

# DEMOGRAPHIC SURVEILLANCE SYSTEM- TEKNAF

VOLUME TWO

92

VITAL EVENTS AND  
MIGRATION, 1979-1981

REPORT PREPARED BY

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## 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.

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#### ABSTRACT

This is the second volume of the reports of the Demographic Surveillance System - Teknaf, published by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). This volume presents the basic demographic rates and ratios and some selected cross-tabulations of the recorded events of 1979-81.

## INTRODUCTION

The Demographic Surveillance System - Teknaf has been operating in six villages of Teknaf thana (now Upa-zilla) since early 1976. In January 1979, one of six villages, Whykong, was omitted from routine registration of demographic events, such as births, deaths, migrations, marriages and marital disruptions.

The population size of the five retained villages -- obtained by excluding from the yearly updated file of 1978 all records of individuals from Whykong as well as 1978 deaths and out-migrations -- was 43,453 on January 1, 1979.

The 1979 mid-year population was calculated for the census by age and sex from the yearly updated file of 1979, by adding births and in-migrations, and subtracting deaths and out-migrations which occurred between January and June 1979. The same procedures were followed for calculating the mid-year populations of 1980 and 1981.

## RESULTS

The percentage distribution of the mid-year populations for 1979-81 by age and sex is shown in Table I. About half the surveillance area population was under age, and only 2 percent was above age 65. The population's sex ratios for 1979-81 show a declining trend (Table II). The male-female ratio in the age group 20-29 years is striking. Greater out-migration of surveillance area males may be the reason for such a lower sex ratio.

### Vital Events and Migration in the Teknaf Surveillance Area During 1979-81:

A general view of the mid-year population, demographic events and rates for the three consecutive years is presented in Table III. The mortality rate for 1980 is lower than those for 1979 and 1981. The annual rate of natural population increase (average of 3.9 percent) was very high compared to the rates reported from Matlab, where there is an ongoing demographic surveillance system in a large population.

### Mortality:

The percentage distribution of deaths by age is presented in Table IV. Taking the three years together, half the deaths were among infants, 14.8 percent in children aged 1-4 years and 8.5 percent in older people (65 years and over). Age and sex-specific death rates for 1979-81 are presented in Table V. The overall crude death rate was 14.3. The infant mortality rate was 134.7 per 1,000 live births. Neonatal and post-neonatal mortality rates

TABLE I---PERCENTAGE DISTRIBUTION OF MID-YEAR POPULATION BY AGE AND SEX,  
1979-81, TEKNAF

| Age group<br>(years) | Both Sexes |       |       | Males |       |       | Females |       |       |
|----------------------|------------|-------|-------|-------|-------|-------|---------|-------|-------|
|                      | 1979       | 1980  | 1981  | 1979  | 1980  | 1981  | 1979    | 1980  | 1981  |
| All ages             | 100.0      | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 |
| 0                    | 4.5        | 4.9   | 4.8   | 4.5   | 5.1   | 4.8   | 4.5     | 4.8   | 4.7   |
| 1 - 4                | 13.1       | 13.3  | 15.5  | 13.2  | 13.4  | 15.8  | 13.1    | 13.2  | 15.2  |
| 5 - 9                | 16.7       | 16.3  | 13.9  | 16.7  | 16.2  | 14.0  | 16.7    | 16.4  | 13.8  |
| 10 - 14              | 16.3       | 15.0  | 16.2  | 16.3  | 15.0  | 16.3  | 16.4    | 14.9  | 16.0  |
| 15 - 19              | 9.4        | 11.1  | 10.5  | 9.7   | 11.1  | 9.4   | 9.1     | 11.1  | 10.7  |
| 20 - 24              | 8.4        | 7.2   | 7.9   | 7.7   | 6.8   | 7.6   | 9.1     | 7.5   | 8.1   |
| 25 - 29              | 6.5        | 6.4   | 6.0   | 6.2   | 5.8   | 5.3   | 6.8     | 6.9   | 6.7   |
| 30 - 34              | 6.4        | 5.6   | 5.6   | 6.7   | 5.8   | 5.7   | 6.1     | 5.3   | 5.6   |
| 35 - 39              | 4.0        | 4.7   | 4.6   | 4.1   | 4.8   | 4.7   | 3.9     | 4.7   | 4.5   |
| 40 - 44              | 4.4        | 3.8   | 3.7   | 4.3   | 3.8   | 3.7   | 4.5     | 3.8   | 3.6   |
| 45 - 49              | 2.4        | 3.3   | 3.3   | 2.5   | 3.4   | 3.4   | 2.3     | 3.1   | 3.2   |
| 50 - 54              | 3.3        | 2.4   | 2.3   | 3.2   | 2.3   | 2.1   | 3.3     | 2.6   | 2.4   |
| 55 - 59              | 1.3        | 2.4   | 2.5   | 1.5   | 2.5   | 2.6   | 1.2     | 2.4   | 2.4   |
| 60 - 64              | 1.8        | 1.3   | 1.2   | 1.9   | 1.4   | 1.3   | 1.7     | 1.1   | 1.1   |
| 65 +                 | 1.5        | 2.3   | 2.3   | 1.5   | 2.5   | 2.5   | 1.4     | 2.2   | 2.1   |
| (N)                  | 44125      | 46061 | 47729 | 22232 | 23169 | 23876 | 21893   | 22892 | 23853 |

were, respectively, 83.0 and 51.7 per 1,000 live births. Male infants died more than did female infants in the neonatal period, while the opposite was seen in the post-neonatal period and in childhood (age 1-4 years). Death rates were lower between ages 5 and 44 (Figure 1).

