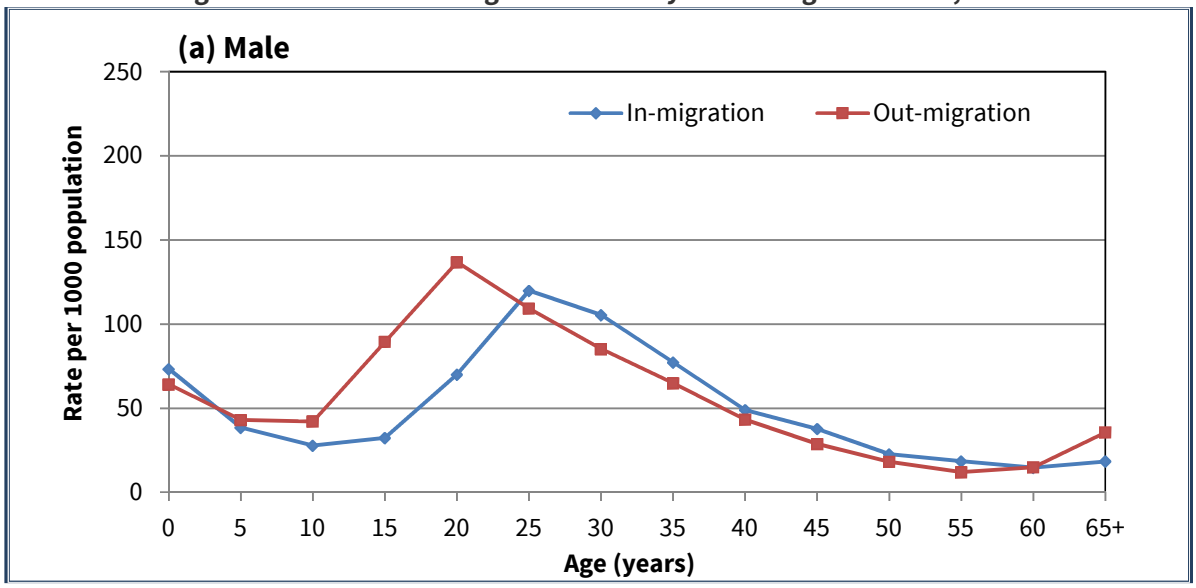
Table 7.1. Age and sex-specific migration rates (per 1,000 population) by direction, 2014

Age (years)	Both sexes		Male		Female	
	In	Out	In	Out	In	Out
All ages	47.4	54.2	48.6	56.1	46.4	52.6
0 - 4	72.4	62.8	73.3	64.2	71.4	61.4
5 - 9	36.8	42.4	38.5	43.1	35.1	41.7
10-14	27.0	37.8	27.8	42.2	26.3	33.3
15-19	75.2	108.0	32.4	89.5	115.4	125.4
20-24	91.9	138.0	70.0	136.8	106.9	138.9
25-29	92.3	94.6	119.8	109.3	75.1	85.5
30-34	68.7	63.2	105.4	85.2	43.4	48.0
35-39	46.1	42.5	77.3	64.9	23.1	26.0
40-44	32.0	29.4	49.0	43.3	18.5	18.3
45-49	24.5	21.0	37.8	28.8	14.5	15.1
50-54	17.0	16.2	22.7	18.2	11.7	14.4
55-59	14.5	12.8	18.5	12.1	10.5	13.6
60-64	12.7	14.6	14.7	15.0	10.8	14.3
65+	26.0	46.6	18.4	35.7	32.0	55.1

Table 7.2. Number of in- and out-migrations by sex and month, 2014

Months	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All months	10915	5189	5726	12484	5990	6494
January	1657	802	855	1592	775	817
February	1132	541	591	1206	580	626
March	912	435	477	1084	520	564
April	915	431	484	1084	524	560
May	678	322	356	869	413	456
June	660	304	356	1040	510	530
July	390	170	220	643	335	308
August	305	119	186	918	403	515
September	1585	809	776	1184	586	598
October	1276	605	671	1344	650	694
November	780	372	408	761	364	397
December	625	279	346	759	330	429

Figure 7.1. In- and out-migration rates by sex and age in Matlab, 2014



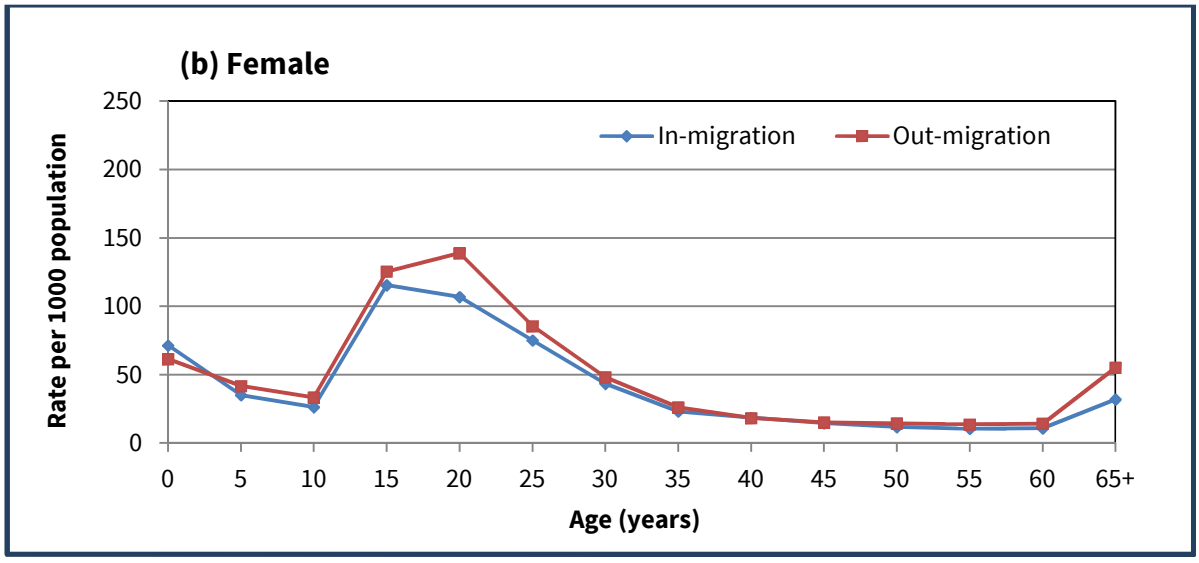
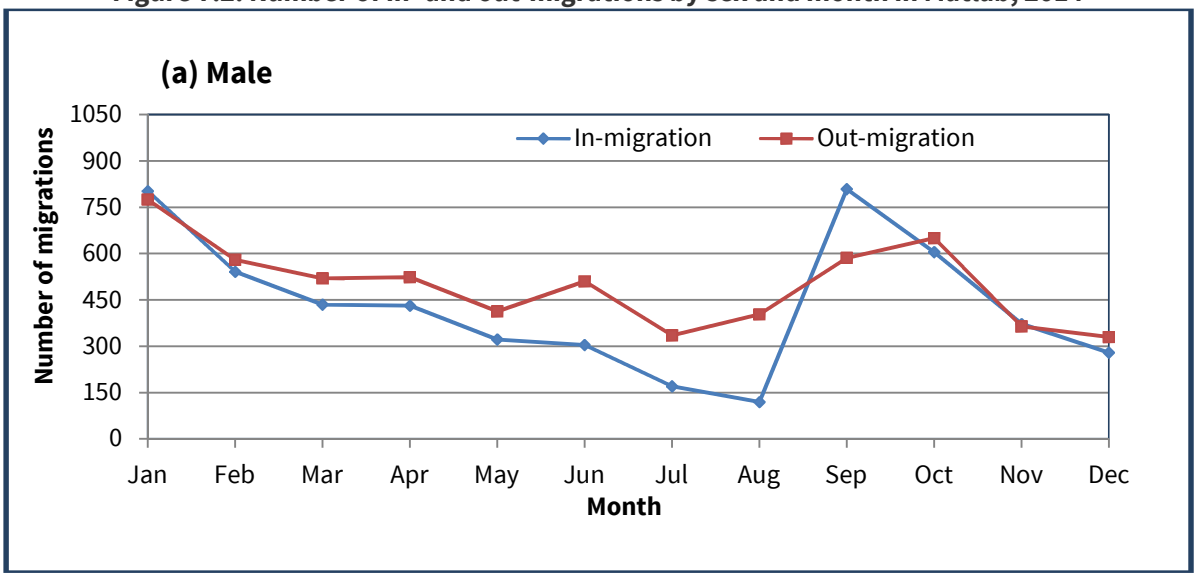
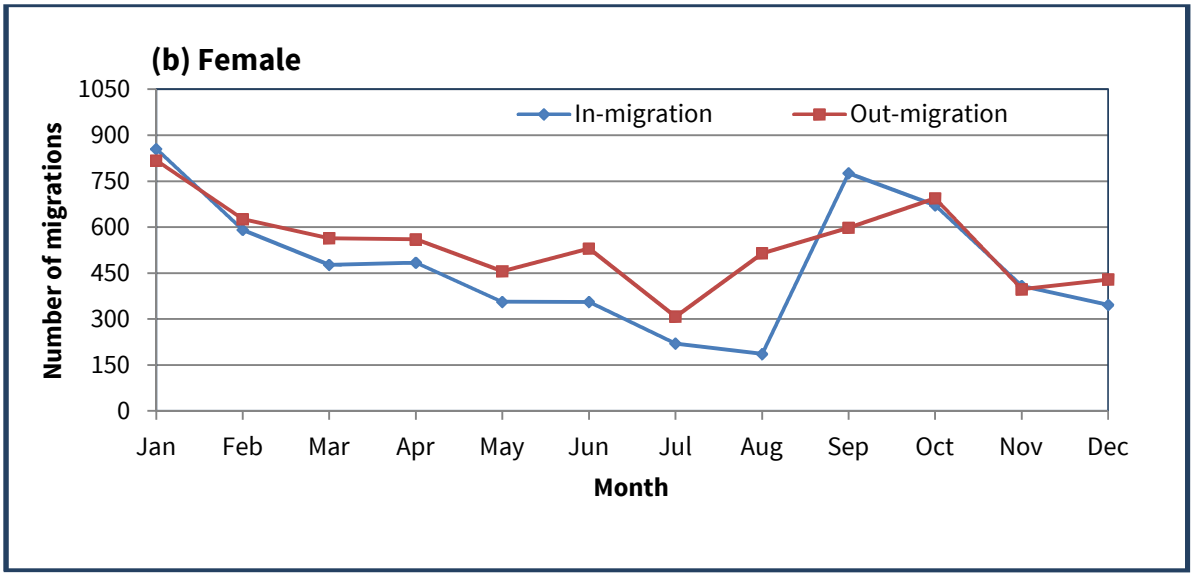


Figure 7.2. Number of in- and out-migrations by sex and month in Matlab, 2014





CHAPTER 8

FERTILITY REGULATION

In the icddr,b service area, maternal and child health services including immunization and, family planning (MCH-FP) services have been being provided through a vertical health care system with government health service system since 1978. icddr,b's maternal health services include pregnancy test, counseling and care providing for ANC, safe delivery, PNC, contraception, motivating eligible couples for family planning method adoption, and refer mothers and children for complications. Raising awareness of parents about symptoms of common childhood morbidity; and advise them to treat sick children by medically trained providers are also included in icddr,b's service package. Other private and NGO health care facilities and NGO domiciliary health service providers also provide health services in icddr,b service area. In the Government service area, services are provided by government health system and other private and NGO service system.

