LECTURE NOTES

For Health Science Students

Population and Development

Melake Demena

HaramayaUniversity

In collaboration with the Ethiopia Public Health Training Initiative, The Carter Center, the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education

July 2005

Funded under USAID Cooperative Agreement No. 663-A-00-00-0358-00.

Produced in collaboration with the Ethiopia Public Health Training Initiative, The Carter Center, the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education.

Important Guidelines for Printing and Photocopying
Limited permission is granted free of charge to print or photocopy all pages of this publication for educational, not-for-profit use by health care workers, students or faculty. All copies must retain all author credits and copyright notices included in the original document. Under no circumstances is it permissible to sell or distribute on a commercial basis, or to claim authorship of, copies of material reproduced from this publication.

©2005 by Melake Demena

All rights reserved. Except as expressly provided above, no part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission of the author or authors.

This material is intended for educational use only by practicing health care workers or students and faculty in a health care field.

PREFACE

Studies within particular countries, suggest that population growth above 2% a year inhibits efforts to raise income in poor countries with high birth rates and young age structure. In countries that are already poor, then, rapid population growth only makes matters worth leading to economic insecurity. Economic insecurity, intern, encourages people to have large families. Poverty and lack of economic opportunities increase incentives to exploit marginal resources, such as overgrazed land, over harvested forests, and thereby further environmental degradation. Rapid population growth although not a direct cause, appears to exacerbate all these trends and makes solutions harder to implement. Governments need to provide basic social services (such as health care and education), infrastructure and investments that will lead to job opportunities.

The lecture notes on population and Development Provide information on demographic concepts, current trends of population growth, patterns and

interpretations; and the Impact of rapid population growth on health and other socio-economic development.

In the absence of relevant text and reference books that are specifically prepared for undergraduate students of health sciences, the lecture notes help to maintain standard of course contents among the different health sciences training institutions and alleviate the scarcity of text books.

The lecture notes are primarily prepared for health officer students; however, they could also be used by other categories of medical and health sciences students of diploma or degree level.

Ethiopia Public Health Training Initiative

ACKNOWLEDGMENT

The development and publishing this lecture note was made possible through the administrative and financial support of The Carter Center (EPHTI) for which I extend my deepest gratitude. Special acknowledgement goes to Ato Gizachew Ashagire, Gondar University, for his contribution and professional input in developing this document. I would also like to express my heart-felt appreciation to Ato Aklilu Mulugeta for his commitment and moral support for the successful accomplishment of the lecture note. I thank the Alemaya University, the Faculty of Health Sciences and to all colleagues and partners who participated in reviewing the manuscript; and to my students that directly or indirectly contributed to the development of the lecture note.

Last, but not least, I am very grateful to W/t Tinebeb Retta for typing the whole manuscript.

TABLE OF CONTENT

Title **Page**

Preface..... i

Acknowledgement iii

Table of Content iv

List of Tables viii

List of Figures ix

CHAPTER ONE: Introduction to Population Studies ... 1

Demography 1

Sources of Demographic Data 2

Census 3

Registration of Vital Events 7

Sample Surveys 7

CHAPTER TWO: Demographic Measurement Tools and Techniques 9

Tools of Measurement 9

Ratios 10

Proportions 10

Rates 11

Techniques of Demographic Measurement 12

Measures of Fertility 12
Measures of Mortality 20

CHAPTER THREE: Growth of Populations 31
Reasons for Population Growth 33
Population Growth Forms 35
Population Dynamics 37
Population Structure 38
Population Pyramids 39
The Ecological Ages 41
Types of Populations 44
Theory of Demographic Transition 45

CHAPTER FOUR: World Population Growth, Current Trends, Patterns and Interpretation 53
World Population Distribution and Regional Growth Rates..... 55
Trends in Fertility 67
Ranges in Birth Rates 68
Low Fertility in Developed Countries..... 68
Fertility Decline in Developing World 69
Marital Fertility Decline 71
Age of Marriage 72
Infant Mortality 72