An abridged life table was constructed, based on the weighted average mortality rates of 1979-81 for males, females and both sexes (Table VI and Figure 2). The life expectancy at birth was 57.1 years for males and 53.6 years

TABLE II--SEX RATIO OF MID-YEAR POPULATION BY AGE, 1979-81, TEKNAF

| Age group | Sex Ratio (100 x M/F) |       |       |
|-----------|-----------------------|-------|-------|
|           | 1979                  | 1980  | 1981  |
| All ages  | 101.5                 | 101.2 | 100.1 |
| 0 - 4     | 102.2                 | 104.0 | 103.6 |
| 5 - 9     | 101.6                 | 100.3 | 101.7 |
| 10 - 14   | 100.5                 | 101.8 | 101.9 |
| 15 - 19   | 108.3                 | 101.8 | 95.7  |
| 20 - 24   | 86.3                  | 90.7  | 94.0  |
| 25 - 29   | 93.0                  | 85.5  | 79.5  |
| 30 - 34   | 111.1                 | 110.6 | 102.4 |
| 35 - 39   | 81.5                  | 103.3 | 104.2 |
| 40 - 44   | 98.6                  | 103.6 | 103.7 |
| 45 - 49   | 110.3                 | 109.9 | 105.9 |
| 50 - 54   | 99.3                  | 91.5  | 87.0  |
| 55 - 59   | 121.4                 | 106.0 | 109.2 |
| 60 - 64   | 111.3                 | 122.4 | 121.2 |
| 65 +      | 115.1                 | 114.7 | 118.4 |

for females. Longevity reached its peak at age two for both males and females, with an expectation of an additional 66.0 and 61.2 years, respectively. The life expectancy was uniformly higher for males than for females in all ages.

#### Causes of Deaths:

The percentage distribution of the causes of infant deaths is shown in Table VII. Deaths from obstetrical causes (such as prematurity, congenital deformity, birth injury, neonatal tetanus, etc.) made up 86.2 to 93.7 percent

TABLE IIX--VITAL EVENTS AND MIGRATIONS DURING 1979-81, TEKNAF

| Particulars                              | 1979  | 1980  | 1981  |
|------------------------------------------|-------|-------|-------|
| Mid-year population                      | 44125 | 46061 | 47729 |
| Births                                   | 2453  | 2414  | 2459  |
| Deaths                                   | 700   | 591   | 679   |
| Infant deaths                            | 350   | 294   | 343   |
| In-migrations                            | 1274  | 1422  | 1255  |
| Out-migrations                           | 1323  | 1444  | 1591  |
| Crude birth rate (CBR) <sup>a</sup>      | 55.6  | 52.4  | 51.5  |
| Crude death rate (CDR) <sup>a</sup>      | 15.9  | 12.8  | 14.2  |
| Infant mortality rate (IMR) <sup>b</sup> | 142.7 | 121.8 | 139.5 |
| In-migration rate <sup>a</sup>           | 28.9  | 30.9  | 26.3  |
| Out-migration rate <sup>a</sup>          | 30.0  | 31.4  | 33.3  |
| Rate of natural increase (percent)       | 4.0   | 4.0   | 3.7   |
| Rate of growth of population (percent)   | 3.9   | 3.9   | 3.0   |

<sup>a</sup> Rate per 1,000 mid-year population.

<sup>b</sup> Rate per 1,000 live births.

of all early neonatal deaths and 53.6 to 64.5 percent of late neonatal deaths. Diseases related to nutritional deficiency, respiratory infection, diarrhoea, measles and tetanus were more common in the post-neonatal period, and caused 76.1 to 81.6 percent of all deaths in this period.

In the age group 1-4 years, nutritional deficiency, diarrhoea, respiratory infection, and measles were the major causes of deaths, accounting for 64.2 to 73.6 percent of all deaths of age group 1-4 years (Table VIII). Fever, nutritional deficiency and diarrhoea caused 42.9 to 59.2 percent of all deaths of the age group 5-14 years.

TABLE IV--PERCENTAGE DISTRIBUTION OF DEATH BY AGE, 1979-81, TEKNAF

| Age group         | Percent of all deaths |                 |                 | Three years average<br>(N=1970) |
|-------------------|-----------------------|-----------------|-----------------|---------------------------------|
|                   | 1979<br>(N=700)       | 1980<br>(N=591) | 1981<br>(N=679) |                                 |
| All ages          | 100.0                 | 100.0           | 100.0           | 100.0                           |
| < 1 year          | 50.0                  | 49.7            | 50.5            | 50.1                            |
| < 7 days          | 36.6*                 | 39.5*           | 34.4*           | 36.7*                           |
| 7-28 days         | 23.4*                 | 22.1*           | 28.9*           | 24.9*                           |
| 29 days-11 months | 40.0*                 | 38.4*           | 36.7*           | 38.4*                           |
| 1-4               | 14.0                  | 14.2            | 16.2            | 14.8                            |
| 5-14              | 8.0                   | 5.2             | 4.0             | 5.8                             |
| 15-24             | 3.7                   | 2.4             | 3.1             | 3.1                             |
| 25-34             | 3.0                   | 3.0             | 4.0             | 3.4                             |
| 35-44             | 3.7                   | 3.4             | 2.7             | 3.2                             |
| 45-54             | 5.0                   | 4.7             | 4.3             | 4.7                             |
| 55-64             | 6.6                   | 7.4             | 5.3             | 6.4                             |
| 65+               | 6.0                   | 9.8             | 10.0            | 8.5                             |

\* Percent of infant deaths.