The 43 surveillance 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 bimonthly home visits. During home visits they sometimes give advice to oral pill users to procure pills in timely manner, pregnant women to seek antenatal care and have safe delivery; and parents to immunize children and treat sick children by formally trained providers. In 2014 the contraceptive use rate was 53.9% in the icddr,b service area and 41.9% in the Government service area (Table 8.1). Contraceptive use rate in the Government service area is lower than the use rate of 55% recorded in Chittagong division in 2014. Table 8.2 shows the difference in contraceptive method-mix between the icddr,b and Government service areas in 2014 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 service area, injectables are the most widely-used method, followed by pill, tubectomy and condom. Changes in the method-mix in the icddr,b service area during 2000-2014 are shown in Table 8.3. The contraceptive-use rate increases with the increase in women's age in the icddr,b and government service areas (Tables 8.4 and 8.5). In the icddr,b service area, women aged 20 years and over are more likely to use injectables, followed by pill, undergo tubectomy and their husbands to use vasectomy whereas in the Government service area (Table 8.5), the pill, followed by injectables are the most popular methods in all age groups except age group 45 years and over. Tubectomy is more popular in the age group 40 years and over.

Table 8.1. Contraceptive use rate (%) of currently married women aged 15-49 years by area, 1987-2014

Year	Matlab		National**
	icddr,b area	Government area*	
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	-
2006	69.2	45.1	58.1
2007	56.6	43.6	55.8
2008	54.4	41.3	59.5
2009	54.2	42.5	-
2010	55.7	43.1	62.6
2011	54.1	43.7	61.2
2012	53.3	42.6	
2013	53.8	42.2	62.0
2014	53.9	41.9	62.4

*Sources: In-depth and KAP surveys, 1984 & 1990; MDHS 1992; HDSS census 1996 and HDSS 2002-2014.
**Sources: Contraceptive prevalence survey, Bangladesh fertility survey 1989; Bangladesh demographic and health survey 1993-94,1996-97,1999-2000,2004,2007,2011,2014; Bangladesh maternal health services and maternal mortality survey 2010; Utilization of Essential Service Delivery Survey 2006,2008,2013.

Table 8.2. Contraceptive method mix (%) in different surveys and areas

Method	Matlab		National	
	icddr,b service area, 2014	Government service area, 2014	BMMS 2010	BDHS 2014
Pill	31.6	44.1	49.7	43.3
Condom	10.1	6.6	6.2	10.3
Injectables	39.2	27.4	19.6	19.9
IUD	1.1	0.9	1.0	1.0
Tubectomy	11.3	13.2	6.9	7.4
Vasectomy	1.9	0.7	1.0	1.9
Norplant/Implant	2.6	2.0	1.3	2.7
Others*	2.3	5.1	14.2	13.5
Total	**100.0**	**100.0**	**100.0**	**100.0**

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 8.3. Contraceptive method mix* (%) in the icddr,b service area, 2000-2014

Method	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Pill	30.6	31.9	33.3	33.9	32.6	34.1	35.8	34.6	30.6	30.3	30.1	29.0	29.4	30.9	32.3
Condom	9.5	10.8	11.1	11.0	10.9	11.2	10.8	8.6	9.0	9.5	9.2	9.4	9.9	10.0	10.3
Injectables	47.8	45.7	44.5	44.4	45.2	42.7	41.3	43.6	47.4	46.6	46.8	46.4	45.2	41.8	40.1
IUD	2.4	1.9	1.8	1.9	2.4	2.6	2.4	1.9	1.8	1.7	1.8	1.7	1.5	1.4	1.1
Tubectomy	9.1	8.6	7.7	7.2	7.4	7.6	7.9	9.2	9.0	9.4	9.3	10.3	10.5	11.4	11.6
Vasectomy	0.6	1.1	1.5	1.5	1.4	1.4	1.5	1.6	1.7	1.9	1.9	2.1	2.1	2.0	2.0
Norplant	-	-	-	0.0	0.1	0.3	0.3	0.5	0.5	0.6	0.9	1.1	1.4	2.5	2.7
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 8.4. Method specific contraceptive use rate among currently married women by age in icddr,b service area, 2014

Age (years)	Not using	Any method used	Method used								No. of eligible women
			Pill	IUD	Injectables	Condom	Tubectomy	Vasectomy	Others*	Norplant	
<20	73.2	26.8	8.7	0.2	12.6	3.8	0.1	0.0	0.4	1.0	1330
20 – 24	57.6	42.4	16.4	0.5	19.1	4.3	0.2	0.0	0.3	1.5	3909
25 - 29	52.3	47.7	17.4	0.6	20.5	5.5	1.4	0.2	0.5	1.7	4565
30 - 34	45.1	54.9	19.9	0.6	21.3	5.1	4.9	0.8	1.0	1.4	4270
35 - 39	35.6	64.4	18.8	0.7	24.7	6.0	10.1	1.4	1.5	1.3	3764
40 - 44	32.7	67.3	17.8	0.5	23.7	6.2	13.2	2.0	2.3	1.6	3582
45 - 49	39.7	60.3	13.4	0.5	20.4	6.4	12.5	3.1	3.1	0.8	2738
Total	46.1	53.9	17.0	0.6	21.1	5.4	6.1	1.0	1.3	1.4	24158

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

Table 8.5. Method specific contraceptive use rate among currently married women by age in Government service area, 2014

Age (years)	Not using	Any method used	Method used								No. of eligible women
			Pill	IUD	Injectables	Condom	Tubectomy	Vasectomy	Others*	Norplant	
<20	83.7	16.3	9.1	0.0	3.4	3.0	0.0	0.0	0.7	0.1	1132
20 – 24	69.8	30.2	17.0	0.1	8.5	3.1	0.2	0.0	0.8	0.6	3194
25 - 29	63.0	37.0	18.9	0.3	11.5	2.9	1.4	0.1	1.1	0.9	4086
30 - 34	54.4	45.6	21.1	0.5	13.3	3.2	4.7	0.3	1.5	1.1	3987
35 - 39	47.2	52.8	22.4	0.6	14.2	2.9	8.3	0.4	2.7	1.4	3273
40 - 44	46.7	53.3	19.7	0.6	13.3	2.2	12.0	0.5	4.0	0.8	3262
45 - 49	58.9	41.1	12.9	0.5	9.9	1.8	10.8	0.5	4.3	0.5	2445
Total	58.1	41.9	18.5	0.4	11.5	2.8	5.5	0.3	2.1	0.8	21379

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

CHAPTER 9

CHILD HEALTH SERVICE USE

Immunization

The Community Health Research Workers (CHRWs) started measles vaccination to all children in blocks A&C and blocks B&D in 1982 and 1985 respectively. Vaccination 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 service 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 Government service area record only vaccination status either by checking vaccination cards or by asking mothers about vaccination of children if the vaccination card was missing.

The World Health Organization recommends that all children receive a BCG vaccination against tuberculosis; three doses of DPT for the prevention of diphtheria, pertussis and tetanus; hepatitis B; three doses of polio vaccine; and a vaccination against measles before their first birthday. In January 2009, the Bangladesh EPI program introduced hemophilus influenza type B (Hib) vaccine in the form of pentavalent vaccine that included the DPT and hepatitis B and the new Hib vaccine. By June 2009, the pentavalent vaccine had replaced the DPT and hepatitis B, and by 2012 measles rubella replaced measles in the EPI program. Therefore, vaccination of children aged 12-23 months is presented to allow comparison of results across the areas.

Table 9.1 shows the rates of coverage of different vaccines among children aged 12-23 months in icddr,b service area from 1987 to 2014 and the Government service area from 2000 to 2014. In 2014, immunization of children was almost universal: 98.5% received BCG, 97.7% received three doses of pentavalent and polio and 89.0% received measles rubella vaccines in icddr,b area and 96.6% received BCG, 93.6% received three doses of pentavalent and polio and 79.3% received measles rubella vaccine in Government service area. The BDHS estimates of immunization coverage were 97.9% for BCG, 91.3% for DPT/penta, 91.4% for polio, and 86.1% for measles in 2014.

Table 9.1. Immunization coverage (%) among children aged 12-23 months in icddr,b service area, 1987-2014 and Government service area, 2000-2014

Vaccination coverage rate of children aged 12 - 23 months								
	BCG (1 dose)		Pentavalent and polio (3 doses)		Measles-Rubela (1 dose)		All*	
Year	icddr,b area	Government Area	icddr,b area	Government area	icddr,b area	Government area	icddr,b area	Government area
1987	88.4	-	76.1	-	85.2	-	69.3	-
1988	93.3	-	82.8	-	87.9	-	77.2	-
1989	94.6	-	88.4	-	92.0	-	84.0	-
1990	98.7	-	95.7	-	96.4	-	93.8	-
1991	98.6	-	95.6	-	97.0	-	94.1	-
1992	99.1	-	96.9	-	97.8	-	96.0	-
1993	99.5	-	97.6	-	98.1	-	96.6	-
1994	99.5	-	97.7	-	97.0	-	95.7	-
1995	99.3	-	96.8	-	97.0	-	95.0	-
1996	99.5	-	98.0	-	97.9	-	96.7	-
1997	99.3	-	98.5	-	98.0	-	97.3	-
1998	99.2	-	97.7	-	96.1	-	95.4	-
1999	99.0	-	97.7	-	94.8	-	94.1	-
2000[a]	99.2	73.6	97.7	67.8	95.9	50.2	95.1	48.5
2001	99.1	89.8	98.2	80.0	96.0	74.1	95.4	71.0
2002	99.3	96.7	98.5	90.6	95.7	84.5	95.4	83.1
2003	99.2	97.4	98.5	92.0	95.9	84.3	95.6	83.2
2004	99.3	97.6	98.2	93.1	96.6	86.2	95.9	85.3
2005	99.6	97.9	99.0	94.6	97.8	86.0	97.3	84.9
2006	99.0	97.3	97.6	93.7	95.2	81.7	94.3	80.4
2007b	99.8	99.8	98.8	99.0	96.3	95.1	96.1	94.7
2008b	97.8	96.3	97.3	95.9	95.1	93.6	94.8	93.6
2009b	97.4	97.8	96.7	97.5	95.0	95.6	94.6	95.6
2010	96.6	95.8	93.7	92.4	92.3	91.3	88.6	87.4
2011	95.9	95.1	93.2	92.1	87.0	84.0	86.0	83.1
2012	97.4	95.3	94.2	89.9	86.1	88.0	83.0	82.5
2013	98.1	97.6	94.7	88.5	86.1	81.8	88.3	81.7
2014	98.5	96.6	97.7	93.6	89.0	79.3	88.8	79.2

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

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

[b]Child immunization data are collected on sample basis in 2007-2009

CHAPTER 10

GEOGRAPHICAL INFORMATION SYSTEM (GIS)

The Geographic Information System (GIS) was established in 1994 under the Public Health Sciences Division to produce cartographic, thematic and analytic maps as per requirements of the investigators of icddr,b. Initially, the GIS activities were limited to the Matlab HDSS area; later its activities were gradually expanded to other areas in Bangladesh. In 1998, the GIS and RKS were integrated into HDSS. In Matlab surveillance area, Field Research Supervisors (FRS) are trained to collect spatial data using handheld Global Positioning System (GPS) device. Spatial data include locations (geo-coordinates) of baris (cluster of a group of households sharing common yard), tube-wells, ditches, ponds, health facilities, educational institutes, mosques, temples, markets, etc. The spatial database is periodically updated with geo-coordinates of new baris, tube-wells, roads, health facilities, educational institutes, etc. In 2014, the spatial database is updated with locations of new baris and tube-wells as well as arsenic levels in the water of 4888 tube-wells assessed in 2002-2003 and 2014. HDSS residents are linkable to the geo-reference objects of the Matlab spatial database.

