

91

DEMOGRAPHIC SURVEILLANCE SYSTEM- TEKNAF

VOLUME ONE

CENSUS (1975), VITAL
EVENTS AND
MIGRATION, 1976-1978

REPORT PREPARED BY

Nurul Alam
Shahidul Alam
Yakub Patwari
M.H. Munshi
M.Mujibur Rahaman
K.M.S. Aziz
Mizanur Rahman

ICDDR.B
SCIENTIFIC REPORT NO. 60
March 1984



INTERNATIONAL
CENTRE FOR
DIARRHOEAL DISEASE
RESEARCH,
BANGLADESH
DHAKA, BANGLADESH

DEMOGRAPHIC SURVEILLANCE SYSTEM - TEKNAF

Volume One

Census (1975), Vital Events and Migration, 1976-1978

Report prepared by:

Nurul Alam¹

Shahidul Alam²

Yakub Patwari³

M.H. Munshi⁴

M. Mujibur Rahaman⁵

K.M.S. Aziz⁶

Mizanur Rahman⁷

INTERNATIONAL CENTRE FOR

DIARRHOEAL DISEASE RESEARCH, BANGLADESH

G.P.O. Box 128, Dhaka 2

Bangladesh

-
- 1 Senior Statistical Officer
 - 2 Data Processing Assistant
 - 3 Senior Field Research Officer
 - 4 Assistant Scientist and Head, Teknaf Station
 - 5 Senior Scientist and Associate Director
 - 6 Senior Scientist and Associate Director
 - 7 Senior Statistical Officer

PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic and non-profit centre for research, education and training as well as clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). The activities of the institution are to undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility. The ultimate aim is to develop improved methods of health care, and to prevent and control diarrhoeal diseases while improving public health programmes, with special relevance to developing countries. The ICDDR,B issues an annual report, working papers, scientific reports, special publications, monographs, theses, dissertations, and a newsletter; which demonstrate the type of research activities currently underway at the ICDDR,B. The views expressed in these papers are those of the authors, and do not necessarily represent the views of the ICDDR,B. These papers should not be quoted without the authors' permission.

CONTENTS

	<u>Pages</u>
ABSTRACT	1
INTRODUCTION	2
STUDY AREA AND POPULATION	2
METHODS AND PROCEDURES	2
Census	2
The 1975 Census: Correction and update ..	5
Demographic Surveillance	6
RESULTS	7
Population Size and Distribution	7
Marital Status	7
Education	7
Occupation	10
Vital Events and Migration in Teknaf Surveillance Area During 1976-78	10
Deaths and Mortality	14
Cause of Death	14
Births and Fertility	15
Migrations	21

LIST OF TABLES:

Table I : Distribution of Population by Age and Sex, Teknaf, December 31, 1975	8
Table II : Number and Percentage Distribution of Population by Marital Status, Age and Sex, Teknaf, 1975	9
Table III : Number and Percentage Distribution of the Heads of Households by Marital Status and Sex, Teknaf, 1975	10
Table IV : Percentage Distribution of the Population (Aged 5 Years and Over) by level of Education, Age and Sex, Teknaf, 1975	11
Table V : Percentage Distribution of the Population (Aged 8 Years + Over) and Heads of Households by Occupation, Teknaf, 1975	12
Table VI : Vital Events and Migrations of Teknaf During 1976-1978	13
Table VII : Percentage Distribution of Deaths by Age, 1976-78, Teknaf.	15

CONTENTS (contd.)

Pages

Table VIII	: Age, Sex-Specific Death Rates Per 1,000 Mid-Year Population, 1976-78, Teknaf	...	...	16
Table IX	: Abridged Life Table by Sex Based on Weighted Average Mortality Rate of 1976-78, Teknaf	...	...	18
Table X	: Percentage Distribution of the Causes of Infant Deaths, 1977-78, Teknaf	...	...	20
Table XI	: Percentage Distribution of Causes of Death by Age Groups 1-14 Years and 5-14 Years, 1977-78, Teknaf	...	...	21
Table XII	: Percentage Distribution of the Causes of Death by Age Groups 15-44 Years and 45 Years + Over, 1977-78, Teknaf	...	...	22
Table XIII	: Outcome of Pregnancies, 1976-1978, Teknaf	...	...	23
Table XIV	: Seasonality of Birth, 1976-78, Teknaf	...	...	24
Table XV	: Age-Specific Fertility Rate (ASFR), 1976-78, Teknaf	...	...	25
Table XVI	: Distribution of Mean Number of Surviving Children and Pregnancies of Mothers Who Had Live Births During 1976-78 by Mothers' Ages, Teknaf	...	...	27
Table XVII	: Age-Sex Specific In-and Out-Migration Rates*, 1977-78, Teknaf	...	...	28
Table XVIII	: Percentage Distribution of Migrations by Places of Origin and Places of Destination and by Sex, 1977-78, Teknaf	...	...	29
Table XIX	: Percentage Distribution of Migrations by Cause and Direction and by Sex, 1977-78, Teknaf	...	...	30

LIST OF FIGURES:

Figure 1.1	: The location of Teknaf in Bangladesh	...	...	3
Figure 1.2	: Villages in Teknaf Thana	...	...	4
Figure 1	: Age-Specific Death Rates Per 1,000 Mid-Year Population, 1976-1978, Teknaf	...	...	17
Figure 2	: Expectation of Remaining Life Years, 1976-78	...	...	19
Figure 3	: Age-Specific Fertility Rates (ASFR), 1976-78	...	...	26
APPENDIX 1	: Census Form (1974-75)	...	...	32
APPENDIX 2	: Family Visit Card	...	...	33
APPENDIX 3	: Birth Report...	...	...	35
APPENDIX 4	: Death Report...	...	...	36
APPENDIX 5	: Migration Report	...	...	37
ACKNOWLEDGEMENTS	...	...	...	31

ABSTRACT

This is the first volume in a series of reports of the Demographic Surveillance System (DSS) in Teknaf, of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The DSS consists of continuing registration of births, deaths, migrations, marriages and marital dissolutions, and of cross-sectional censuses undertaken at different times.

This volume presents basic results and tabulations of a) the census of 1975 and b) births, deaths and migrations during the calendar years 1976, 1977 and 1978.

INTRODUCTION

The ICDDR,B established its second field station, at Teknaf, in 1974, following an outbreak in 1973 of *Shigella* dysentery type-1 (dysentery), on a nearby coral island in the Bay of Bengal. The objectives were to study the mode of transmission of shigellosis and its related problems. A census of the entire population (82,000) of Teknaf thana (now Upa-zilla) was undertaken from December 1974 to January 1975, following the establishment of a small research and Diarrhoea Treatment Centre. A Demographic Surveillance System (DSS) to collect information on births, deaths, migrations and marital events, was started in 1976, covering a population of about 46,000.