For ages 15-44 the leading causes of death are fever, tuberculosis and accidents, while for those over 45 the leading causes of death are respiratory infection, diarrhoea and CVA (cardiovascular accident) (Table IX). Complications related to childbirth are an important cause of female deaths in the child-bearing age.

#### Births and Fertility:

The pattern of sex ratios at birth and the proportion of fetal wastage per 100 live births for the three years were found to be consistent (Table X). Seasonality of birth is shown in Table XI. Frequency of birth events started increasing from July, with a peak in November-December.

TABLE V--AGE-AND SEX-SPECIFIC DEATH RATE PER 1,000 MID-YEAR POPULATION, 1979-1981.

| Age group             | Both Sexes |        |        |                                   | Males  |        |        |                                   | Females |        |        |                                   |
|-----------------------|------------|--------|--------|-----------------------------------|--------|--------|--------|-----------------------------------|---------|--------|--------|-----------------------------------|
|                       | 1979       | 1980   | 1981   | Three yrs.<br>weighted<br>average | 1979   | 1980   | 1981   | Three yrs.<br>weighted<br>average | 1979    | 1980   | 1981   | Three yrs.<br>weighted<br>average |
| All ages              | 15.9       | 12.8   | 14.2   | 14.3                              | 15.6   | 12.3   | 14.5   | 14.1                              | 16.2    | 13.3   | 14.0   | 14.5                              |
| < 1 year              | 142.5+     | 121.8+ | 139.5+ | 134.7+                            | 143.8+ | 125.7+ | 148.3+ | 139.4+                            | 141.2+  | 117.7+ | 130.1+ | 129.9+                            |
| < 7 days              | 52.1+      | 48.1+  | 48.0+  | 49.4+                             | 59.9+  | 48.7+  | 54.4+  | 54.4+                             | 44.0+   | 47.4+  | 41.1+  | 44.2+                             |
| 7-28 days             | 33.4+      | 26.9+  | 40.3+  | 33.6+                             | 36.7+  | 29.2+  | 44.2+  | 36.8+                             | 29.9+   | 24.6+  | 36.1+  | 30.2+                             |
| 29 days-<br>11 months | 57.0+      | 46.8+  | 51.2+  | 51.7+                             | 47.1+  | 47.9+  | 49.7+  | 48.2+                             | 67.3+   | 45.7+  | 52.9+  | 55.4+                             |
| 1 - 4                 | 16.9       | 13.7   | 14.9   | 15.1                              | 15.7   | 12.9   | 13.5   | 14.0                              | 18.2    | 14.6   | 16.3   | 16.3                              |
| 5 - 14                | 3.8        | 2.2    | 1.9    | 2.6                               | 3.7    | 2.2    | 2.1    | 2.7                               | 4.0     | 2.1    | 1.7    | 2.6                               |
| 15 - 24               | 3.3        | 1.7    | 2.4    | 2.4                               | 1.5    | 0.2    | 2.3    | 1.4                               | 5.0     | 3.1    | 2.4    | 3.5                               |
| 25 - 34               | 3.7        | 3.3    | 4.9    | 3.9                               | 3.8    | 1.1    | 1.9    | 2.3                               | 3.6     | 5.3    | 7.5    | 5.5                               |
| 35 - 44               | 7.0        | 5.1    | 4.6    | 5.5                               | 7.4    | 4.0    | 4.5    | 5.2                               | 6.6     | 6.2    | 4.6    | 5.8                               |
| 45 - 54               | 14.0       | 10.6   | 11.0   | 11.8                              | 11.0   | 12.8   | 9.2    | 11.0                              | 17.1    | 8.4    | 12.7   | 12.7                              |
| 55 - 64               | 33.5       | 25.7   | 20.6   | 26.1                              | 35.3   | 24.4   | 21.6   | 26.5                              | 31.4    | 27.2   | 19.5   | 25.6                              |
| 65 +                  | 65.5       | 54.4   | 62.9   | 60.2                              | 64.1   | 42.2   | 61.4   | 54.7                              | 67.1    | 68.3   | 64.6   | 66.6                              |

+ Rate per 1,000 live births.