New development of GIS software and satellite images has expanded the scope of GIS activities in different fields. Currently the GIS generates thematic maps, creates spatial variables and performs spatial and temporal analyses with geo-referenced data. Any kind of spatial information can be extracted from high-resolution imagery. Spatial and temporal analyses generate surfaces and time to see the spatial and temporal changes in measureable indicators, such as morbidity, mortality or risk factors of morbidity and mortality. This facilitates targeting interventions to the high-risk areas and efficient use of scarce resources.

In this chapter, suicide cases and households involved with micro-credit membership in HDSS area are mapped. Figure 10.1 shows distribution of suicide deaths by bari and village in Matlab HDSS area during 1982-2014. Cause of death is determined using verbal autopsy (VA) of each death in HDSS area. A medically trained person reviews each VA and assigns possible cause of death. During 1982-2014 there were 416 deaths due to suicide. The map shows clustering of suicide deaths in certain baris and villages. A detailed study is needed to explore plausible reasons for concentration and remedial actions.

The Figure 10.2 shows coverage of households with micro-credit by village in Matlab HDSS area in 2014. Household socio-economic census conducted in the area in 2014 recorded if any member of the household was a member of any micro-credit institute. Membership of micro-credit benefits some aspects of women's economic and social status, and leads to better health care for themselves and children. Coverage of micro-credit varies widely between villages, with coverage being high in villages nearby market place.

Figure 10.1: Distribution of suicide deaths by bari and village in HDSS area, Matlab, 1982-2014

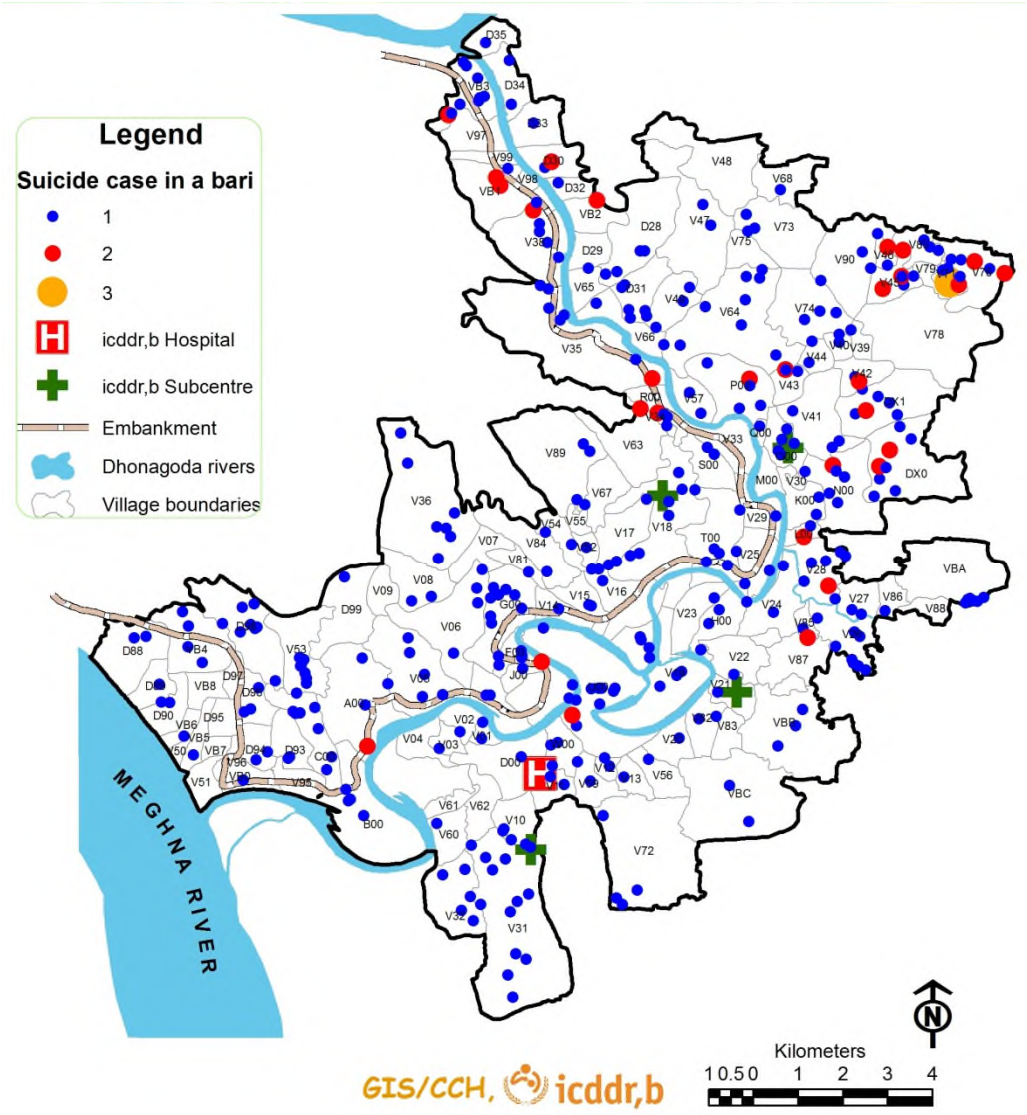
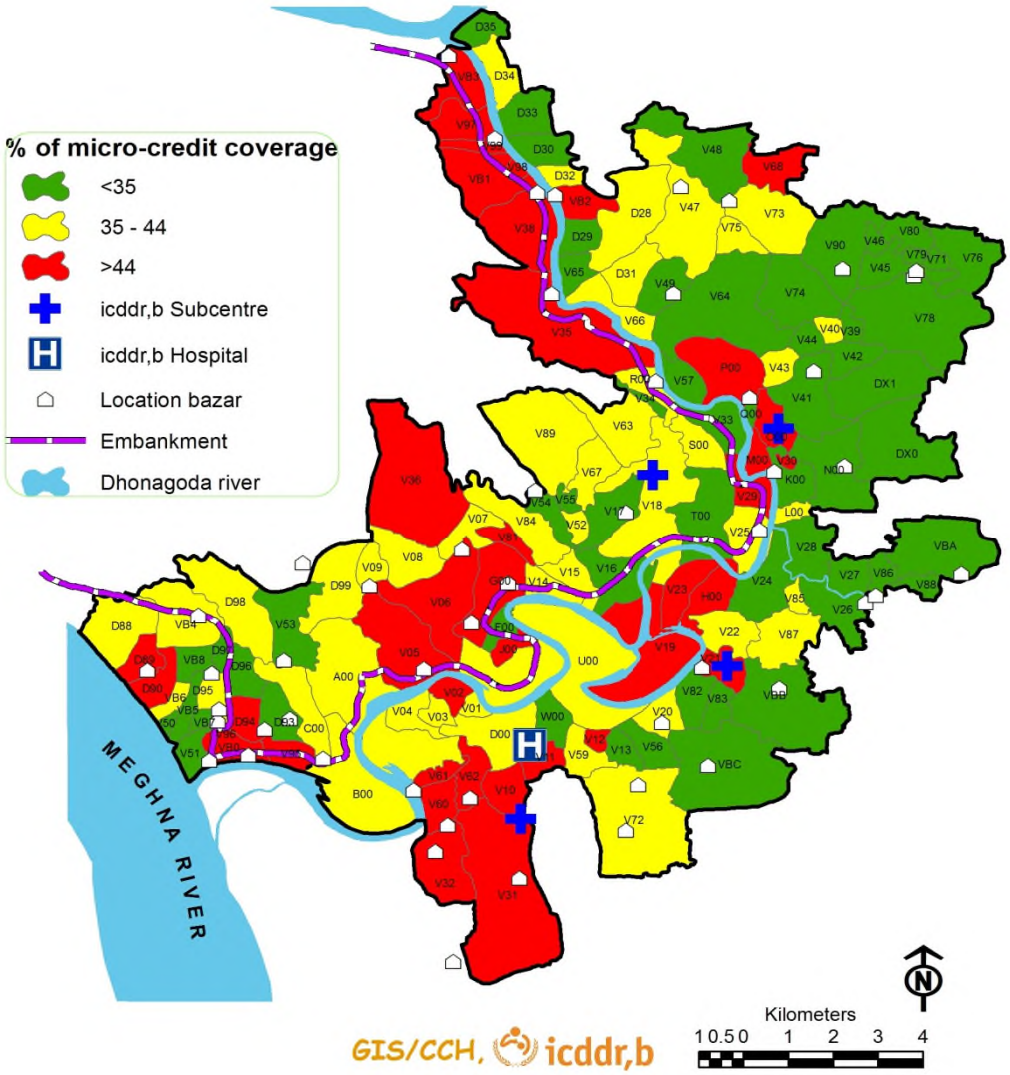


Figure 10.2: Coverage (%) of households with micro-credit by village in HDSS area, Matlab, 2014



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APPENDIX A

Appendix A-1a Mid-year population in icddr,b service area by age, sex, and block, 2014