STUDY AREA AND POPULATION

Teknaf Upa-zilla is situated at the Southeastern tip of Bangladesh, in the Cox's Bazaar Sub-division of Chittagong district (see map). This is a peninsula about 25 miles long and 4 miles wide. The eastern side of the area is bounded by the Naf river bordering Burma, while the south and west border on the Bay of Bengal. Almost one-third of the area is hilly, constituting a part of the Raju Teknaf range of reserve forests. A motorable road about 55 miles long links Teknaf and Cox's Bazaar. Communication within the Upa-zilla is mainly on foot.

The climate is sub-tropical with three seasons: monsoon (June-September), cool-dry (October-February), hot-dry (March-May). Most of the annual average rainfall of around 190 inches occurs during the monsoon period, when it often rains several times a day. During the hot-dry season, water sources become dry, and a water crisis occurs.

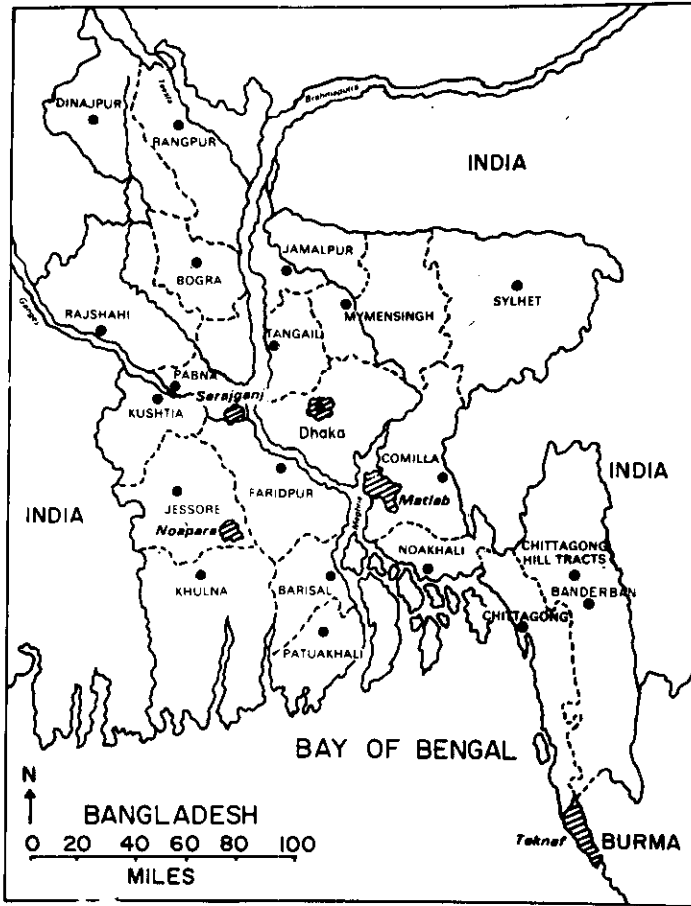
Most Teknaf area people are Bengali Muslims with a conservative outlook. The system of '*pārdhā*' or seclusion of women is strictly adhered to by the community. Three percent of the population is of tribal origin. Rice, betel leaf and nut are the main agricultural products. Large quantities of sea-fish are caught by local fishermen in the Bay of Bengal and in the Naf river. Ninety percent of the people are accustomed to indiscriminate defecation. Almost all houses have earthen floors, bamboo walls, and straw roofs.

METHODS AND PROCEDURES

Census:

The 1975 census was taken by a team comprised mainly of ICDDR,B and Government Health Department personnel. The team was trained for a short period before beginning the census. The team members made house-to-house visits to assign an identification number to each individual. They collected

Figure 1.1




Key:  study areas

Figure 1.2

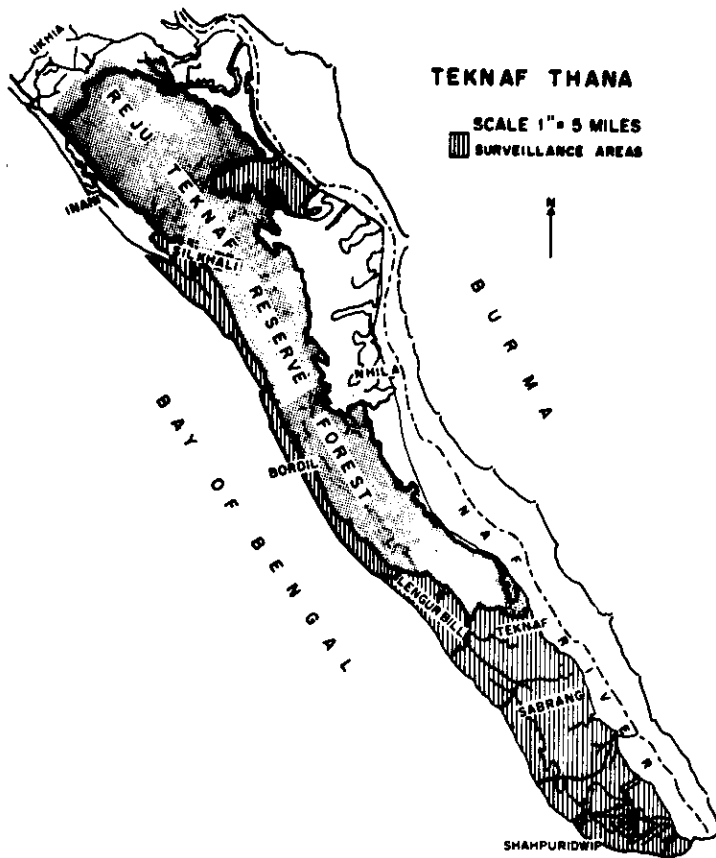


Fig.1.2: VILLAGES IN TEKNAF THANA



information on selected demographic and socio-economic characteristics of each individual, and on the family* (or household) as a whole, information such as housing pattern, water source, etc. Data were collected in duplicate on structured forms (Appendix-1). The head of the family or, in his absence, the next available senior member able to respond was interviewed. After completion of the census, the forms were arranged by village, *pārā*⁺ and family, and were bound into census books. One copy of a census book was kept by the ICDDR,B Statistics Branch.

The Teknaf 1975 census counted de-jure populations, i.e., only regular village residents were included in the census. A resident was defined as a person who resides in a village for at least six months a year; or a person who resides outside, but who visits his village home at least once a month and stays overnight. Name, age, sex, marital status, relation to the head of household, education, occupation, etc. of each family member were recorded. Children are identified by their mothers' numbers.