Figure 1

AGE SPECIFIC DEATH RATES PER 1000  
MID-YEAR POPULATION, 1979-1981, TEKNAF

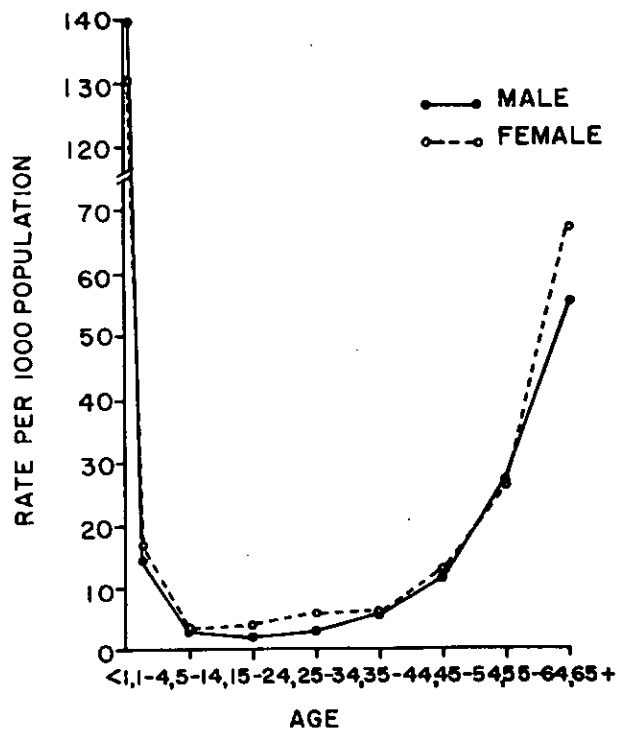


TABLE VI--ABRIDGED LIFE TABLE BY SEX BASED ON WEIGHTED AVERAGE  
MORTALITY RATES OF 1979-81, TEKNAF

| Age | Both Sexes  |        |         | Males       |        |         | Females     |        |         |
|-----|-------------|--------|---------|-------------|--------|---------|-------------|--------|---------|
|     | $1000_nq_x$ | $lx$   | $e_x^o$ | $1000_nq_x$ | $lx$   | $e_x^o$ | $1000_nq_x$ | $lx$   | $e_x^o$ |
| 0   | 134.7       | 100000 | 55.3    | 139.4       | 100000 | 57.1    | 129.9       | 100000 | 53.6    |
| 1   | 26.0        | 86530  | 62.8    | 24.8        | 86060  | 65.3    | 27.2        | 87010  | 60.5    |
| 2   | 15.1        | 84283  | 63.5    | 15.1        | 83926  | 66.0    | 15.1        | 84641  | 61.2    |
| 3   | 9.6         | 83011  | 63.5    | 7.4         | 82660  | 66.0    | 11.8        | 83364  | 61.2    |
| 4   | 5.8         | 82218  | 63.1    | 4.3         | 82051  | 65.5    | 7.3         | 82378  | 60.9    |
| 5   | 17.9        | 81742  | 62.4    | 15.9        | 81699  | 64.7    | 19.3        | 81779  | 60.3    |
| 10  | 8.5         | 80283  | 58.5    | 10.4        | 80401  | 60.7    | 6.5         | 80199  | 56.5    |
| 15  | 10.0        | 79603  | 54.0    | 6.5         | 79561  | 56.3    | 13.4        | 79679  | 51.8    |
| 20  | 15.4        | 78811  | 49.5    | 8.0         | 79045  | 51.7    | 21.8        | 78610  | 47.5    |
| 25  | 19.3        | 77598  | 45.2    | 11.4        | 78415  | 47.1    | 26.7        | 76898  | 43.5    |
| 30  | 19.8        | 76098  | 41.1    | 11.9        | 77518  | 42.6    | 28.1        | 74847  | 39.6    |
| 35  | 19.3        | 74590  | 36.8    | 15.9        | 76593  | 38.1    | 23.2        | 72742  | 35.7    |
| 40  | 36.4        | 73148  | 32.5    | 37.8        | 75376  | 33.7    | 34.9        | 71051  | 31.4    |
| 45  | 41.7        | 70487  | 28.6    | 38.8        | 72525  | 29.9    | 44.6        | 68570  | 27.5    |
| 50  | 75.3        | 67549  | 24.8    | 71.5        | 69712  | 26.0    | 79.0        | 65515  | 23.6    |
| 55  | 108.2       | 62465  | 21.6    | 106.4       | 64725  | 22.8    | 110.0       | 60341  | 20.4    |
| 60  | 144.4       | 55706  | 18.9    | 151.3       | 57838  | 20.2    | 136.0       | 53703  | 17.6    |
| 65  | 1000.0      | 47662  | 16.6    | 1000.0      | 49087  | 18.3    | 1000.0      | 46368  | 15.0    |