Age	Block A			Block B			Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	38194	17514	20680	32950	15216	17734	24809	11626	13183	22973	10764	12209
Under 1	854	431	423	761	394	367	528	275	253	454	217	237
1 - 4	3337	1680	1657	2822	1441	1381	2032	1051	981	1810	916	894
1	*807*	*407*	*400*	*698*	*354*	*344*	*559*	*269*	*290*	*457*	*229*	*228*
2	*909*	*461*	*448*	*744*	*375*	*369*	*517*	*272*	*245*	*502*	*252*	*250*
3	*778*	*368*	*410*	*722*	*378*	*344*	*470*	*260*	*210*	*423*	*220*	*203*
4	*843*	*444*	*399*	*658*	*334*	*324*	*486*	*250*	*236*	*428*	*215*	*213*
5 - 9	4204	2220	1984	3591	1877	1714	2570	1260	1310	2373	1177	1196
10-14	4150	1997	2153	3639	1791	1848	2557	1280	1277	2491	1239	1252
15-19	3318	1501	1817	2964	1378	1586	2155	1066	1089	1974	1019	955
20-24	2677	975	1702	2481	935	1546	1859	744	1115	1625	706	919
25-29	2723	952	1771	2257	915	1342	1781	735	1046	1503	583	920
30-34	2529	1043	1486	2110	877	1233	1606	662	944	1411	548	863
35-39	2384	1005	1379	1923	809	1114	1447	645	802	1350	592	758
40-44	2361	1066	1295	1909	833	1076	1508	676	832	1372	635	737
45-49	2374	1051	1323	1914	814	1100	1501	625	876	1442	632	810
50-54	2190	1058	1132	1907	945	962	1497	754	743	1530	740	790
55-59	1626	844	782	1383	716	667	1211	616	595	1115	578	537
60-64	1099	555	544	1050	492	558	803	397	406	804	408	396
65-69	954	436	518	801	335	466	660	311	349	617	261	356
70-74	647	294	353	642	269	373	538	243	295	500	220	280
75-79	428	221	207	407	195	212	316	153	163	358	165	193
80-84	199	101	98	255	131	124	163	90	73	166	83	83
85+	140	84	56	134	69	65	77	43	34	78	45	33

Appendix A-1b: Mid-year population in Government service area by age, sex, and block, 2014

Age	Block E			Block F			Block G		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	40072	18803	21269	36430	16879	19551	34757	15899	18858
Under 1	805	400	405	762	399	363	717	382	335
1 - 4	3308	1640	1668	2945	1490	1455	2871	1439	1432
1	*804*	*394*	*410*	*732*	*362*	*370*	*724*	*381*	*343*
2	*855*	*421*	*434*	*775*	*402*	*373*	*734*	*378*	*356*
3	*831*	*423*	*408*	*769*	*388*	*381*	*731*	*350*	*381*
4	*818*	*402*	*416*	*669*	*338*	*331*	*682*	*330*	*352*
5 - 9	4345	2171	2174	3759	1915	1844	3737	1866	1871
10-14	4621	2365	2256	3947	1985	1962	3972	2038	1934
15-19	3570	1843	1727	3497	1740	1757	3254	1493	1761
20-24	2951	1310	1641	2738	1138	1600	2448	1018	1430
25-29	2683	1038	1645	2507	1005	1502	2368	847	1521
30-34	2620	1061	1559	2288	923	1365	2157	881	1276
35-39	2167	907	1260	1978	836	1142	1946	798	1148
40-44	2360	1028	1332	2132	917	1215	1913	843	1070
45-49	2376	1069	1307	2069	865	1204	2016	842	1174
50-54	2404	1161	1243	2220	1020	1200	2041	1011	1030
55-59	1794	918	876	1705	892	813	1620	742	878
60-64	1332	652	680	1114	567	547	1114	528	586
65-69	1076	478	598	981	432	549	944	406	538
70-74	814	343	471	785	312	473	774	320	454
75-79	517	253	264	552	236	316	481	249	232
80-84	217	111	106	290	134	156	256	121	135
85+	112	55	57	161	73	88	128	75	53

Appendix A-2a Deaths in icddr,b service area by age, sex, and block, 2014

Age	Block A			Block B			Block C			Block D		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	259	139	120	203	113	90	175	101	74	169	87	82
Under 1	21	12	9	18	9	9	18	10	8	9	7	2
< 7 days	13	9	4	9	5	4	8	4	4	6	4	2
7- 29 days	4	3	1	5	2	3	5	4	1	1	1	0
1- 5 months	3	0	3	4	2	2	4	2	2	2	2	0
6-11 months	1	0	1	0	0	0	1	0	1	0	0	0
1 - 4	8	5	3	3	1	2	7	2	5	5	3	2
1	*3*	*3*	*0*	*0*	*0*	*0*	*5*	*2*	*3*	*4*	*2*	*2*
2	*2*	*1*	*1*	*3*	*1*	*2*	*1*	*0*	*1*	*1*	*1*	*0*
3	*3*	*1*	*2*	*0*	*0*	*0*	*1*	*0*	*1*	*0*	*0*	*0*
4	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
5 - 9	0	0	0	0	0	0	1	0	1	2	1	1
10-14	0	0	0	0	0	0	1	0	1	1	0	1
15-19	3	0	3	2	0	2	3	1	2	2	0	2
20-24	0	0	0	1	0	1	2	1	1	1	1	0
25-29	4	3	1	2	2	0	1	1	0	3	2	1
30-34	5	3	2	1	0	1	4	1	3	2	1	1
35-39	0	0	0	2	2	0	3	2	1	1	0	1
40-44	1	0	1	3	2	1	1	0	1	5	4	1
45-49	11	6	5	11	6	5	5	3	2	6	2	4
50-54	25	12	13	10	5	5	9	6	3	9	5	4
55-59	24	15	9	20	14	6	13	10	3	5	2	3
60-64	16	11	5	7	4	3	7	5	2	16	15	1
65-69	27	15	12	17	10	7	14	9	5	16	7	9
70-74	26	10	16	31	16	15	19	10	9	24	8	16
75-79	38	24	14	35	18	17	32	18	14	31	15	16
80-84	27	12	15	20	13	7	20	12	8	19	8	11
85+	23	11	12	20	11	9	15	10	5	12	6	6

Appendix A-2b Deaths in Government service area by age, sex, and block, 2014

Age	Block E			Block F			Block G		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	258	141	117	242	130	112	244	142	102
Under 1	21	16	5	30	16	14	19	11	8
< 7 days	15	13	2	20	9	11	16	9	7
7- 29 days	3	1	2	4	3	1	1	1	0
1- 5 months	3	2	1	6	4	2	2	1	1
6-11 months	0	0	0	0	0	0	0	0	0
1 - 4	6	2	4	10	7	3	7	3	4
1	*4*	*1*	*3*	*6*	*4*	*2*	*3*	*2*	*1*
2	*1*	*0*	*1*	*1*	*1*	*0*	*2*	*0*	*2*
3	*0*	*0*	*0*	*2*	*2*	*0*	*1*	*0*	*1*
4	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*	*0*
5 - 9	3	2	1	1	1	0	6	4	2
10-14	0	0	0	2	1	1	2	2	0
15-19	5	3	2	2	1	1	1	1	0
20-24	1	0	1	3	1	2	2	0	2
25-29	7	1	6	3	2	1	3	3	0
30-34	4	1	3	3	1	2	2	0	2
35-39	2	2	0	0	0	0	8	3	5
40-44	4	2	2	5	2	3	1	1	0
45-49	7	4	3	7	3	4	6	2	4
50-54	10	7	3	11	6	5	20	14	6
55-59	21	15	6	15	12	3	14	10	4
60-64	19	11	8	11	6	5	16	13	3
65-69	19	15	4	18	10	8	23	15	8
70-74	38	15	23	28	11	17	26	16	10
75-79	42	17	25	41	21	20	37	24	13
80-84	33	17	16	20	14	6	28	10	18
85+	16	11	5	32	15	17	23	10	13

Appendix A-3 Abridged life table for icddr,b service area by sex, 2014

Age (years)	Male				Female			
	$_nq_x$	l_x	L_x	$e0_x$	$_nq_x$	l_x	L_x	$e0_x$
0	28.9	100000	97544	70.3	21.4	100000	98178	73.8
1	5.5	97110	96793	71.4	4.0	97856	97628	74.4
2	2.2	96572	96465	70.8	3.0	97469	97321	73.7
3	0.8	96359	96320	70.0	2.6	97172	97048	72.9
4	0.0	96280	96280	69.0	0.0	96923	96923	72.1
5	0.8	96280	481233	68.0	1.6	96923	484255	71.1
10	0.0	96207	481032	63.1	1.5	96767	483491	66.2
15	1.0	96206	480807	58.1	8.2	96618	481257	61.3
20	3.0	96109	479888	53.1	1.9	95823	478697	56.8
25	12.5	95824	476357	48.3	2.0	95642	477774	51.9
30	8.0	94627	471399	43.9	7.7	95453	475571	47.0
35	6.5	93874	467956	39.2	2.5	94718	473052	42.4
40	9.3	93260	464301	34.4	5.1	94484	471320	37.5
45	26.9	92393	456216	29.7	19.3	94006	465839	32.6
50	39.3	89908	441348	25.5	33.9	92192	453716	28.2
55	71.9	86375	417376	21.4	39.9	89065	437076	24.1
60	90.5	80161	383821	17.9	28.5	85508	421902	20.0
65	142.4	72907	339983	14.4	93.4	83071	397175	15.5
70	194.5	62528	283560	11.3	195.1	75311	341407	11.8
75	406.5	50368	200352	8.4	329.6	60615	253812	9.1
80	433.5	29896	116643	7.5	425.6	40638	159464	7.3
85+	1000.0	16935	107406	6.3	1000.0	23342	137132	5.9

Appendix A-4 Abridged life table for Government service area by sex, 2014

Age (years)	Male				Female			
	$_nq_x$	l_x	L_x	$e0_x$	$_nq_x$	l_x	L_x	$e0_x$
0	35.2	100000	97011	69.9	24.0	100000	97958	74.6
1	6.1	96484	96135	71.4	5.3	97598	97291	75.5
2	0.8	95892	95852	70.8	2.6	97078	96953	74.9
3	1.7	95812	95730	69.9	0.9	96828	96786	74.1
4	1.9	95647	95558	69.0	0.9	96745	96701	73.1
5	5.9	95469	476052	68.1	2.5	96657	482718	72.2
10	2.3	94909	474030	63.5	0.8	96411	481875	67.4
15	4.9	94686	472358	58.7	2.9	96333	481030	62.4
20	1.4	94221	470791	54.0	5.3	96058	479106	57.6
25	10.3	94085	468183	49.0	7.5	95545	476078	52.9
30	3.5	93113	464817	44.5	8.3	94831	472339	48.3
35	9.8	92788	461846	39.7	7.0	94044	468696	43.6
40	8.9	91880	457506	35.0	6.9	93383	465434	38.9
45	16.1	91059	451913	30.3	14.8	92740	460527	34.2
50	41.5	89594	439349	25.8	20.0	91365	452611	29.6
55	70.1	85878	415344	21.8	25.0	89541	442521	25.2
60	82.5	79856	383868	18.2	43.2	87300	427739	20.8
65	141.8	73264	341749	14.6	57.8	83525	406401	16.6
70	195.3	62876	285016	11.6	164.8	78701	362678	12.4
75	347.7	50599	209414	8.8	303.9	65730	279686	9.4
80	436.2	33006	128524	7.1	402.0	45752	182557	7.4
85+	1000.0	18608	104930	5.6	1000.0	27359	154772	5.7