Contraception 73
Family size Preference 74
Education 74

Trends in Mortality 74
Mechanisms of Mortality Decline 77
Mortality Differentials 78
Infant Mortality 79
Female Education 81

Migration 81
International Migration..... 82
Internal Migration 85

CHAPTER FIVE: Women and Development 88
Introduction 88
Understanding Gender..... 90
Violence Against Women..... 92
Gender – based Violence 93
Empowering Women..... 93
Education 93
Employment Opportunity 94
Legislating Equality 95
Emphasizing the Girl Child 95

Male Responsibility 96
Program of Action of the ICPD 97
The status of Women in Ethiopia 98
Working conditions 98
Social services 101

CHAPTER SIX: Impact of Rapid Population Growth on Socio-Economic Development . 107
Social Implications of Population Growth..... 107
Population Growth and Environment 108
Health and Development 110
Effects of health on Development 111
Measures / Indicators of Development 115
GNP and Social Indicators and 116
Health Indicators and GNP 120

CHAPTER SEVEN: Population Policies 126
The Population Policy of Ethiopia 128
Background 128
Rational of the National Population Policy 137
Objectives of the National Population Policy 138
Reference 141

LIST OF TABLES

Table 2.1: Calculation of Total Fertility Rate. 17

Table 3.1: Population Structure of Town "A" by Age and Sex, September 2003. 51

Table 4.1: Distribution of World Population by Regions, 1950, 1990 and 2025. 61

Table 4.2: World Population Number, Vital Rates and GNP in 1992. 62

Table 4.3: Comparison of Gross National Income, and Gross National Income in PPP, (1999). 63

Table 4.4: The 25 Most Populous Countries Ranked by Size, Medium Variant, 1990 and 2025. 65

Table 4.5: Crude Death Rate and Life Expectancy in World and Regions. 77

Table 6.1: Life Expectancy at Birth by Income Group, 19983. 121

LIST OF FIGURES

Fig. 3.1: Exponential Growth Curve (J. shaped). 36
Fig. 3.2: Sigmoid Growth Curve (S-Shaped). 37
Fig. 3.3: Age – sex Structure in Transition 43
Fig. 3.4: The Demographic Transition Model. 48
Fig. 3.5: Population Growth through Natural Increase. ... 52
Fig. 4.1: World Population Growth 7000–6000 B.C. 59
Fig. 4.2: World Population Growth 1750 – 2150. 60
Fig. 6.1: Links between Health and Income 122

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative
EPHTI

CHAPTER ONE

INTRODUCTION TO POPULATION STUDIES

Instructional Objectives

After Completing this chapter the learner is able to:

- Define Demography
- Identify the different sources of demographic data
- Explain the differences between the major sources of data
- List and state steps needed in conducting population census.

1. Demography

Definition

Demography can be defined as the study of human populations including their composition, distributions, densities, growth and other characteristics as well as the causes and consequences of changes in these factors.

Demography, as understood today, is the scientific study of human population and its dynamics. It is derived from two Greek Words:

- Demos means population
- Graphics means to draw

Demography focuses its attention on three readily available human phenomena:

- Changes in population size (growth or decline)
- The composition of the population and
- The distribution of population in space.

Demography deals with major "demographic processes" namely fertility, mortality and migration. These processes are continually at work within a population determining its size, composition and distribution.

2. Sources of Demographic Data

Demographic data are important in providing factual basis for decisions on matters of public policy and action concerning social and economic affairs. These data can be processed to indicate present and future requirements of the population in terms of the types and extent of social needs of the society such as health, education and employment.

The major sources of demographic data include:

2.1. Census
2.2. Registration of vital events (Records)
2.3. Sample surveys
2.4. Ad-hoc Demographic studies

2.1. Census

Census is defined as an enumeration or complete population count at a point in time within a specified geographical area. A census provides more reliable and accurate data if properly enumerated.