Figure 2

EXPECTATION OF YEARS OF REMAINING LIFE FROM LIFE TABLE  
OF 1979 - 1981, TEKNAF

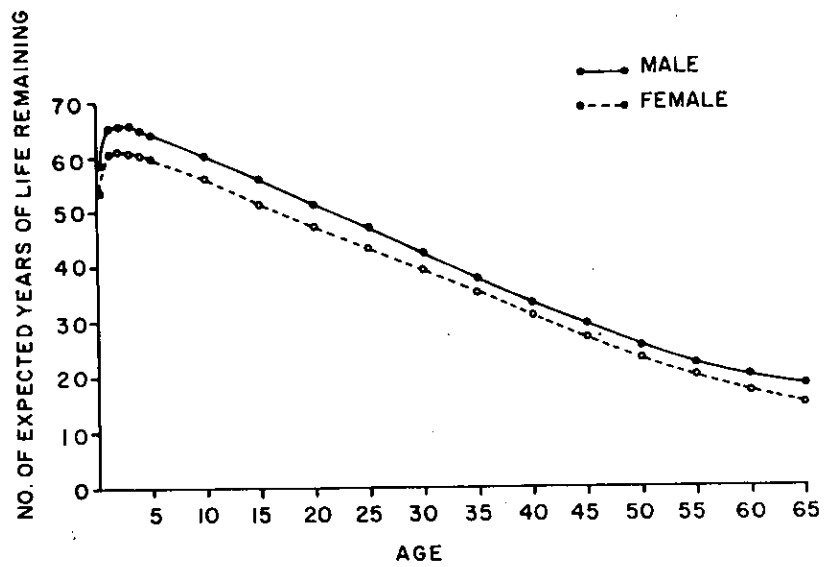


TABLE VII--PERCENTAGE DISTRIBUTION OF THE CAUSES OF INFANT DEATHS, 1979-81, TEKNAP

| Cause of death                      | Under 1 year |       |       | < 7 days |       |       | 7-28 days |       |       | 29 days-11 months |       |       |
|-------------------------------------|--------------|-------|-------|----------|-------|-------|-----------|-------|-------|-------------------|-------|-------|
|                                     | 1979         | 1980  | 1981  | 1979     | 1980  | 1981  | 1979      | 1980  | 1981  | 1979              | 1980  | 1981  |
| All causes                          | 100.0        | 100.0 | 100.0 | 100.0    | 100.0 | 100.0 | 100.0     | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 |
| Birth associates <sup>1</sup>       | 29.7         | 28.6  | 28.9  | 66.4     | 62.1  | 67.8  | 17.0      | 9.2   | 18.2  | 3.6               | 5.3   | 0.8   |
| Tetanus                             | 24.6         | 23.1  | 19.5  | 27.3     | 24.1  | 19.5  | 47.6      | 50.8  | 35.4  | 8.6               | 6.2   | 7.1   |
| Nutritional deficiency <sup>2</sup> | 7.7          | 10.9  | 15.2  | 0.0      | 0.9   | 0.0   | 2.4       | 6.2   | 4.0   | 17.9              | 23.9  | 38.1  |
| Respiratory infection <sup>3</sup>  | 21.8         | 14.3  | 14.9  | 2.3      | 2.6   | 3.4   | 15.9      | 13.8  | 20.2  | 42.8              | 26.5  | 21.4  |
| Diarrhoeal diseases <sup>4</sup>    | 2.6          | 5.4   | 2.9   | 0.8      | 0.0   | 0.0   | 0.0       | 0.0   | 0.0   | 5.7               | 14.2  | 7.9   |
| Measles                             | 3.1          | 2.7   | 3.2   | 1.6      | 0.0   | 0.0   | 0.0       | 3.1   | 2.0   | 6.4               | 5.3   | 7.1   |
| Fever                               | 0.3          | 3.1   | 4.4   | 0.0      | 3.4   | 0.8   | 0.0       | 0.0   | 4.0   | 0.7               | 4.4   | 7.9   |
| Accidental death                    | 2.3          | 3.7   | 2.3   | 0.8      | 0.0   | 0.8   | 2.4       | 3.1   | 2.0   | 3.6               | 8.0   | 4.0   |
| Others                              | 7.9          | 8.2   | 8.7   | 0.8      | 6.9   | 7.7   | 14.6      | 13.8  | 14.1  | 10.7              | 6.2   | 5.6   |
| Number (N)                          | (350)        | (294) | (343) | (128)    | (116) | (118) | (82)      | (65)  | (99)  | (140)             | (113) | (126) |

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

<sup>2</sup> Malnutrition, anemia, sore mouth.

<sup>3</sup> Pneumonia, asthma, whooping cough.

<sup>4</sup> Diarrhoea, dysentery, acute gastroenteritis.

TABLE VIII--PERCENTAGE DISTRIBUTION OF THE CAUSES OF DEATH BY AGE GROUPS  
1-4 YEARS AND 5-14 YEARS, 1979-81, TEKNAF

| Causes of death                     | Age at death |       |       |            |       |       |
|-------------------------------------|--------------|-------|-------|------------|-------|-------|
|                                     | 1-4 years    |       |       | 5-14 years |       |       |
|                                     | 1979         | 1980  | 1981  | 1979       | 1980  | 1981  |
| All causes                          | 100.0        | 100.0 | 100.0 | 100.0      | 100.0 | 100.0 |
| Nutritional deficiency <sup>1</sup> | 21.4         | 7.1   | 30.9  | 25.0       | 3.2   | 11.1  |
| Diarrhoeal diseases <sup>2</sup>    | 11.2         | 15.5  | 11.8  | 3.6        | 16.1  | 11.1  |
| Respiratory infection <sup>3</sup>  | 31.5         | 20.2  | 10.9  | 16.0       | 6.5   | 0.0   |
| Fever (all forms)                   | 5.1          | 11.9  | 5.5   | 14.3       | 35.5  | 37.0  |
| Measles                             | 9.2          | 21.4  | 20.0  | 5.4        | 3.2   | 14.8  |
| Accidental death                    | 11.2         | 10.7  | 10.0  | 7.1        | 12.9  | 14.8  |
| Others                              | 10.4         | 13.2  | 10.9  | 28.6       | 22.6  | 11.2  |
| Number (N)                          | (98)         | (84)  | (110) | (56)       | (31)  | (27)  |

<sup>1</sup> Malnutrition, anemia, sore mouth.

<sup>2</sup> Diarrhoea, dysentery, acute gastroenteritis.

<sup>3</sup> Pneumonia, asthma, whooping cough.

Age-specific fertility rates for the calendar years 1979-81 are shown in Table XII. The patterns of age-specific fertility curves for 1979-81 are alike, subject to fluctuations between years (Figure 3). The total fertility rates for 1979 and 1980 were almost equal, as were the gross and net reproduction rates; but both were higher than those for 1981.

Mothers who had live births during 1979-81 had, on average, 3.4 surviving children out of 4.3 pregnancies, and mothers aged 45-49 also had 7 surviving children out of 9.3 pregnancies (Table XIII).