Appendix A-5 Male deaths by cause and age, 2014

Causes	All ages	Age at death																		
		<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+
Communicable diseases																				
Diarrhoeal	5	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
Dysentery	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Tuberculosis	23	0	0	0	0	0	0	1	0	0	0	1	4	3	1	5	1	3	2	2
Meningitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hepatitis	6	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	0	1	0
EPI related death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Septicaemia	22	2	1	0	0	0	0	1	0	0	0	0	0	1	1	1	3	2	4	6
Respiratory infections	10	5	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0
Other communicable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maternal and neonatal conditions																				
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neonatal condition																				
-Premature and LBW	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Birth asphyxia	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other neonatal	34	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nutritional	9	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2	0	2	1
Non-communicable diseases																				
Malignant neoplasm																				
-Neoplasm	103	0	1	1	1	2	1	2	1	1	2	6	6	17	11	13	11	14	8	5
-Neoplasm in female organ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congenital malformation	8	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Endocrine disorder																				
-Diabetes	15	0	0	0	0	0	0	0	0	0	1	0	1	3	1	1	1	2	5	0
-Other endocrine	2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Neuro-psychiatric	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	2
Diseases of circulatory system																				
-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	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0
-Ischaemic heart disease	122	1	0	0	0	0	0	0	0	3	4	2	16	13	14	14	18	18	11	8
-Stroke	205	0	0	0	0	0	0	0	1	0	0	3	9	20	17	22	26	51	28	28
-Other cardiovascular	40	1	0	0	0	0	0	1	0	1	0	5	2	3	2	2	5	9	6	3
Respiratory disease																				
-COPD	49	0	0	0	0	0	0	0	0	0	0	2	3	4	7	8	5	10	5	5
-Asthma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other respiratory	11	0	1	0	0	0	0	0	0	0	0	0	3	2	1	0	1	2	0	1
Digestive disease	26	0	1	0	0	0	0	2	0	0	0	2	4	2	0	2	3	8	1	1
Genitourinary disease																				
-Renal failure	12	0	1	1	1	0	0	0	0	0	2	0	0	0	1	1	0	4	1	0
-Nephritis syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other non-communicable	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
Injuries																				
Unintentional injuries																				
-Accident	24	0	0	3	0	1	0	4	2	2	0	2	3	1	2	1	1	1	0	1
-Drowning	23	0	14	1	1	1	0	1	0	0	0	0	1	2	0	1	0	0	1	0
Intentional injuries																				
-Suicide	5	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0
-Homicide	5	0	0	0	0	1	0	1	2	0	0	0	1	0	0	0	0	0	0	0
Miscellaneous																				
-Senility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Fever of unknown origin	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
- sudden infant death	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown/missing	50	2	1	0	0	0	0	0	0	2	0	0	0	5	3	3	7	8	9	10
Total	**853**	**81**	**23**	**8**	**3**	**6**	**3**	**14**	**7**	**9**	**11**	**26**	**55**	**78**	**65**	**81**	**86**	**137**	**86**	**74**

COPD=Chronic obstructive pulmonary disease

Appendix A-6 Female deaths by cause and age, 2014

Causes	All ages	Age at death																		
		<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+
Communicable diseases																				
Diarrhoeal	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1
Dysentery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis	4	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0
Meningitis	4	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hepatitis	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
EPI related death	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Septicaemia	33	1	2	2	0	0	0	0	0	0	0	1	2	0	2	2	4	9	3	5
Respiratory infections	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Other communicable	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maternal and neonatal conditions																				
Maternal death	9	0	0	0	0	1	1	1	4	2	0	0	0	0	0	0	0	0	0	0
Neonatal condition																				
-Premature and LBW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Birth asphyxia	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other neonatal	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nutritional	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1
Non-communicable diseases																				
Malignant neoplasm																				
-Neoplasm	44	1	1	0	1	0	1	0	1	0	0	3	8	7	3	8	5	3	1	1
-Neoplasm in female organ	11	0	0	0	0	0	0	0	0	1	0	1	3	2	2	1	1	0	0	0
Congenital malformation	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Endocrine disorder																				
-Diabetes	16	0	0	0	0	1	0	0	0	0	1	1	1	2	1	1	4	1	2	1
-Other endocrine	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neuro-psychiatric	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Diseases of circulartory sestem																				
-Rheumatic heart disease	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
-Hypertensive disease	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
-Ischaemic heart disease	86	0	0	0	0	0	0	0	4	0	2	3	6	8	2	11	15	15	14	6
-Stroke	209	0	0	0	0	2	0	1	1	1	2	6	9	10	7	15	43	49	33	30
-Other cardiovascular	43	2	1	1	0	0	0	0	0	0	0	0	4	0	3	1	8	8	7	8
Respiratory disease																				
-COPD	22	0	0	0	0	0	0	0	0	0	0	2	2	1	2	2	3	4	5	1
-Asthma	4	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0
-Other respiratory	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Digestive disease	17	0	0	0	0	1	0	0	0	0	0	1	0	0	1	5	6	2	0	1
Genitourinary disease																				
-Renal failure	10	0	0	0	0	1	0	0	1	0	1	2	1	0	0	1	1	1	1	0
-Nephritis syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other urinary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other non-communicable	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
Injuries																				
Unintentional injuries																				
-Accident	14	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	2	3	2	3
-Drowning	15	0	11	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Intentional injuries																				
-Suicide	15	0	0	0	0	3	3	6	2	1	0	0	0	0	0	0	0	0	0	0
-Homicide	4	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Miscellaneous																				
-Senility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Fever of unknown origin	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
-Sudden infant death	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown/missing	60	1	0	0	0	0	1	0	0	1	1	4	2	1	3	2	9	18	10	7
Total	**697**	**55**	**23**	**5**	**3**	**12**	**7**	**9**	**14**	**7**	**9**	**27**	**39**	**34**	**27**	**53**	**106**	**119**	**81**	**67**

COPD=Chronic obstructive pulmonary disease

Appendix A-7 Male deaths by cause, age, and area, 2014

Causes	All ages		<1		1-4		5-14		15-44		45-64		65-84		85+	
	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government
Communicable diseases																
Diarrhoeal	4	1	0	0	0	1	0	0	0	0	1	0	2	0	1	0
Dysentery	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Tuberculosis	10	13	0	0	0	0	0	0	0	1	5	4	3	8	2	0
Meningitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hepatitis	4	2	0	0	0	0	0	0	1	0	2	1	1	1	0	0
EPI related death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Septicaemia	14	8	0	2	1	0	0	0	1	0	2	0	4	6	6	0
Respiratory infections	5	5	2	3	1	0	0	0	0	0	1	1	1	1	0	0
Other communicable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maternal and neonatal conditions																
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neonatal condition																
-premature and LBW	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	8	11	8	11	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	17	17	17	17	0	0	0	0	0	0	0	0	0	0	0	0
Nutritional	3	6	0	1	0	0	0	1	0	0	1	0	2	3	0	1
Non-communicable diseases																
Malignant neoplasm																
-neoplasm	46	57	0	0	0	1	0	2	4	5	18	22	21	25	3	2
-neoplasm in female organ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congenital malformation	5	3	3	3	1	0	1	0	0	0	0	0	0	0	0	0
Endocrine disorder																
-diabetes	8	7	0	0	0	0	0	0	1	0	1	4	6	3	0	0
-other endocrine	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Neuro-psychiatric	2	4	0	0	0	0	0	0	0	0	1	0	1	2	0	2
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	3	1	0	0	0	0	0	0	1	0	0	0	2	1	0	0
-ischaemic heart disease	74	48	0	1	0	0	0	0	4	3	27	18	39	22	4	4
-stroke	109	96	0	0	0	0	0	0	1	0	29	20	66	61	13	15
-other cardiovascular	20	20	1	0	0	0	0	0	0	2	6	6	12	10	1	2
Respiratory disease																
-COPD	29	20	0	0	0	0	0	0	0	0	7	9	18	10	4	1
-Asthma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other respiratory	3	8	0	0	1	0	0	0	0	0	2	4	0	3	0	1
Digestive disease	14	12	0	0	0	1	0	0	1	1	5	3	8	6	0	1
Genitourinary disease																
-Renal failure	5	7	0	0	1	0	0	2	1	1	0	1	3	3	0	0
-Nephritis syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Other urinary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other non-communicable	1	2	0	0	0	0	0	0	0	0	0	1	1	1	0	0
Injuries																
Unintentional injuries																
-accident	12	12	0	0	0	0	0	3	5	4	6	2	0	3	1	0
-drowning	10	13	0	0	6	8	0	2	2	0	0	3	2	0	0	0
Intentional injuries																
-suicide	3	2	0	0	0	0	0	0	2	2	1	0	0	0	0	0
-homicide	2	3	0	0	0	0	0	0	1	3	1	0	0	0	0	0
Miscellaneous																
-senility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-fever of unknown origin	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
-sudden infant death	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Unknown/missing	19	31	1	1	0	1	0	0	0	2	4	4	11	16	3	7
Total	**440**	**413**	**38**	**43**	**11**	**12**	**1**	**10**	**26**	**24**	**121**	**103**	**205**	**185**	**38**	**36**

COPD=Chronic obstructive pulmonary disease

Appendix A-8 Female deaths by cause, age, and area, 2014

Causes	All ages		<1		1-4		5-14		15-44		45-64		65-84		85+	
	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government	icddr,b	Government
Communicable diseases																
Diarrhoeal	3	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0
Dysentery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis	2	2	0	0	0	0	0	0	0	0	1	1	1	1	0	0
Meningitis	3	1	2	0	0	1	1	0	0	0	0	0	0	0	0	0
Hepatitis	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
EPI related death	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Septicaemia	16	17	1	0	2	0	1	1	0	0	2	3	9	9	1	4
Respiratory infections	1	2	0	0	1	1	0	0	0	0	0	0	0	1	0	0
Other communicable	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Maternal and neonatal conditions																
Maternal death	3	6	0	0	0	0	0	0	3	6	0	0	0	0	0	0
Neonatal condition																
-premature and LBW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-birth asphyxia	7	9	7	9	0	0	0	0	0	0	0	0	0	0	0	0
-other neonatal	11	12	11	12	0	0	0	0	0	0	0	0	0	0	0	0
Nutritional	3	3	0	1	0	0	0	0	0	0	0	0	3	1	0	1
Non-communicable diseases																
Malignant neoplasm																
-neoplasm	26	18	1	0	0	1	1	0	0	2	14	7	10	7	0	1
-neoplasm in female organ	5	6	0	0	0	0	0	0	0	1	5	3	0	2	0	0
Congenital malformation	3	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0
Endocrine disorder																
-diabetes	7	9	0	0	0	0	0	0	1	1	2	3	4	4	0	1
-other endocrine	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Neuro-psychiatric	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Diseases of circulatory system																
-rheumatic heart disease	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
-hypertensive disease	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
-ischaemic heart disease	52	34	0	0	0	0	0	0	4	2	15	4	29	26	4	2
-stroke	116	93	0	0	0	0	0	0	2	5	17	15	82	58	15	15
-other cardiovascular	21	22	2	0	0	1	1	0	0	0	3	4	11	13	4	4
Respiratory disease																
-COPD	11	11	0	0	0	0	0	0	0	0	3	4	8	6	0	1
-asthma	3	1	0	0	1	0	0	0	1	0	0	0	1	1	0	0
-other respiratory	2	3	0	1	0	0	0	0	0	0	0	0	2	1	0	1
Digestive disease	12	5	0	0	0	0	0	0	1	0	1	1	9	4	1	0
Genitourinary disease																
-renal failure	7	3	0	0	0	0	0	0	3	0	1	2	3	1	0	0
-Nephritis syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-other urinary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other non-communicable	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Injuries																
Unintentional injuries																
-accident	6	8	0	0	0	1	0	0	1	1	0	1	3	4	2	1
-drowning	8	7	0	0	7	4	0	1	1	1	0	0	0	1	0	0
Intentional injuries																
-suicide	6	9	0	0	0	0	0	0	6	9	0	0	0	0	0	0
-homicide	1	3	1	0	0	0	0	0	0	3	0	0	0	0	0	0
Miscellaneous																
-senility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-fever of unknown origin	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
-sudden infant death	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Unknown/missing	24	36	0	1	0	0	0	0	2	1	4	6	14	25	4	3
Total	**366**	**331**	**28**	**27**	**12**	**11**	**4**	**4**	**26**	**32**	**73**	**54**	**191**	**168**	**32**	**35**