Age was estimated on the basis of respondent statements. In cases of children, efforts were made to obtain a reasonably accurate age by starting with the age of the youngest child in a family, and working up to the ages of older children. The census workers also helped the respondents estimate approximate ages by coinciding age or possible birth date with certain historical events.

The 1975 Census: Correction and Update

The reference date of the 1975 census was January 1, 1975. There was a gap between the 1975 census and the beginning of the surveillance system in 1976 during which no information on vital events and migrations was collected routinely. At the beginning of the surveillance, field workers visited every household in the surveillance area with census volumes, and issued family visit cards (Appendix-2), after carefully identifying regular household members. The field workers checked retrospectively about the occurrence of births, deaths, migrations (in/out), marriages and marital disruptions in the gap period, and the following steps were taken to correct the 1975 census.

Individuals or households who had been recorded in the 1975 census but who could not be traced during the 1976 field visit were crossed out, and a specific explanation was noted. Individuals or households that had been included earlier and subsequently had died or migrated out of the surveillance area were crossed out in the census volumes after recording specific events (Appendices-4 & 5).

For individuals or households in the surveillance area recorded twice, one of the records was crossed out in the census volumes, with necessary remarks made in both places. In making such a decision, an individual's usual residence was the main criterion.

* A group of persons who eat together.

+ An identified part of a village.

TABLE I--DISTRIBUTION OF POPULATION BY AGE AND SEX, TEKNAF, DECEMBER 31, 1975

Age group (years)	Both Sexes	Male	Female	Sex Ratio M/F x 100	Percentage		
					Both Sexes	Male	Female
All ages	45602	23196	22406	103.5	100.0	100.0	100.0
0 - 4	9020	4521	4499	100.5	19.8	19.5	20.1
5 - 9	8048	4047	4001	101.2	17.6	17.4	17.9
10 - 14	6155	3240	2915	111.2	13.5	14.0	13.0
15 - 19	3822	1947	1875	103.8	8.4	8.4	8.4
20 - 24	3452	1581	1871	84.5	7.6	6.8	8.4
25 - 29	3069	1575	1494	105.4	6.7	6.8	6.7
30 - 34	2647	1363	1284	106.2	5.8	5.9	5.7
35 - 39	2207	1144	1063	107.6	4.8	4.9	4.7
40 - 44	1910	1004	906	110.8	4.2	4.3	4.0
45 - 49	1371	708	663	106.8	3.0	3.1	3.0
50 - 54	1492	760	732	103.8	3.3	3.3	3.3
55 - 59	730	403	327	123.2	1.6	1.7	1.5
60 - 64	866	466	400	116.5	1.9	2.0	1.8
65 +	813	437	376	116.2	1.8	1.9	1.7

In case of formal school attendance, males greatly outnumber females (whereas Maktab* attendance is nearly the same for both sexes). However, the Quranic educational status of those who attended formal school was not ascertained.

* Quran teaching institution.

TABLE II--NUMBER AND PERCENTAGE DISTRIBUTION OF POPULATION BY MARITAL STATUS, AGE AND SEX, TEKNAF, 1975

Age group	Males					Females				
	All marital statuses (N)	Single	Married	Widowed	Divorced	All marital statuses (N)	Single	Married	Widowed	Divorced
All ages	23196	65.2	33.7	0.9	0.3	22406	54.5	37.4	6.8	1.3
0 - 9	8568	100.0	0.0	0.0	0.0	8500	100.0	0.0	0.0	0.0
10 - 14	3240	99.9	0.1	0.0	0.0	2915	96.6	2.7	0.2	0.5
15 - 19	1947	96.1	3.5	0.3	0.1	1875	37.6	55.6	1.7	5.1
20 - 24	1581	67.6	31.2	0.5	0.7	1871	6.2	85.8	3.7	4.2
25 - 29	1575	18.9	79.4	0.7	1.1	1494	1.3	92.0	3.9	2.9
30 - 34	1363	3.4	95.1	0.7	0.8	1284	1.0	92.8	5.1	1.2
35 - 39	1144	0.8	97.6	1.3	0.3	1063	0.8	90.6	7.3	1.3
40 - 44	1004	1.0	97.1	1.6	0.3	906	0.2	84.3	14.5	1.0
45 - 49	708	0.7	97.2	2.0	0.4	663	1.1	74.5	22.8	1.7
50 - 54	760	0.0	96.7	2.9	0.4	732	0.5	61.6	37.2	0.7
55 - 59	403	0.0	94.8	4.5	0.7	327	2.1	58.4	39.4	0.0
60 - 64	466	0.4	91.8	7.5	0.2	400	1.8	32.5	65.5	0.3
65 +	437	0.5	86.5	12.6	0.5	376	1.1	26.6	71.3	1.1

TABLE III--NUMBER AND PERCENTAGE DISTRIBUTION OF THE HEADS OF HOUSEHOLDS BY
MARITAL STATUS AND SEX, TEKNAF, 1975

Sex		All statuses	Marital Status			
			Single	Married	Widowed	Divorced
Males	No.	6539	263	6113	140	23
	Percent	100.0	4.0	93.5	2.1	0.4
Females	No.	385	11	65	296	13
	Percent	100.0	2.9	16.9	76.9	3.4

Occupation:

Occupational categories of the population (8 years +) and household heads by sex are shown in Table V. More than three-quarters (78.0%) of the males were working either for wage, salary or profit. Of the women, 79.6 percent were housewives, and only 2.0 percent were in gainful employment. Most of the male household heads (97.5%) and a quarter (27%) of female household heads were in the work force.

About two-fifths of the males and male household heads (39.0% and 36.1%, respectively) were engaged in agriculture. The laborers who did not have any fixed job and who worked as daily laborers in many fields, constituted 34.8 percent and 36.6 percent of males and male household heads, respectively. The next major occupational categories were fishing and business.

Vital Events and Migration in Teknaf Surveillance Area During 1976-78:

The mid-year population and births, deaths and migrations (in/out) for 1976-78 are summarized in Table VI. The mid-year population by age and sex was calculated from yearly updated files of 1976-78, with the help of a computer (adjusting for all recorded births, deaths and migrations (in/out) which occurred in the corresponding years. The calculation procedures involved the additions of births and in-migrations and subtraction of deaths and out-migrations from January 1 to June 30, of respective years.