TABLE IX--PERCENTAGE DISTRIBUTION OF CAUSES OF DEATH BY AGE GROUPS  
15-44 YEARS AND 45 YEARS + OVER, 1979-81, TEKNAF

| Causes of death                    | Age at death |       |       |                 |       |       |
|------------------------------------|--------------|-------|-------|-----------------|-------|-------|
|                                    | 15-44 years  |       |       | 45 years + Over |       |       |
|                                    | 1979         | 1980  | 1981  | 1979            | 1980  | 1981  |
| All causes                         | 100.0        | 100.0 | 100.0 | 100.0           | 100.0 | 100.0 |
| Respiratory infection <sup>1</sup> | 6.8          | 1.9   | 4.5   | 12.2            | 10.0  | 4.5   |
| Diarrhoeal diseases <sup>2</sup>   | -            | 3.8   | 6.1   | 6.5             | 7.7   | 7.5   |
| Fever                              | 12.3         | 13.5  | 15.2  | 5.7             | 5.4   | 3.8   |
| CVA                                | 5.5          | 1.9   | -     | 11.4            | 14.6  | 6.0   |
| Tuberculosis                       | 11.0         | 13.5  | 4.5   | 5.7             | 7.7   | 3.0   |
| Accidental death                   | 9.6          | 5.8   | 7.6   | 4.9             | 2.3   | 0.8   |
| Delivery complication of mothers   | 15.1         | 3.8   | 12.1  | -               | -     | -     |
| Senility                           | -            | -     | -     | 4.1             | 15.4  | 25.6  |
| Others                             | 39.7         | 55.8  | 50.0  | 49.5            | 36.9  | 48.9  |
| Number (N)                         | (73)         | (52)  | (66)  | (123)           | (130) | (133) |

<sup>1</sup> Pneumonia, asthma, whooping cough.

<sup>2</sup> Diarrhoea, dysentery, acute gastroenteritis.

#### Migrations:

Age-and sex-specific migration rates are shown in Table XIV. Migration (in/out) rates were highest at age 20-39 for males and at age 10-29 for females. More males left than entered the surveillance area, while for females both in-and out-migration rates were almost equal.

The majority of in-migrants, especially females, came from other rural areas; while the major proportion of out-migrants, especially males, left the surveillance area for jobs abroad, particularly in the Middle East (Table XV).

TABLE X--OUTCOME OF PREGNANCIES, 1979-81, TEKNAF

| Events                                     | Years |       |       |
|--------------------------------------------|-------|-------|-------|
|                                            | 1979  | 1980  | 1981  |
| Total pregnancies                          | 2719  | 2671  | 2706  |
| Live births                                | 2453  | 2414  | 2459  |
| Males                                      | 1254  | 1233  | 1266  |
| Females                                    | 1199  | 1181  | 1193  |
| Still births and miscarriages              | 284   | 283   | 280   |
| Sex ratio at birth (100 x M/F)             | 104.6 | 104.4 | 106.1 |
| Fetal wastage ratio per 100<br>live births | 11.6  | 11.7  | 11.4  |

More people came into the surveillance area than left it across the Bangladesh/Burma border, except for 1979. The anomaly probably was due to the 1979 repatriation of Burmese refugees who had come in 1978. Better living was the single major reason for migration in all three years (Table XVI). The second major reason for movement was marriage and marital disruption for females, while business and service was the cause for males.

TABLE XI--SEASONALITY OF BIRTHS, 1979-81, TEKNAF

| Month of termination | Number of live births |      |      | Seasonal Index* ( $\frac{\text{obs.}}{\text{exp.}} \times 100$ ) |       |       |
|----------------------|-----------------------|------|------|------------------------------------------------------------------|-------|-------|
|                      | 1979                  | 1980 | 1981 | 1979                                                             | 1980  | 1981  |
| January              | 192                   | 221  | 215  | 92.2                                                             | 108.1 | 102.9 |
| February             | 172                   | 164  | 190  | 91.4                                                             | 85.7  | 100.7 |
| March                | 191                   | 168  | 160  | 91.7                                                             | 82.2  | 76.6  |
| April                | 167                   | 156  | 174  | 82.8                                                             | 78.8  | 86.1  |
| May                  | 152                   | 185  | 193  | 73.0                                                             | 90.5  | 92.4  |
| June                 | 196                   | 195  | 191  | 97.2                                                             | 98.6  | 94.5  |
| July                 | 199                   | 194  | 227  | 95.5                                                             | 94.9  | 108.7 |
| August               | 226                   | 199  | 167  | 108.5                                                            | 97.3  | 80.0  |
| September            | 228                   | 203  | 176  | 113.1                                                            | 102.1 | 87.1  |
| October              | 249                   | 220  | 240  | 119.5                                                            | 107.6 | 114.9 |
| November             | 234                   | 260  | 245  | 116.1                                                            | 131.4 | 121.2 |
| December             | 247                   | 249  | 281  | 119.5                                                            | 121.8 | 134.5 |
| Total                | 2453                  | 2414 | 2459 |                                                                  |       |       |