COPD=Chronic obstructive pulmonary disease

Appendix A-9 Age-specific fertility rate and indices for icddr,b service area by block, 2014

Age (years)	Block A		Block B		Block C		Block D	
	Births	Rate	Births	Rate	Births	Rate	Births	Rate
All ages	827	76.8	767	85.3	561	83.7	466	78.2
15-19*	122	67.1	150	94.6	98	90.0	79	82.7
20-24	280	164.5	262	169.5	178	159.6	137	149.1
25-29	243	137.2	183	136.4	162	154.9	138	150.0
30-34	121	81.4	121	98.1	85	90.0	76	88.1
35-39	51	37.0	39	35.0	28	34.9	29	38.3
40-44	9	6.9	11	10.2	9	10.8	7	9.5
45-49**	1	0.8	1	0.9	1	1.1	0	0.0
Total fertility rate		2475		2723		2707		2588
General fertility rate		77		85		84		78
Gross reproduction rate		1239		1395		1308		1266

*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, 2014

Age (years)	Total women	Total birth	Live birth order									
			1	2	3	4	5	6	7	8	9	10+
Both areas												
<15	12682	3	3	0	0	0	0	0	0	0	0	0
15-19	10692	779	738	40	1	0	0	0	0	0	0	0
20-24	9953	1594	912	628	50	2	0	0	0	1	0	1
25-29	9747	1419	282	736	333	56	12	0	0	0	0	0
30-34	8726	808	61	226	344	138	27	8	3	0	0	1
35-39	7603	287	11	43	110	75	37	8	2	0	1	0
40-44	7557	71	1	3	20	22	10	13	2	0	0	0
45-49	7794	7	0	0	1	2	1	1	1	1	0	0
Total		**4968**	**2008**	**1676**	**859**	**295**	**87**	**30**	**8**	**2**	**1**	**2**
icddr,b service area												
<15	6530	3	3	0	0	0	0	0	0	0	0	0
15-19	5447	446	425	20	1	0	0	0	0	0	0	0
20-24	5282	857	490	345	20	1	0	0	0	1	0	0
25-29	5079	726	145	384	168	27	2	0	0	0	0	0
30-34	4526	403	35	117	174	60	11	4	2	0	0	0
35-39	4053	147	6	21	58	42	15	4	0	0	1	0
40-44	3940	36	0	3	14	9	4	5	1	0	0	0
45-49	4109	3	0	0	0	1	1	0	1	0	0	0
Total		**2621**	**1104**	**890**	**435**	**140**	**33**	**13**	**4**	**1**	**1**	**0**
Government service area												
<15	6152	0	0	0	0	0	0	0	0	0	0	0
15-19	5245	333	313	20	0	0	0	0	0	0	0	0
20-24	4671	737	422	283	30	1	0	0	0	0	0	1
25-29	4668	693	137	352	165	29	10	0	0	0	0	0
30-34	4200	405	26	109	170	78	16	4	1	0	0	1
35-39	3550	140	5	22	52	33	22	4	2	0	0	0
40-44	3617	35	1	0	6	13	6	8	1	0	0	0
45-49	3685	4	0	0	1	1	0	1	0	1	0	0
Total		**2347**	**904**	**786**	**424**	**155**	**54**	**17**	**4**	**1**	**0**	**2**

Appendix A-11 Age birth order-specific fertility rates by area, 2014

Age (years)	Total	Live birth order									
		1	2	3	4	5	6	7	8	9	10+
Both areas											
<15	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0729	0.0690	0.0037	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1602	0.0916	0.0631	0.0050	0.0002	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001
25-29	0.1456	0.0289	0.0755	0.0342	0.0057	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
30-34	0.0926	0.0070	0.0259	0.0394	0.0158	0.0031	0.0009	0.0003	0.0000	0.0000	0.0001
35-39	0.0377	0.0014	0.0057	0.0145	0.0099	0.0049	0.0011	0.0003	0.0000	0.0001	0.0000
40-44	0.0094	0.0001	0.0004	0.0026	0.0029	0.0013	0.0017	0.0003	0.0000	0.0000	0.0000
45-49	0.0009	0.0000	0.0000	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Total	**2.5973**	**0.9920**	**0.8715**	**0.4797**	**0.1740**	**0.0532**	**0.0191**	**0.0050**	**0.0011**	**0.0007**	**0.0011**
icddr,b service area											
<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	0.0819	0.0780	0.0037	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1622	0.0928	0.0653	0.0038	0.0002	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
25-29	0.1429	0.0285	0.0756	0.0331	0.0053	0.0004	0.0000	0.0004	0.0000	0.0000	0.0000
30-34	0.0890	0.0077	0.0259	0.0384	0.0133	0.0024	0.0009	0.0004	0.0000	0.0000	0.0000
35-39	0.0363	0.0015	0.0052	0.0143	0.0104	0.0037	0.0010	0.0000	0.0000	0.0002	0.0000
40-44	0.0091	0.0000	0.0008	0.0036	0.0023	0.0010	0.0013	0.0003	0.0000	0.0000	0.0000
45-49	0.0007	0.0000	0.0000	0.0000	0.0002	0.0002	0.0000	0.0002	0.0000	0.0000	0.0000
Total	**2.6135**	**1.0451**	**0.8819**	**0.4668**	**0.1583**	**0.0389**	**0.0157**	**0.0067**	**0.0009**	**0.0012**	**0.0000**
Government service area											
<15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0635	0.0597	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1578	0.0903	0.0606	0.0064	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
25-29	0.1485	0.0293	0.0754	0.0353	0.0062	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
30-34	0.0964	0.0062	0.0260	0.0405	0.0186	0.0038	0.0010	0.0002	0.0000	0.0000	0.0002
35-39	0.0394	0.0014	0.0062	0.0146	0.0093	0.0062	0.0011	0.0006	0.0000	0.0000	0.0000
40-44	0.0097	0.0003	0.0000	0.0017	0.0036	0.0017	0.0022	0.0003	0.0000	0.0000	0.0000
45-49	0.0011	0.0000	0.0000	0.0003	0.0003	0.0000	0.0003	0.0000	0.0003	0.0000	0.0000
Total	**2.5818**	**0.9362**	**0.8598**	**0.4941**	**0.1908**	**0.0690**	**0.0228**	**0.0054**	**0.0014**	**0.0000**	**0.0023**

Appendix A-12. Marriages and divorces by month, 2014

Month	Marriage		Divorce	
	Number	Percent	Number	Percent
January	262	7.8	36	9.4
February	284	8.4	19	5.0
March	348	10.3	37	9.7
April	253	7.5	40	10.4
May	274	8.1	23	6.0
June	244	7.3	35	9.1
July	165	4.9	19	5.0
August	391	11.6	47	12.3
September	221	6.6	32	8.4
October	394	11.7	39	10.2
November	244	7.3	31	8.1
December	285	8.5	25	6.5
Total	**3365**	**100.0**	**383**	**100.0**

Appendix A-13. In- and out-migrations by age and sex, 2014

Age (years)	In-migration			Out-migration		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	10915	5189	5726	12484	5990	6494
0-4	1737	891	846	1508	780	728
5 - 9	905	481	424	1042	538	504
10-14	686	353	333	958	536	422
15-19	1559	325	1234	2240	899	1341
20-24	1542	478	1064	2316	934	1382
25-29	1460	728	732	1497	664	833
30-34	1011	632	379	930	511	419
35-39	608	432	176	561	363	198
40-44	434	294	140	398	260	138
45-49	336	223	113	288	170	118
50-54	235	152	83	224	122	102
55-59	152	98	54	134	64	70
60-64	93	53	40	107	54	53
65+	157	49	108	281	95	186

Appendix A-14. In-migrations by age, sex, and area, 2014

Age (years)	icddr,b service area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	5556	2567	2989	5359	2622	2737
0-4	862	444	418	875	447	428
5 - 9	472	255	217	433	226	207
10-14	372	179	193	314	174	140
15-19	823	154	669	736	171	565
20-24	787	231	556	755	247	508
25-29	697	331	366	763	397	366
30-34	545	338	207	466	294	172
35-39	302	210	92	306	222	84
40-44	210	136	74	224	158	66
45-49	173	119	54	163	104	59
50-54	119	76	43	116	76	40
55-59	76	48	28	76	50	26
60-64	41	21	20	52	32	20
65+	77	25	52	80	24	56

Appendix A-15. Out-migrations by age, sex, and area, 2014

Age (years)	icddr,b service area			Government service area		
	Both sexes	Male	Female	Both sexes	Male	Female
All ages	6242	2919	3323	6242	3071	3171
0-4	825	430	395	683	350	333
5 - 9	534	279	255	508	259	249
10-14	482	260	222	476	276	200
15-19	1072	410	662	1168	489	679
20-24	1117	406	711	1199	528	671
25-29	730	313	417	767	351	416
30-34	496	266	230	434	245	189
35-39	283	183	100	278	180	98
40-44	208	138	70	190	122	68
45-49	138	76	62	150	94	56
50-54	105	52	53	119	70	49
55-59	71	33	38	63	31	32
60-64	50	26	24	57	28	29
65+	131	47	84	150	48	102