The population of the Teknaf demographic surveillance area had been experiencing very high fertility, moderate mortality and high infant mortality during the period 1976-78. The birth and death rates for 1976 and 1978 were slightly lower than those for 1977. The recorded low birth and death rates

TABLE IV--PERCENTAGE DISTRIBUTION OF THE POPULATION (AGED 5 YEARS AND OVER)
BY LEVEL OF EDUCATION, AGE AND SEX, TEKNAF, 1975

Level of education	Sex	Age in year				
		5+	5-14	15-24	25-49	50+
No formal schooling	Both	92.7	93.5	90.6	92.5	94.1
	Male	88.4	90.8	85.2	86.9	89.3
	Female	97.2	96.5	95.7	98.4	99.5
No education	Both	77.4	74.3	75.1	80.1	84.8
	Male	73.7	72.8	72.1	74.7	76.9
	Female	81.1	75.9	77.9	85.8	93.7
Maktab*	Both	15.3	19.2	15.5	12.4	9.3
	Male	14.7	18.0	13.1	12.2	12.4
	Female	16.1	20.6	17.8	12.6	5.8
Schooling 1-5 yrs. (primary)	Both	4.7	5.6	4.5	4.2	3.6
	Male	7.3	7.9	7.0	7.0	6.4
	Female	2.0	3.0	2.2	1.2	0.3
Schooling 6 years and over (secondary +)	Both	2.6	0.9	4.9	3.4	2.3
	Male	4.3	1.3	7.8	6.1	4.3
	Female	0.8	0.5	2.1	0.5	0.1
All persons (N)	Both	36582	14203	7274	11204	3901
	Male	18675	7287	3528	5794	2066
	Female	17907	6916	3746	5410	1835

* Quranic teaching institution.

TABLE V--PERCENTAGE DISTRIBUTION OF THE POPULATION (AGED 6 YEARS + OVER)
AND HEADS OF HOUSEHOLDS BY OCCUPATION, TEKNAF, 1975

Occupation	Population				Heads of Households			
	Males (N=16121)		Females (N=15424)		Males (N=6539)		Females (N=385)	
	% of all categories	% within major categories	% of all categories	% within major categories	% of all categories	% within major categories	% of all categories	% within major categories
All categories	100.0	-	100.0	-	100.0	-	100.0	-
a. Gainfully employed	78.0	100.0	2.0	100.0	97.5	100.0	27.0	100.0
Cultivation	30.4	39.0	0.4	18.8	35.2	36.1	6.8	25.0
Labor	27.1	34.8	1.1	53.2	35.7	36.6	14.0	51.9
Fishing	7.7	9.9	0.2	9.2	9.5	9.7	0.5	1.9
Business	7.3	9.3	0.2	8.3	11.0	11.3	3.4	12.5
Service	2.0	2.6	0.1	3.5	2.8	2.8	0.5	1.9
Self-employed	1.4	1.8	0.1	2.5	2.1	2.2	0.0	0.0
Others	2.0	2.6	0.1	4.5	1.3	1.3	1.8	6.7
b. Not gainfully employed	22.0	100.0	98.0	100.0	2.5	100.0	73.0	100.0
Student	7.7	34.9	3.5	3.6	0.1	5.6	0.0	0.0
Housewife	0.0	-	79.6	81.3	0.0	0.0	64.9	89.0
No occupation	12.7	57.5	12.6	12.9	0.4	14.2	7.5	10.3
Retired & others	1.0	4.7	1.8	1.9	1.9	75.3	0.5	0.7
Unknown	0.6	2.9	0.3	0.4	0.1	4.9	0.0	0.0

TABLE VI--VITAL EVENTS AND MIGRATIONS OF TEKNAF DURING 1976-1978

Particulars	Year		
	1976	1977	1978
Mid-year population	46110	48071	49852
Births	2170	2506	2248
Deaths	685	761	733
Infant deaths	279	369	299
In-migrations	810	1390	1863
Out-migrations	787	1416	1490
Crude Birth Rate (CBR) ^a	47.1	52.1	45.1
Crude Death Rate (CDR) ^a	14.9	15.8	14.7
Infant Mortality Rate (IMR) ^b	128.6	147.3	133.0
In-migration rate ^a	17.6	28.9	37.4
Out-migration rate ^a	17.1	29.5	29.9
Rate of natural increase (percent)	3.2	3.6	3.0
Rate of growth of population (percent)	3.3	3.6	3.8

^a Per 1000 population.

^b Per 1000 live births.

of 1976 possibly were due to the omission of registration for some livebirths who died in the neonatal period. The high rate of natural increase in 1977 compared to 1976 and 1978 is explained by that year's high birth rate. Analysis of cause of deaths for 1976 was not done, due to the time lag between the date of the event and the date of reporting.

The migration (in/out) rates for 1976 were substantially lower than those for 1977-78. The possible reasons may be that some in-migrants or out-

migrants were included or excluded erroneously in the 1975 census at the time of the field visit for census corrections. For this reason, 1976 migrations were excluded from analysis in this report.

Deaths and Mortality:

Taking the three years together (Table VII), 43.5 percent of all deaths were infants, 15.6 percent were children (1-4 years) and 7.9 percent were old people (over 65 years). Of all infant deaths, 55.8 percent occurred in the neonatal period (i.e., first four weeks of life), and the rest (44.2 percent) in the post-neonatal period (i.e., 29 days - 11 months).

The average infant mortality rate for the three consecutive years was 136.8 per 1,000 livebirths. The neonatal and post-neonatal mortality rate is followed by a sharp decline in the mortality rate for the age group 1-4 years. The lowest mortality rate was seen for ages 15-24, followed by a sharp rise in the subsequent age groups (Table VIII and Figure 1).

The neonatal mortality rate was higher for males than for females, and a reversed trend in child (age groups 1 - 4 years and 5 - 14 years) mortality was observed.

An abridged life table was constructed for males, females and both sexes (Table IX and Figure 2). The mortality levels recorded in 1976-78 would yield, if continued, a life expectancy at birth for males of 51.8 years and for females of 51.0 years. The longevity reached its peak at age three, with a life expectancy of 60.5 years and 58.4 years, respectively, for males and females. A higher life expectancy for males than for females exists throughout the life span.

Cause of Death:

Table X shows the percentage distribution of the causes of infant deaths for 1977-78. Neonatal deaths from obstetrical causes (prematurity, congenital illness, birth injury, neonatal tetanus, etc.) make up 88.5 to 92.7 percent of early neonatal deaths, and 39.4 to 54.9 percent of late neonatal deaths. Deaths due to respiratory infection, diarrhoeal disease, nutritional deficiency, tetanus and measles are more common in the post-neonatal period, accounting for 76.6 to 79.4 percent of post-neonatal deaths. Nutritional deficiency, respiratory infection and diarrhoeal diseases caused, respectively, 62.4 to 74.1 percent and 49.3 to 58.0 percent of deaths in children aged 1 - 4 years and 5 - 14 years (Table XI). Deaths from diseases related to diarrhoea, nutrition, respiration, fever and tuberculosis occurred frequently in age groups 15 - 44 years and 45 years and over, and made up 44.0 to 45.7 and 41.1 to 54.2 percent of all deaths of respective age groups (Table XII). Complications related to childbirth claimed a significant proportion of mothers' lives in each year, and contributed to high female mortality in child-bearing ages.