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

TABLE XII--AGE-SPECIFIC FERTILITY RATES (ASFR), TEKNAF, 1979-1981

| Age of women  | No. of live births |      |      | Rate per 1,000 women |       |       |
|---------------|--------------------|------|------|----------------------|-------|-------|
|               | 1979               | 1980 | 1981 | 1979                 | 1980  | 1981  |
| 15 - 19       | 471*               | 525* | 504* | 236.2                | 207.3 | 197.5 |
| 20 - 24       | 780                | 585  | 680  | 392.6                | 338.3 | 350.9 |
| 25 - 29       | 508                | 507  | 534  | 343.7                | 320.3 | 335.0 |
| 30 - 34       | 416                | 356  | 393  | 311.6                | 291.6 | 296.2 |
| 35 - 39       | 164                | 263  | 210  | 192.0                | 246.5 | 194.1 |
| 40 - 44       | 84                 | 117  | 102  | 86.1                 | 136.0 | 119.0 |
| 45 - 49       | 30                 | 61   | 36   | 59.5                 | 85.0  | 47.6  |
| Total (15-49) | 2453               | 2414 | 2459 |                      |       |       |

|                               |       |       |       |
|-------------------------------|-------|-------|-------|
| General Fertility Rate (GFR)  | 268.7 | 248.6 | 243.3 |
| Total Fertility Rate (TFR)    | 8.1   | 8.1   | 7.7   |
| Gross Reproduction Rate (GRR) | 3.9   | 4.0   | 3.7   |
| Net Reproduction Rate (NRR)   | 3.0   | 3.0   | 2.8   |

\* Births which occurred to mothers below age 15 were included in this age group.

Figure 3

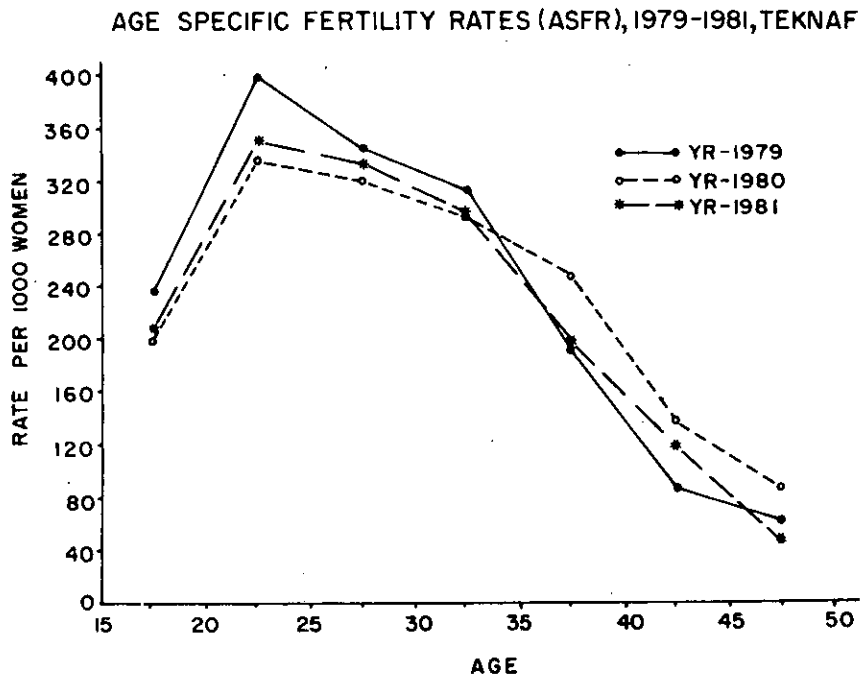


TABLE XIII--DISTRIBUTION OF THE MEAN NUMBER OF SURVIVING CHILDREN AND  
PREGNANCIES OF MOTHERS BY AGE WHO HAD BIRTHS DURING 1979-1981, TEKNAF

| Age of<br>mothers | Mean number of<br>living children |      |      | Mean number of<br>pregnancies |      |      |
|-------------------|-----------------------------------|------|------|-------------------------------|------|------|
|                   | 1979                              | 1980 | 1981 | 1979                          | 1980 | 1981 |
| All ages          | 3.4                               | 3.5  | 3.4  | 4.3                           | 4.4  | 4.3  |
| 10 - 14           | 1.1                               | 1.1  | 1.1  | 1.1                           | 1.1  | 1.1  |
| 15 - 19           | 1.3                               | 1.4  | 1.4  | 1.5                           | 1.5  | 1.6  |
| 20 - 24           | 2.3                               | 2.2  | 2.3  | 2.9                           | 2.7  | 2.8  |
| 25 - 29           | 3.9                               | 3.5  | 3.7  | 4.9                           | 4.5  | 4.6  |
| 30 - 34           | 5.2                               | 5.0  | 4.8  | 6.6                           | 6.5  | 6.2  |
| 35 - 39           | 6.1                               | 6.1  | 6.2  | 8.4                           | 8.1  | 8.0  |
| 40 - 44           | 6.7                               | 6.8  | 6.6  | 8.6                           | 8.6  | 8.5  |
| 45 - 49           | 6.9                               | 7.1  | 6.7  | 9.4                           | 9.2  | 8.6  |