Appendix A-16. Male out-migration by cause of movement and age, 2014

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	5990	780	538	536	899	934	664	511	363	260	170	122	64	54	95
Work/economic/educational															
Acquired/seeking job	3040	0	2	107	528	716	541	409	285	195	120	76	27	22	12
Job completion/retirement	8	0	0	0	1	1	1	1	2	0	0	0	0	2	0
To acquire education	647	2	102	153	216	135	24	3	2	4	2	0	4	0	0
Educ. completed/interrupted	10	0	1	2	4	1	0	1	0	0	1	0	0	0	0
Student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/environmental															
Acquired/seeking new land/house	213	1	1	0	1	8	21	47	26	23	19	19	15	13	19
River erosion	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Marriage / familial															
Marriage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Separation/divorce/widow	28	0	0	0	4	9	5	5	3	2	0	0	0	0	0
Move or join with spouse/follow parents	1768	768	428	265	137	54	31	15	13	8	4	6	10	5	24
Move or join with other relatives	15	2	2	3	1	0	1	1	1	0	0	0	0	1	3
Adoption	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Family friction/breakdown	93	2	1	1	3	4	25	14	14	9	5	4	3	1	7
Health or old age care	34	2	0	0	0	0	1	1	3	0	2	1	0	3	21
Legal problems	59	0	0	0	0	2	4	6	6	15	10	10	2	4	0
Other and not stated															
Others n.e.c.*	58	0	1	2	4	4	8	6	7	4	4	5	2	3	8
Unknown or not stated	14	1	0	3	0	0	2	2	1	0	2	1	1	0	1

*n.e.c.=Not elsewhere classified

Appendix A-17. Female out-migration by cause of movement and age, 2014

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	6494	728	504	422	1341	1382	833	419	198	138	118	102	70	53	186
Work/economic/educational															
Acquired/seeking job	408	0	3	35	108	95	76	38	19	12	14	4	3	1	0
Job completion/retirement	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
To acquire education	367	10	63	78	84	59	27	21	12	8	3	1	0	0	1
Educ. completed/interrupted	4	0	0	0	3	1	0	0	0	0	0	0	0	0	0
Student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/environmental															
Acquired/seeking new land/house	286	1	0	5	30	65	51	45	19	12	15	11	8	8	16
River erosion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marriage / familial															
Marriage	1150	0	0	41	557	394	130	20	6	1	0	0	0	0	1
Separation/divorce/widow	155	0	0	5	71	41	21	6	5	2	2	1	0	0	1
Move or join with spouse/follow parents	3485	704	428	236	365	589	437	249	117	81	65	61	47	28	78
Move or join with other relatives	47	2	7	3	7	2	1	0	1	1	2	2	6	1	12
Adoption	9	8	1	0	0	0	0	0	0	0	0	0	0	0	0
Family friction/breakdown	261	1	1	4	55	79	54	30	11	6	5	4	3	3	5
Health or old age care	109	0	0	1	15	16	9	1	3	0	3	4	1	8	48
Legal problems	8	0	0	0	0	1	1	0	1	2	1	2	0	0	0
Other and not stated															
Others n.e.c.*	174	0	0	13	41	35	21	7	3	11	6	10	2	4	21
Unknown or not stated	30	2	1	1	5	5	5	2	0	2	2	2	0	0	3

*n.e.c.=Not elsewhere classified

Appendix A-18 Male in-migration by cause of movement and age, 2014

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	5189	891	481	353	325	478	728	632	432	294	223	152	98	53	49
Work/economic/educational															
Acquired/seeking job	855	0	0	5	50	121	197	161	121	91	61	33	11	2	2
Job completion/retirement	693	0	0	0	6	69	148	139	93	79	62	45	30	13	9
To acquire education	207	7	60	80	36	17	1	1	2	2	1	0	0	0	0
Educ. completed/interrupted	5	0	0	4	0	1	0	0	0	0	0	0	0	0	0
Student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/environmental															
Acquired/seeking new land/house	972	0	0	2	41	111	202	209	148	81	62	45	29	22	20
River erosion	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Marriage / familial															
Marriage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Separation/divorce/widow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Move or join with spouse/follow parents	2012	868	408	241	149	95	117	60	27	13	13	5	9	2	5
Move or join with other relatives	26	6	6	3	1	2	3	1	1	1	0	1	0	0	1
Adoption	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Family friction/breakdown	44	1	2	0	2	3	8	11	4	3	2	2	1	5	0
Health or old age care	83	0	0	1	4	11	13	10	8	5	7	7	6	6	5
Legal problems	66	0	0	0	0	14	9	16	9	9	3	5	1	0	0
Other and not stated															
Others n.e.c.*	204	1	3	16	34	31	30	22	18	10	10	9	11	3	6
Unknown or not stated	16	3	2	1	2	3	0	2	1	0	1	0	0	0	1

*n.e.c.=Not elsewhere classified

Appendix A-19 Female in-migration by cause of movement and age, 2014

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	5726	846	424	333	1234	1064	732	379	176	140	113	83	54	40	108
Work/economic/educational															
Acquired/seeking job	151	0	0	5	10	32	27	26	16	11	7	9	3	2	3
Job completion/retirement	18	0	0	0	3	2	2	2	1	4	2	1	1	0	0
To acquire education	228	9	64	69	40	16	11	10	5	3	1	0	0	0	0
Educ. completed/interrupted	5	0	0	1	1	2	1	0	0	0	0	0	0	0	0
Student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/environmental															
Acquired/seeking new land/house	377	0	0	2	45	77	68	46	32	23	16	20	14	13	21
River erosion	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Marriage / familial															
Marriage	572	0	0	10	379	127	29	13	7	3	3	0	1	0	0
Separation/divorce/widow	82	0	0	1	26	29	16	4	3	0	2	0	1	0	0
Move or join with spouse/follow parents	3811	803	346	233	657	668	476	246	95	86	73	42	29	21	36
Move or join with other relatives	45	10	3	4	10	4	3	0	1	0	3	0	1	1	5
Adoption	17	16	1	0	0	0	0	0	0	0	0	0	0	0	0
Family friction/breakdown	152	1	2	1	31	42	43	17	7	2	2	2	1	0	1
Health or old age care	93	0	0	0	17	28	18	3	1	3	0	1	0	0	22
Legal problems	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Other and not stated															
Others n.e.c.*	152	2	4	6	13	34	36	10	8	3	3	8	3	3	19
Unknown or not stated	21	5	4	1	1	3	2	2	0	2	0	0	0	0	1

*n.e.c.=Not elsewhere classified

Appendix A-20 Male migration by destination or origin, 2014

Destination /Origin	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	31	5	5	5	4	50	38	10	13	11	7	79
	Urban	900	1104	510	238	299	3051	723	458	646	308	266	2401
Chittagong	Rural	587	129	128	76	75	995	691	118	173	87	58	1127
	Urban	279	186	108	84	51	708	201	85	100	61	57	504
Sylhet	Rural	0	0	2	0	0	2	5	2	2	1	3	13
	Urban	14	21	11	4	1	51	20	9	11	11	5	56
Khulna	Rural	4	3	2	1	0	10	5	2	1	1	3	12
	Urban	5	8	1	2	1	17	5	1	2	2	2	12
Rajshahi	Rural	1	1	0	1	0	3	4	1	2	1	1	9
	Urban	3	2	1	0	1	7	1	2	2	0	1	6
Rangpur	Rural	1	0	1	0	1	3	1	0	4	0	2	7
	Urban	2	1	1	0	0	4	1	0	2	0	0	3
Barisal	Rural	12	5	2	4	1	24	12	1	13	3	5	34
	Urban	8	7	7	4	2	28	9	5	2	3	1	20
India		2	10	6	0	4	22	3	2	1	0	0	6
Asia		1	122	89	54	19	285	3	29	94	48	23	197
Middle-east		1	213	270	133	39	656	3	75	277	180	135	670
Others		3	16	31	17	7	74	0	3	15	9	6	33
Unknown		0	0	0	0	0	0	3	2	1	0	0	6
Total		**1854**	**1833**	**1175**	**623**	**505**	**5990**	**1725**	**803**	**1360**	**726**	**575**	**5189**

Appendix A-21 Female migration by destination or origin, 2014

Destination /Origin	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	25	63	29	2	8	127	39	64	28	10	10	151
	Urban	756	1038	524	181	306	2805	719	615	450	168	224	2176
Chittagong	Rural	576	1244	446	95	122	2483	641	1414	448	90	87	2680
	Urban	231	284	186	38	65	804	130	144	128	34	49	485
Sylhet	Rural	1	8	4	0	1	14	6	10	3	2	5	26
	Urban	18	21	9	4	5	57	20	12	13	2	6	53
Khulna	Rural	6	9	5	0	1	21	4	2	2	1	1	10
	Urban	6	7	5	0	0	18	5	1	5	0	3	14
Rajshahi	Rural	3	3	2	0	0	8	5	5	1	1	1	13
	Urban	2	1	2	2	0	7	3	3	1	3	1	11
Rangpur	Rural	2	3	1	0	0	6	3	2	2	1	0	8
	Urban	4	2	3	0	0	9	2	1	1	0	0	4
Barisal	Rural	8	12	6	3	2	31	14	13	13	0	2	42
	Urban	9	8	5	1	0	23	4	5	6	1	2	18
India		5	6	0	1	9	21	0	1	0	0	2	3
Asia		0	3	2	1	1	7	2	0	2	0	1	5
Middle-east		1	8	18	8	5	40	6	6	7	3	2	24
Others		1	3	5	0	4	13	0	0	1	0	2	3
Unknown		0	0	0	0	0	0	0	0	0	0	0	0
Total		**1654**	**2723**	**1252**	**336**	**529**	**6494**	**1603**	**2298**	**1111**	**316**	**398**	**5726**