TABLE VII--PERCENTAGE DISTRIBUTION OF DEATHS BY AGE, 1976-78, TEKNAF

Age group	Percent of all deaths			Three years average (n=2179)
	1976 (n=685)	1977 (n=761)	1978 (n=733)	
All groups	100.0	100.0	100.0	100.0
< 1	40.7	48.5	40.8	43.5
1 - 4	23.6	9.6	14.2	15.6
5 - 14	7.6	8.1	8.6	8.1
15 - 24	3.4	3.9	4.2	3.9
25 - 34	3.8	4.7	4.1	4.2
35 - 44	3.2	4.6	4.4	4.1
45 - 54	5.1	4.7	6.1	5.3
55 - 64	6.3	7.1	9.3	7.6
65 + over	6.3	8.8	8.5	7.9

Births and Fertility:

The outcome of pregnancies shown in Table XIII resulted in sex ratios at birth of 105.5, 107.5 and 102.3 for the three consecutive years. The fetal wastage ratio for 1976 was lower than for 1977 and 1978. It may be possible that some stillbirths and miscarriages were missed by the Health Assistants at the beginning of the surveillance.

The seasonal variation pattern in number of pregnancies terminated by livebirths during 1976-78 is shown in Table XIV. More births occurred during the winters (October - February).

Age-specific fertility rates are presented in Table XV. The highest fertility rate is seen at age 20 - 24 years. The fertility rates for 1977 are higher than those for 1976 and 1978 (Figure 3).

Table XVI presents for 1976-78 the average number of surviving children and pregnancies, by age, for mothers who had livebirths. Mothers aged 45-49 years who had livebirths, on average, had 7.0 living children and 8.7 pregnancies.

TABLE VIII--AGE, SEX-SPECIFIC DEATH RATES PER 1,000 MID-YEAR POPULATION, 1976-78, TEKNAF

Age group	Both Sexes				Males				Females			
	1976	1977	1978	Three yrs. weighted average	1976	1977	1978	Three yrs. weighted average	1976	1977	1978	Three yrs. weighted average
All ages	14.9	15.8	14.7	15.1	15.6	15.3	15.3	15.4	14.1	16.4	14.1	14.7
< 1 year ⁺	128.6	147.3	133.0	136.8	138.5	150.0	144.9	144.4	118.1	144.4	120.8	128.7
< 7 days ⁺	38.2	48.3	42.3	43.2	45.0	54.1	43.0	47.6	31.2	42.1	41.5	38.6
7-28 days ⁺	28.1	34.3	36.5	33.1	36.9	34.0	38.6	36.3	18.9	34.7	34.3	29.7
29 days- ⁺ 11 months	62.2	64.7	54.3	60.5	56.7	61.9	63.2	60.5	68.1	67.7	45.1	60.5
1 - 4	23.4	12.2	16.8	17.7	21.6	11.3	16.0	16.6	25.1	13.1	17.6	18.9
5 - 14	3.5	3.9	3.8	3.7	3.4	3.1	3.6	3.4	3.5	4.7	4.0	4.1
15 - 24	2.9	3.7	3.5	3.4	2.3	3.0	4.1	3.2	3.5	4.4	2.9	3.6
25 - 34	4.4	6.0	4.6	5.0	4.7	3.6	4.9	4.4	4.2	8.4	4.4	5.6
35 - 44	5.3	8.3	7.3	7.0	6.5	8.6	6.2	7.1	4.1	7.9	8.5	6.9
45 - 54	12.3	12.5	15.2	13.4	4.5	13.6	15.2	14.7	9.3	11.4	15.2	12.9
55 - 64	27.0	33.6	42.3	34.3	26.5	34.1	48.4	36.3	27.7	33.1	35.0	32.0
65 + over	52.2	83.4	77.6	70.9	63.6	64.1	62.9	63.6	39.2	104.7	94.6	79.3

+ Rate per 1,000 live births.

Figure 1

AGE SPECIFIC DEATH RATES PER 1000
MID-YEAR POPULATION, 1976-1978, TEKNAF

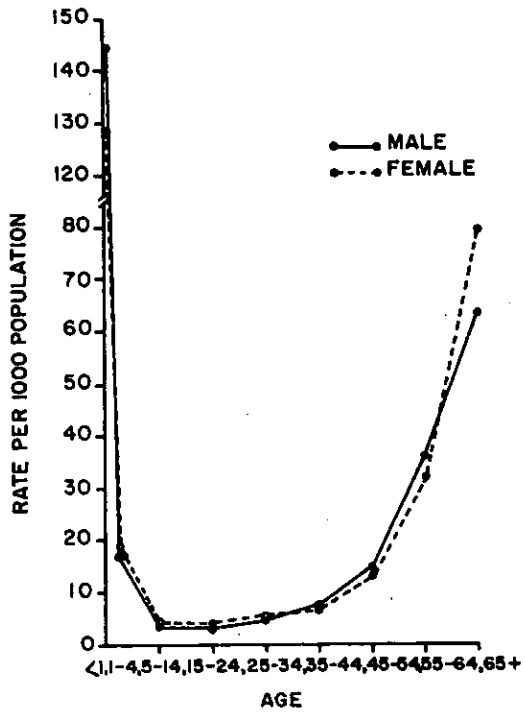


TABLE IX--ABRIDGED LIFE TABLE BY SEX BASED ON WEIGHTED AVERAGE
MORTALITY RATE OF 1976-78, TEKNAF

Age	Both sexes			Males			Females		
	$1000 \frac{q_x}{n}$	l_x	e_x^o	$1000 \frac{q_x}{n}$	l_x	e_x^o	$1000 \frac{q_x}{n}$	l_x	e_x^o
0	136.8	100000	51.4	144.4	100000	51.8	128.7	100000	51.0
1	27.9	86320	58.5	26.9	85560	59.5	29.0	87130	57.5
2	21.9	83911	59.2	23.8	83255	60.1	19.9	84605	58.2
3	11.0	82077	59.5	9.0	81272	60.5	13.2	82921	58.4
4	11.1	81171	59.1	8.8	80544	60.1	13.6	81825	58.2
5	26.7	80267	58.8	23.7	79838	59.6	30.1	80712	58.0
10	7.0	78127	55.3	7.5	77943	56.0	7.0	78285	54.7
15	15.9	77582	50.7	15.9	77360	51.4	16.4	77739	50.0
20	17.9	76350	46.5	15.9	76131	47.2	19.3	76466	45.8
25	19.8	74987	42.3	18.9	74922	42.9	20.8	74988	41.7
30	30.1	73501	38.1	25.2	73511	38.7	35.9	73428	37.5
35	23.7	71290	34.2	18.8	71658	34.6	29.1	70792	33.8
40	45.0	69598	29.9	51.2	70308	30.2	38.3	68732	29.7
45	41.2	66463	26.2	42.2	66705	26.7	40.2	66099	25.8
50	83.1	63725	22.2	93.2	63893	22.8	72.5	63440	21.8
55	95.5	58427	19.0	107.8	57936	19.8	81.3	58843	18.3
60	204.7	52846	15.7	210.8	51693	16.9	197.0	54060	14.7
65	1000.0	42027	14.1	1000.0	40797	15.7	1000.0	43410	12.6