TABLE XIV--AGE-AND SEX-SPECIFIC IN-AND OUT-MIGRATION RATES, 1979-81, TEKNAF

| Age group | Migration-in |      |      |         |      |      | Migration-out |      |      |         |      |      |
|-----------|--------------|------|------|---------|------|------|---------------|------|------|---------|------|------|
|           | Males        |      |      | Females |      |      | Males         |      |      | Females |      |      |
|           | 1979         | 1980 | 1981 | 1979    | 1980 | 1981 | 1979          | 1980 | 1981 | 1979    | 1980 | 1981 |
| All ages  | 24.5         | 28.8 | 24.6 | 33.3    | 32.9 | 28.0 | 27.9          | 33.6 | 38.0 | 32.1    | 29.1 | 28.7 |
| 0 - 9     | 21.4         | 25.9 | 20.9 | 23.3    | 25.5 | 19.4 | 23.5          | 19.6 | 21.5 | 25.8    | 19.1 | 20.9 |
| 10 - 19   | 17.3         | 25.9 | 19.1 | 52.1    | 42.0 | 40.7 | 23.7          | 34.3 | 41.7 | 44.0    | 44.2 | 41.4 |
| 20 - 29   | 45.3         | 39.7 | 38.8 | 42.7    | 50.4 | 36.8 | 46.3          | 66.1 | 68.6 | 43.6    | 42.6 | 41.1 |
| 30 - 39   | 30.4         | 36.3 | 33.4 | 18.7    | 25.8 | 24.5 | 32.9          | 48.1 | 58.7 | 20.1    | 20.1 | 19.1 |
| 40 - 49   | 19.8         | 28.6 | 27.8 | 20.3    | 18.4 | 19.2 | 32.3          | 32.7 | 42.6 | 16.2    | 16.5 | 18.6 |
| 50 - 59   | 21.1         | 20.6 | 20.6 | 21.2    | 23.8 | 12.3 | 19.2          | 24.1 | 12.5 | 23.2    | 18.5 | 17.5 |
| 60 +      | 19.8         | 30.3 | 23.5 | 35.9    | 27.6 | 24.0 | 17.2          | 22.4 | 23.5 | 24.9    | 25.0 | 14.7 |

\* Per 1,000 mid-year population.

TABLE XV--PERCENTAGE DISTRIBUTION OF THE MIGRANTS BY PLACES OF ORIGIN AND PLACES OF DESTINATION  
1979-81, TEKNAF

| Localities        | To Teknaf from the places of origin |       |       |         |       |       | From Teknaf to place of destination |       |       |         |       |       |
|-------------------|-------------------------------------|-------|-------|---------|-------|-------|-------------------------------------|-------|-------|---------|-------|-------|
|                   | Males                               |       |       | Females |       |       | Males                               |       |       | Females |       |       |
|                   | 1979                                | 1980  | 1981  | 1979    | 1980  | 1981  | 1979                                | 1980  | 1981  | 1979    | 1980  | 1981  |
| All areas         | 100.0                               | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 | 100.0                               | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 |
| Rural areas       | 42.6                                | 45.5  | 39.5  | 50.3    | 59.2  | 49.6  | 23.2                                | 16.8  | 19.0  | 36.0    | 34.7  | 38.5  |
| Urban areas       | 22.8                                | 21.6  | 15.0  | 18.4    | 17.9  | 13.2  | 9.3                                 | 12.7  | 8.5   | 11.7    | 18.5  | 12.1  |
| Across the border | 23.2                                | 19.8  | 24.3  | 25.6    | 15.0  | 24.4  | 23.5                                | 7.6   | 7.1   | 25.8    | 11.3  | 11.6  |
| Abroad*           | 10.5                                | 13.2  | 21.3  | 5.2     | 8.0   | 12.6  | 40.7                                | 61.7  | 62.6  | 23.5    | 34.1  | 34.5  |
| Unknown           | 0.9                                 | 0.1   | 0.0   | 0.5     | 0.0   | 0.2   | 3.2                                 | 1.2   | 2.9   | 3.0     | 1.5   | 3.4   |
| Total (N)         | (544)                               | (668) | (588) | (734)   | (754) | (667) | (621)                               | (778) | (907) | (702)   | (666) | (684) |

\* Especially to the Middle East.

TABLE XVI--PERCENTAGE DISTRIBUTION OF THE MIGRATIONS BY CAUSE AND DIRECTION, 1979-81, TEKNAP

| Causes of movement   | Migration-in |       |       |         |       |       | Migration-out |       |       |         |       |       |
|----------------------|--------------|-------|-------|---------|-------|-------|---------------|-------|-------|---------|-------|-------|
|                      | Males        |       |       | Females |       |       | Males         |       |       | Females |       |       |
|                      | 1979         | 1980  | 1981  | 1979    | 1980  | 1981  | 1979          | 1980  | 1981  | 1979    | 1980  | 1981  |
| All causes           | 100.0        | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 | 100.0         | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 |
| Marriage             | 9.7          | 8.5   | 8.8   | 26.0    | 20.7  | 26.3  | 1.0           | 1.4   | 1.5   | 16.8    | 16.7  | 19.9  |
| Marital disruption   | 0.7          | 1.3   | 1.5   | 7.3     | 4.9   | 4.6   | 2.7           | 1.3   | 2.3   | 10.7    | 9.2   | 8.6   |
| Service and Business | 6.4          | 3.0   | 4.1   | 3.6     | 2.9   | 1.2   | 11.6          | 34.2  | 49.2  | 4.6     | 7.7   | 13.0  |
| Better living        | 50.2         | 56.3  | 58.5  | 37.0    | 44.0  | 46.9  | 54.1          | 44.5  | 29.9  | 40.9    | 41.6  | 35.4  |
| Return home          | 13.8         | 15.4  | 16.8  | 7.4     | 10.7  | 12.0  | 10.3          | 4.6   | 5.4   | 8.5     | 6.0   | 6.7   |
| Join relatives       | 12.1         | 9.9   | 8.3   | 11.6    | 11.1  | 7.2   | 8.9           | 6.0   | 7.4   | 10.5    | 12.6  | 13.2  |
| Others               | 7.0          | 5.5   | 1.9   | 7.1     | 5.6   | 1.6   | 11.6          | 8.0   | 4.3   | 8.0     | 6.3   | 3.2   |
| Total (N)            | (544)        | (668) | (588) | (734)   | (754) | (667) | (621)         | (778) | (907) | (702)   | (666) | (684) |

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