APPENDIX B

POPULATION, BIRTHS, AND DEATHS BY VILLAGE, 2014

Village code	Village name	Population (mid-year)	Live births	Deaths	Birth rate	Death rate
icddr,b SERVICE AREA						
D00	Charmukundi	2615	59	10	22.6	3.8
W00	Kaladi	8000	157	44	19.6	5.5
V10	Dhakirgaon	2001	48	10	24.0	5.0
V11	Nabakalash	3163	77	16	24.3	5.1
V31	Dighaldi	9888	242	86	24.5	8.7
V32	Mobarakdi	3637	74	32	20.3	8.8
V60	Suvankardi	941	15	3	15.9	3.2
V61	Munsabdi	699	19	4	27.2	5.7
V62	Shilmondi	1006	21	6	20.9	6.0
V72	Upadi	6244	115	48	18.4	7.7
Block A Total		**38194**	**827**	**259**	**21.7**	**6.8**
H00	Lamchari	1230	21	14	17.1	11.4
V12	Bhangerpar	823	26	2	31.6	2.4
V13	Baburpara	723	22	6	30.4	8.3
V19	Lakshmipur	2899	74	17	25.5	5.9
V20	Dagorpur	1469	37	9	25.2	6.1
V21	Khadergaon	565	13	8	23.0	14.2
V22	Beloti	603	17	5	28.2	8.3
V23	Baluchar	694	10	0	14.4	0.0
V24	Machuakhal	3061	73	21	23.8	6.9
V26	Narayanpur	3405	70	19	20.6	5.6
V56	Pailpara	1670	42	8	25.1	4.8
V59	Doshpara	2364	47	15	19.9	6.3
V82	Dhanarpar	1795	39	6	21.7	3.3
V83	Padmapal	621	21	6	33.8	9.7
V85	Bhanurpara	511	8	3	15.7	5.9
V87	Hurmaisha	732	18	2	24.6	2.7
VBB	Nagda	4742	110	29	23.2	6.1
VBC	Naogaon	5043	119	33	23.6	6.5
Block B Total		**32950**	**767**	**203**	**23.3**	**6.2**
K00	Shahpur	1018	30	6	29.5	5.9
L00	Tatkhana	571	11	5	19.3	8.8
M00	Char Nayergaon	185	3	0	16.2	0.0
N00	Aswinpur	2309	70	20	30.3	8.7
O00	Nayergaon	2162	45	18	20.8	8.3
P00	Titerkandi	2011	49	13	24.4	6.5
Q00	Char Shibpur	268	5	2	18.7	7.5
V27	Panchghoria	1023	27	8	26.4	7.8
V28	Khidirpur	1613	48	11	29.8	6.8
V30	Harion	630	15	5	23.8	7.9
V39	Gobindapur	301	4	2	13.3	6.6
V40	Masunda	789	14	5	17.7	6.3
V41	Paton	1897	49	11	25.8	5.8
V42	Adhara (South)	803	15	8	18.7	10.0
V44	Panchdona	611	7	1	11.5	1.6
V86	Adhara	1023	25	5	24.4	4.9
V88	Datikara	571	16	5	28.0	8.8
VBA	Mehron	2134	41	12	19.2	5.6

Village code	Village name	Population (mid-year)	Live births	Deaths	Birth rate	Death rate
DX0	Barogaon	3461	59	28	17.0	8.1
DX1	Naojan	1429	28	10	19.6	7.0
Block C Total		**24809**	**561**	**175**	**22.6**	**7.1**
R00	Nandalalpur	1530	42	11	27.5	7.2
S00	Tatua	957	21	4	21.9	4.2
T00	Amuakanda	1702	40	10	23.5	5.9
V15	Bhati Rasulpur	865	18	6	20.8	6.9
V16	Binandapur	907	15	10	16.5	11.0
V17	Hatighata	1065	15	5	14.1	4.7
V18	Torkey	3998	80	30	20.0	7.5
V25	Char Pathalia	1328	26	14	19.6	10.5
V29	Shibpur (South)	539	14	5	26.0	9.3
V33	Shibpur (North)	463	7	2	15.1	4.3
V34	Satparia	884	18	7	20.4	7.9
V52	Nayakandi	227	3	1	13.2	4.4
V54	Balairkandi	563	13	5	23.1	8.9
V55	Induria	538	9	0	16.7	0.0
V63	Islamabad (East)	2044	38	14	18.6	6.8
V67	Majlishpur	656	14	3	21.3	4.6
V81	Sonaterkandi	695	12	6	17.3	8.6
V84	Shahbajkandi	2374	55	26	23.2	11.0
V89	Islamabad (Middle)	1638	26	10	15.9	6.1
Block D Total		**22973**	**466**	**169**	**20.3**	**7.4**
icddr,b Service Area Total		**118926**	**2621**	**806**	**22.0**	**6.8**
GOVERNMENT SERVICE AREA:						
V35	Durgapur	3554	74	11	20.8	3.1
V38	Galimkha	1482	22	0	14.8	0.0
V43	Kanachak	1152	27	3	23.4	2.6
V45	Bakchar	1037	20	3	19.3	2.9
V46	Silinda	398	14	6	35.2	15.1
V47	Tulatali	1834	25	7	13.6	3.8
V48	Gangkanda	485	15	5	30.9	10.3
V49	Harina Bhabanipur	1233	25	3	20.3	2.4
V57	Baluchar	1083	25	20	23.1	18.5
V64	Kawadi	4787	109	13	22.8	2.7
V65	Nayachar	778	19	5	24.4	6.4
V66	Thatalia	759	12	8	15.8	10.5
V68	Sobahan	956	16	2	16.7	2.1
V71	Khamarpara	452	4	6	8.8	13.3
V73	Sadardia	816	24	1	29.4	1.2
V74	Ketundi	1358	25	7	18.4	5.2
V75	Mukundi	309	8	8	25.9	25.9
V76	Chosoi	1735	35	32	20.2	18.4
V78	Soladana	264	3	6	11.4	22.7
V79	Pitambordi	387	20	6	51.7	15.5
V80	Daribond	1292	32	7	24.8	5.4
V90	Narinda	1250	26	3	20.8	2.4
V97	Dhanagoda	330	10	7	30.3	21.2
V98	Santoshpur	95	0	10	0.0	105.3
V99	Baluakandi	473	13	3	27.5	6.3
VB1	Taltoli	979	23	12	23.5	12.3
VB2	Sree Rayerchar	1217	20	1	16.4	0.8
VB3	Rayerkandi	2919	43	3	14.7	1.0
D28	Bazarkhola	1051	24	8	22.8	7.6
D29	Kirtonkhola	217	3	6	13.8	27.6
D30	Banuakandi	712	6	1	8.4	1.4

Village code	Village name	Population (mid-year)	Live births	Deaths	Birth rate	Death rate
D31	Harina Bazarkhola	978	17	1	17.4	1.0
D32	Khalisha	771	19	3	24.6	3.9
D33	Nayanagar	1046	21	5	20.1	4.8
D34	Saidkharkandi	1343	28	14	20.8	10.4
D35	Mollah Kandi	540	7	22	13.0	40.7
Block E Total		**40072**	**814**	**258**	**20.3**	**6.4**
A00	Uddamdi	3182	50	24	15.7	7.5
F00	Sepoykandi	1532	34	7	22.2	4.6
G00	Thatalia	3114	68	22	21.8	7.1
J00	Char Harigope	853	22	6	25.8	7.0
U00	Baispur	9291	232	54	25.0	5.8
V01	Kadamtali	384	10	2	26.0	5.2
V02	Nilokhi	434	9	2	20.7	4.6
V03	Char Nilokhi	618	10	3	16.2	4.9
V04	Char Pathalia	374	5	0	13.4	0.0
V05	Gazipur	3333	75	28	22.5	8.4
V06	Fatepur	2554	54	17	21.1	6.7
V07	Nayakandi	272	5	1	18.4	3.7
V08	Goalbhar	1211	26	9	21.5	7.4
V09	Naburkandi	1165	17	10	14.6	8.6
V14	Enayetnagar	649	14	4	21.6	6.2
V36	Ludhua	5429	115	41	21.2	7.6
D99	Mandertoli	2035	37	12	18.2	5.9
Block F Total		**36430**	**783**	**242**	**21.5**	**6.6**
B00	Charmasua	1858	44	15	23.7	8.1
C00	Sarderkandi	3857	83	14	21.5	3.6
V37**	Charputia	-	-	-	-	-
V50	Bakharpur	45	0	0	0.0	0.0
V51	Induriakandi	937	29	6	30.9	6.4
V53	Chhoto Haldia	2986	62	30	20.8	10.0
V58**	Mohishmari	-	-	-	-	-
V69**	Naobangha	-	-	-	-	-
V70**	South Joypur	-	-	-	-	-
V95	Baluchar	2430	58	21	23.9	8.6
V96	Rampur	551	12	4	21.8	7.3
VB4	Ramdaspur	3594	71	23	19.8	6.4
VB5	Thakurpara	791	13	6	16.4	7.6
VB6	Sarkerpara	559	14	3	25.0	5.4
VB7	Mirpur	317	9	1	28.4	3.2
VB8	Farazikandi	1224	20	9	16.3	7.4
VB9**	Ramanathgonj	-	-	-	-	-
VB0	South Rampur	3510	76	24	21.7	6.8
D88	Sankibhanga	1482	31	8	20.9	5.4
D89	Sankibhanga Namapara	1002	18	10	18.0	10.0
D90	Zahirabad	824	18	9	21.8	10.9
D91**	North Joypur	-	-	-	-	-
D92**	West Joypur	-	-	-	-	-
D93	Maizkandi	1318	33	8	25.0	6.1
D94	Hazipur	1611	47	12	29.2	7.4
D95	Tapaderpara	630	14	4	22.2	6.3
D96	Sakharipara	1234	23	8	18.6	6.5
D97	Nayakandi	679	16	3	23.6	4.4
D98	Bara Haldia	3318	59	26	17.8	7.8
Block G Total		**34757**	**750**	**244**	**21.6**	**7.0**
Government Service Area Total		**111259**	**2347**	**744**	**21.1**	**6.7**

**Lost due to river erosion in 1987

APPENDIX C

LIFE TABLE EQUATIONS

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

   q_0 = Infant death rate per 1,000 live births.

2. $l_0 = 100{,}000$

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

3. $L_0 = 0.15\, l_0 + 0.85\, l_1$

   $L_1 = 0.410\, l_1 + 0.590\, l_2$

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

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

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

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

NOTE: Computed using Greville's method, as suggested in: Shryock HS, Seigel JS, et al. (1975).

NOTE: lnC assumed to be 0.095; separation factors in equation 3 correspond to an infant mortality rate of 50 per 1,000 livebirths

APPENDIX D

WHO STANDARD WORLD POPULATION

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

NOTE: Source: Ahmed OB, Boschi-Pinto, Lopez AD et al. (2000)
Available online at: http://www.who.int/healthinfo/paper31.pdf

APPENDIX E

HEALTH INTERVENTIONS IN icddr,b SERVICE AREA

Date	Activity	Blocks			
		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 treatment to children		X		X
Jul 1991		X	X	X	X
Apr-Dec 1989	Dysentery treatment project		X		X
1997	Sub-centre delivery			X	
1998					X
2000			X		
2001		X			
2000	Fixed Site Clinic for delivery on MCH-FP services			X	X
2001		X	X		
2001	Maternal and infant Nutrition intervention (MINIMAT)	X	X	X	X
2002	Arsenic in Tub-well water and mitigation (AS-MAT)	X	X	X	X
2005	Introduction of Hepatitis B	X	X	X	X
2006	Vitamin E and Selenium trial	X	X	X	X
2007	Maternal, newborn and child health intervention	X	X	X	X
2007	Rota Teq vaccine trial to infant	X	X	X	X
2008	Rota Rix vaccine trial to infant	X	X	X	X
2009	Hemophilus influenza type B(Hib) vaccine in the form of pentavalent vaccine	X	X	X	X
2011	Flu Q-QIV (Phase III)	X			
2012	Measles + Rubella vaccine introduction it is national EPI program	X	X	X	X
May 2012	JE (Japanese encephalitis) vaccine trial	X	X	X	X
Apr 2012	FLU D_QIV (Phase III)	X	X		
May 2012	OPV vaccine trial	X	X	X	X

APPENDIX F

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NOTE: 43 Community Health Research Workers (CHRWs) collect routine HDSS data.

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icddr,b