Figure 2

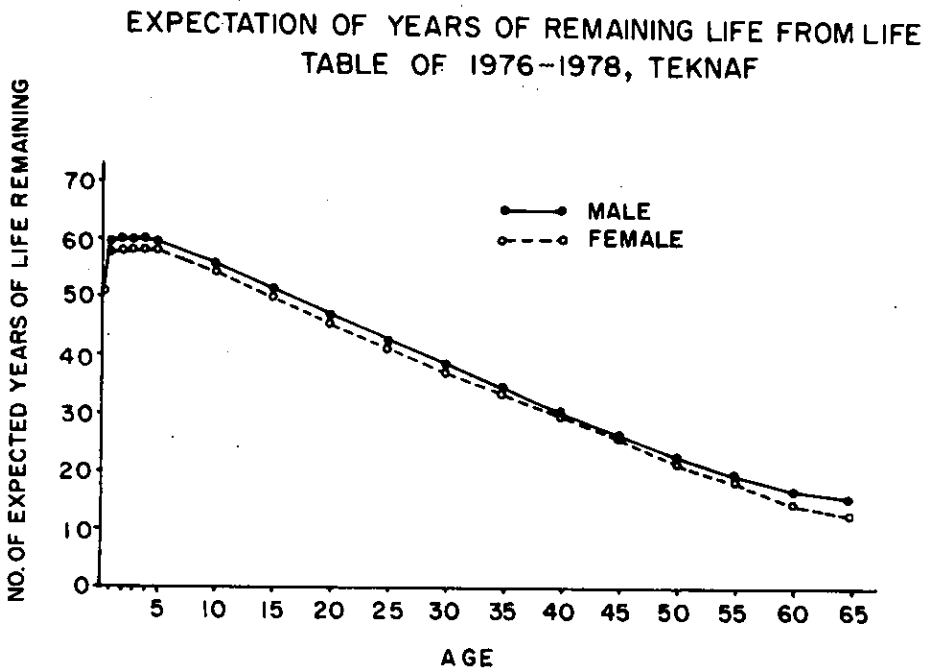


TABLE X--PERCENTAGE DISTRIBUTION OF THE CAUSES OF INFANT DEATHS, 1977-78, TEKNAF

Cause of deaths	Age at death							
	Under 1 year		< 7 days		7-28 days		29 days-11 months	
	1977	1978	1977	1978	1977	1978	1977	1978
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number (N)	(369)	(299)	(121)	(95)	(86)	(82)	(162)	(122)
Birth associates ¹	24.9	26.8	61.2	67.4	15.2	17.1	3.1	1.6
Tetanus	17.6	24.1	27.3	25.3	24.4	37.8	6.8	13.9
Nutritional deficiency ²	9.8	7.4	0.8	0.0	8.1	2.4	17.3	16.4
Diarrhoeal diseases ³	7.9	6.7	0.8	0.0	8.1	0.0	13.0	16.4
Respiratory diseases ⁴	18.7	16.7	2.5	0.0	17.4	20.7	31.5	31.1
Measles	5.7	4.3	1.7	1.1	7.0	6.1	8.0	5.7
Fever (all forms)	3.3	0.3	0.0	0.0	5.8	0.0	4.3	0.8
Accidental deaths	1.1	3.3	0.8	1.1	2.3	4.9	0.6	4.1
Others	11.1	10.4	5.0	5.3	11.6	11.0	15.4	9.8

¹ Prematurity, congenital deformity/birth injury/inability to suck etc.

² Malnutrition/anemia/sore mouth.

³ Diarrhoea/dysentery/acute gastroenteritis

⁴ Pneumonia/asthma/whooping cough

TABLE XI--PERCENTAGE DISTRIBUTION OF CAUSES OF DEATH BY AGE GROUPS
1-14 YEARS AND 5-14 YEARS, 1977-78, TEKNAF

Causes of death	Age at death			
	1-4 years		5-14 years	
	1977	1978	1977	1978
All causes	100.0	100.0	100.0	100.0
Diarrhoeal diseases ¹	19.2	24.0	14.5	14.3
Nutritional deficiency ²	32.9	24.0	22.6	30.2
Respiratory diseases ³	22.0	14.4	20.9	4.8
Fever	6.8	6.7	8.1	15.9
Measles	4.1	4.8	3.2	4.8
Tetanus	2.7	7.7	3.2	1.6
Accidental death	5.5	7.7	1.6	9.5
Others	6.8	10.7	25.9	18.9
Deaths (N)	(73)	(104)	(62)	(63)

¹ Diarrhoea/dysentery/acute gastroenteritis.

² Malnutrition/anemia/sore mouth.

³ Pneumonia/asthma/whooping cough.

Migrations:

The migration rate by age, sex and direction is shown in Table XVII. Movements within the surveillance area are recorded, but are not included in the analysis. Males had the highest migration rate at age 20-39 years, while females had the highest migration rate at age 10-29 years. Both in and out-migration rates were higher for females than for males. The migration pattern in 1978 differed from that for 1977, due to the influx of Burmese refugees in the Teknaf DSS area in 1978.

TABLE XII--PERCENTAGE DISTRIBUTION OF THE CAUSES OF DEATH BY AGE GROUPS
15-44 YEARS AND 45 YEARS + OVER, 1977-78, TEKNAF

Cause of death	Age at death			
	15-44 years		45 years + over	
	1977	1978	1977	1978
All causes	100.0	100.0	100.0	100.0
Diarrhoeal diseases ¹	12.0	5.4	8.3	5.1
Nutritional diseases ²	6.0	7.6	11.5	2.9
Respiratory diseases ³	6.0	9.8	19.1	19.4
Fever (all forms)	11.0	10.9	10.8	8.0
CVA/Heart failure	2.0	2.2	10.2	9.2
Tuberculosis	9.0	12.0	4.5	5.7
Delivery complication of mother	13.0	6.5	0.0	0.6
Accidental deaths	6.0	7.6	2.5	2.3
Others	35.0	38.0	33.1	46.8
Number (N)	(100)	(92)	(157)	(175)

¹ Diarrhoea/dysentery/acute gastroenteritis

² Malnutrition/anemia/sore mouth

³ Pneumonia/asthma/whooping cough

The surveillance area received more people from rural areas than it sent to rural areas (Table 18). The influx of migrants (particularly from neighboring Burma) was 4 to 8 times higher than was the outflow. Of all out-migrants, about two-fifths of males and one-fourth of females left the country for work, especially going to countries in the Middle East.

The causes of migration by sex and direction are shown in Table XIX. The cause of migration of the head of household or the oldest person was assigned as well as to other family members, when a household or group of persons

TABLE XIII--OUTCOME OF PREGNANCIES, 1976-1978, TEKNAF

Events	Years		
	1976	1977	1978
Total pregnancies	2350	2729	2469
Live births	2170	2506	2248
Males	1114	1298	1140
Females	1056	1208	1108
Stillbirths and miscarriages	192	233	239
Sex ratio at birth (100 x M/F)	105.5	107.5	102.3
Fetal wastage ratio per 100 live births	8.8	9.3	10.6

migrated together. Obtaining a better standard of living (or better earnings) was the single major reason given for migration. Marriage and marital disruption were the second major causes of movement for females. Overall, poor people were seen to move with their whole family from one area to another to improve their living standard.

TABLE XIV--SEASONALITY OF BIRTH, 1976-78, TEKNAF

	Number of live births			Seasonal index* (= $\frac{\text{obs.}}{\text{exp.}} \times 100$)		
	1976 (N=2170)	1977 (N=2506)	1978 (N=2248)	1976	1977	1978
January	169	273	188	91.7	128.3	98.5
February	135	245	166	81.1	127.3	96.3
March	136	236	147	73.8	110.9	77.0
April	100	178	156	56.1	86.4	84.4
May	146	198	174	79.2	93.0	91.1
June	162	195	184	90.8	94.7	99.6
July	179	164	176	97.1	77.1	92.2
August	188	183	204	102.0	86.0	106.8
September	235	198	168	131.8	96.1	90.9
October	229	195	221	124.3	91.6	115.8
November	247	224	219	138.5	108.8	118.5
December	244	217	245	132.4	102.0	128.3

* Expected number of live births (exp.) = $M \cdot n / 365$,
 where M = annual total and n = number of days in
 a given month.

TABLE XV--AGE-SPECIFIC FERTILITY RATE (ASFR), 1976-78, TEKNAF

Age of women	Number of live births			Rate per 1,000 women		
	1976	1977	1978	1976	1977	1978
15 - 19	414	383	448	196.1	204.5	186.7
20 - 24	578	785	631	310.4	348.9	304.2
25 - 29	475	481	491	300.4	328.6	281.4
30 - 34	346	495	364	264.7	330.4	248.5
35 - 39	193	197	175	185.4	206.9	166.3
40 - 44	114	110	96	123.2	102.7	89.5
45 - 49	51	54	43	77.4	92.8	72.0
Total (15-49)						
General Fertility Rate (GFR)				228.9	258.5	216.0
Total Fertility Rate (TFR)				7.3	8.1	6.7
Gross Reproduction Rate (GRR)				3.5	3.9	3.3
Net Reproduction Rate (NRR)				2.6	2.9	2.5

Figure 3

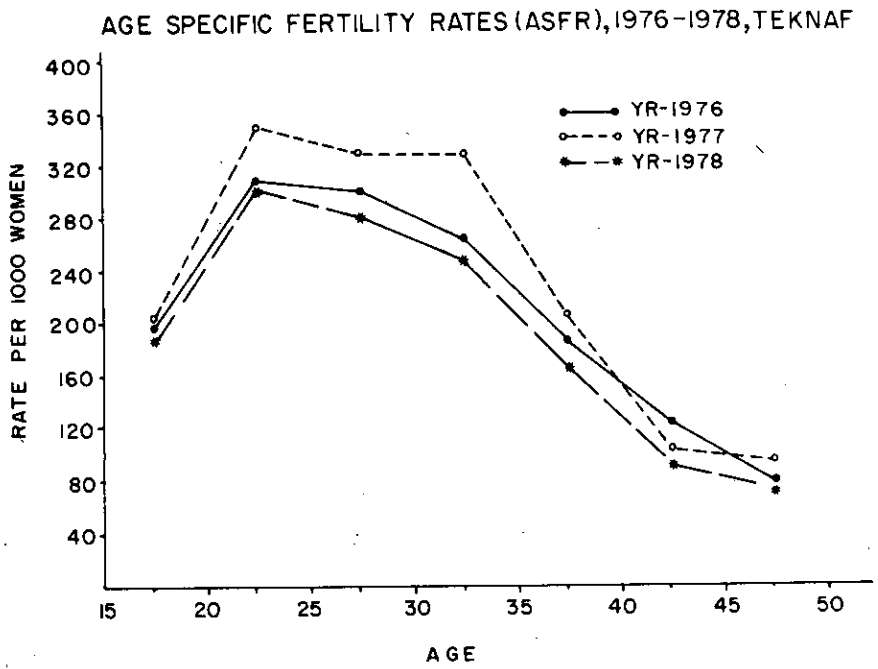


TABLE XVI--DISTRIBUTION OF MEAN NUMBER OF SURVIVING CHILDREN AND PREGNANCIES
OF MOTHERS WHO HAD LIVE BIRTHS DURING 1976-78 BY MOTHERS' AGES, TEKNAF

Age of mothers	Mean number of surviving children			Three years weighted mean	Mean number of previous pregnancies			Three years weighted mean
	1976	1977	1978		1976	1977	1978	
All ages	3.8	3.5	3.4	3.5	4.6	4.3	4.3	4.4
< 19	1.4	1.2	1.3	1.3	1.6	1.4	1.4	1.5
20 - 24	2.7	2.2	2.2	2.4	3.3	2.8	2.9	3.0
25 - 29	3.8	3.6	3.7	3.7	4.6	4.6	4.7	4.6
30 - 34	5.0	4.9	5.2	5.0	6.1	6.1	6.7	6.3
35 - 39	6.8	6.0	6.1	6.5	8.4	7.8	7.8	8.0
40 - 44	6.8	6.5	6.9	6.7	8.4	8.2	8.4	8.4
45 - 49	6.6	7.0	7.1	6.9	8.7	8.7	8.8	8.7

TABLE XVII--AGE-SEX SPECIFIC IN-AND OUT-MIGRATION RATES*, 1977-78, TEKNAF

Age group	Males				Females			
	In		Out		In		Out	
	1977	1978	1977	1978	1977	1978	1977	1978
All ages	24.2	31.1	27.2	27.2	33.7	43.8	31.7	32.1
0 - 9	22.6	26.4	20.2	25.2	22.1	30.1	23.7	23.5
10 - 19	18.4	28.6	26.1	27.5	56.0	73.0	48.0	50.5
20 - 29	33.3	45.0	50.5	34.0	52.3	50.3	45.0	40.3
30 - 39	32.0	37.5	32.3	29.5	24.1	33.0	22.4	25.8
40 - 49	26.3	33.7	24.6	31.4	20.6	23.4	18.1	21.6
50 - 59	20.8	19.6	18.3	24.5	25.7	24.8	21.3	11.1
60 + over	22.6	33.8	19.3	22.9	35.0	49.3	16.3	21.5

* Per 1,000 mid-year population.

TABLE XVIII--PERCENTAGE DISTRIBUTION OF MIGRATIONS BY PLACES OF ORIGIN AND PLACES OF DESTINATION AND BY SEX, 1977-78, TEKNAF

Localities	To Teknaf from the places of origin				From Teknaf to places of destination			
	Males		Females		Males		Females	
	1977	1978	1977	1978	1977	1978	1977	1978
All migrants (N)	(591)	(783)	(799)	(1080)	(664)	(699)	(752)	(791)
All areas	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural areas	44.2	33.8	45.9	36.6	20.2	36.1	35.0	46.5
Urban areas	18.8	13.0	15.4	11.0	21.5	15.9	22.1	17.1
Across the border	32.8	46.5	35.8	49.7	9.5	4.3	9.2	7.3
Abroad*	4.1	6.4	2.6	2.1	45.3	39.6	30.9	25.9
Unknown	0.2	0.3	0.3	0.6	3.5	4.1	2.9	3.2

* Especially to the Middle East.

TABLE XIX--PERCENTAGE DISTRIBUTION OF MIGRATIONS BY CAUSE AND DIRECTION AND BY SEX, 1977-78, TEKNAF

Cause of movement	Migration-in				Migration-out			
	Males		Females		Males		Females	
	1977	1978	1977	1978	1977	1978	1977	1978
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All migrants (N)	(591)	(783)	(799)	(1080)	(664)	(699)	(752)	(791)
Marriage	7.4	5.7	26.0	27.5	0.9	1.7	17.8	19.8
Marital disruption	1.4	0.6	5.3	4.0	1.7	2.3	7.3	8.5
Service and business	4.1	4.3	3.5	2.0	14.5	13.0	4.7	5.3
Better living	67.5	67.9	48.8	49.9	62.2	69.9	48.0	52.0
Return home	7.3	7.0	4.3	4.2	6.2	1.6	6.3	2.9
Join relatives	5.4	6.9	4.0	6.1	3.6	2.7	5.5	4.0
Others	6.9	7.4	8.1	6.3	11.0	9.3	10.5	7.5

ACKNOWLEDGEMENTS

This research was supported by the International Development Research Centre (IDRC) and the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). ICDDR,B is supported by countries and agencies which share its concern about the impact of diarrhoeal diseases on the developing world. Current donors giving assistance to ICDDR,B include: AGFUND, Australia, Bangladesh, Japan, Saudi Arabia, Sweden, Switzerland, United Kingdom, and USAID.

CENSUS—1974-1975
 CHOLERA RESEARCH LABORATORY
 TEKNAF, CHITTAGONG

Para _____ Village _____ Union _____ Thana _____

Family No. : 09584 Bari or Clan _____ Religion _____

Indv. No.	Mother's No.	Dwelling No.	NAME	Age	Sex	Marital Status	Relation to Head	Ancestry	Education	Occupation	
										Primary	Secondary
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

SOURCES OF WATER

		Wet Season (May—October)						
		Dry Season (Nov.—April)						
Use	Source	River	Canal	Tank	Ditch	Ring well	T. Well	Other
	Drinking	Wet Dry						
Washing	Wet Dry							
Bathing	Wet Dry							

TOILET HABITS :

Sanitary latrine

Open pit latrine

No fixed latrine

Majority use fixed latrine Yes No

Dwelling Unit No. :

	Unit 1	Unit 2	Unit 3	Unit 4
Floor				
Wall				
Roof				

No. of births in last one year in this family _____

No. of deaths in last one year in this family _____ Causes :

(1) _____ Age (1) _____
 (2) _____ (2) _____
 (3) _____ (3) _____

Date of Census : _____ Signature : _____

FAMILY CENSUS

75 Household No. _____ 82 Household No. _____ Date of Census _____

Individual No.	Mother's No.	Name	Age/DOB	Sex	Marital Status	Relation to Head	Death (Date)	Marriage		Migration		Divorce		Migration		Old Indivi. No.	Remarks (Date)
								In (Date)	Out (Date)	In (Date)	Out (Date)	In (Date)	Out (Date)	In (Date)	Out (Date)		
01																	
02																	
03																	
04																	
05																	
06																	
07																	
08																	
09																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	

T. D. P. Form 2

BIRTH REPORT
TEKNAF DYSENTERY PROJECT
 (International Centre for Diarrhoeal Disease
 Research, Bangladesh)

Card 1
(2-3)Study No.
(4-8)Identification Name of Newborn : _____ Date : Day (7-8) Month (8-10) Year (11-12)Litter Size : (13) Single 1 Twin 2 Triplet 3 Result (14) : Miscarriage 1 Still birth 2 Live birth 3 Sex : (15) 1 M 2 FVill : 16 Para : (17-18) Census No. (19-25)

Information on Father :

Name : _____ Age (26-27) Census No. (26-37)

Information on mother :

Name _____ Age (38-39) Census No. (40-49)

Marital Status of mother at the time of delivery : (50)

Married 2 Widowed 3 Divorced 4 Separated 5 No. of living children : (51-52) Sons 53 Living with mother : Son 54 Daughter 55 No. of children born alive now dead : 56 Sons 57 No. of children born dead : 58 Total no. of pregnancies : (59-60) No. of additional children wanted : 61 Birth Attendant : (62) None 1 Mother 2 Mother-in-law 3 Grandmother 4 Neighbouring women 5 Dal 6 Nurse 7 Doctor 8 Other (specify) : 9 Cutting of the umbilical cord : (63) Blade 1 Knife 2 Bamboosheet 3 TDP Kit 4 Other Specify : _____ 5 Dressing of the umbilical cord : (64) Nothing 1 Ash or Burnt earth 2 Tied with thread 3 TDP Kit 4 Others : _____ 5 Any delivery complication (65-66) Specify _____Complication of the newborn : (67) Breathing or crying difficulty 1 Inability to suck 2 Blue baby 3 Injured during birth 4 Birth defect 5 Others _____ (6)Place of birth : Vill : _____ Para/P.O. _____ Thana _____ 68
(If the place is not the usual residence of Mother)

Remarks : _____

Reported by : _____ FA Date : _____ Verified by FSA _____