The conducting of censuses has a long history, but modern censuses were first held in the 17th century. By the end of eighteenth and beginning of the nineteenth century many countries had held their first censuses. Some countries including Ethiopia have only recently held their first censuses.

Old Censuses	**Modern Censuses**
- Babilonia in about 3800 B.C.	- Quebec (Canada) in 1666 A.D.
- China in about 3000 B.C.	- USA in 1790 A.D
- Egypt in about 2500 B.C	- England and France in 1801 A.D.
	- Zaire in 1984 A.D
	- Ethiopia in 1984 A.D.

2.1.1. Techniques of Census Taking

There are two techniques of conducting census, dejure and defacto.

A. DEJURE

This technique is the counting of people according to the permanent place of location or residence.

- **Advantages**

  - It gives permanent picture of a community.
  - It provides more realistic and useful statistics.

- **Disadvantages**

  - Some persons may be omitted from the count. A household member who is temporarily away from home may be missed from being counted unless the enumerator makes sure that nobody is missing.
  - Some may be counted twice.
  - Information collected regarding persons away from home is often incomplete or incorrect.

B. DEFACTO

This technique of conducting census refers to counting persons where they are present at the time of the census period.

- **Advantages**

  - There is less chance for the omission of persons from the count.

- **Disadvantages**

  - Difficult to obtain information regarding persons in transit. These are persons who are, for example travelling and have left their area of permanent residence but haven't reached the area of destination during the census day.
  - It provides incorrect picture of the population in a community.
  - Vital statistics are usually distorted (in areas with high migration).

Ethiopia Public Health Training Initiative • EPHTI

2.1.2. Use of Census

A census is useful for:

- Planning
- Calculating health indicators and vital indices.

2.1.3. Steps in Conducting Census

The major steps to be followed in a census include.

- Planning and preparation
- Collecting information
- Compilation and analysis
- Evaluation

2.1.4. Qualities of a Census

A census must have the following qualities

- It should include every individual in the area (no omission or duplication).
- Information should relate to a well – defined point in time.
- It should be taken at regular intervals (preferably every 10 years).
- It should refer to people inhabiting a well defined territory.
- Information be obtained from personal contact.

2.2. Registration of Vital Events (Statistics)

It is a regular and continuous registration of vital events. Civil registration system, which records births, deaths, marriages etc. (vital statistics), enables rates of population growth to be calculated; but are much less adequate than national censuses. In developing countries where illiteracy rates are high and communications are poor, the problems of recording births and deaths are immense not only in rural populations but also in urban areas. However, efforts are being made to improve the collection of these data in many countries.

2.3. Sample Surveys

A sample survey is another source of demographic data carried out in a scientifically selected area which covers only a section or portion (sample) of the population under consideration.

As countries have began increasingly to formulate population policies as part of their development programs, especially since 1970; so they have required more data about their populations. Demographic surveys have become increasingly important as a comparatively rapid method of obtaining such information. It was recognized that the quality of demographic data available for the developing world was poor and the need

for better data both for scientific study and for policy application is also recognized.

For example, the first ever nation wide population census taken in 1984 in Ethiopia revealed a total population of 42,184,952. However, the population projection based on the two National sample surveys of 1964-71 put the population figure at around 34.6 million for 1984. Thus the census produced an excess population of about 7.4 million (21 % above the projected figure).

Study Questions

1. What is Demography?
2. Name and explain the different sources of demographic data?
3. State the steps that should be fallowed to undertake a population census.
4. Explain the advantages and limitations of sample surveys.

EPHTI Ethiopia Public Health Training Initiative

CHAPTER TWO

DEMOGRAPHIC MEASURMENT TOOLS AND TECHNIQUES

Instructional Objectives

After completing this chapter the learner is able to:

- Stat the measurements used in demographic data
- Calculate ratios, proportions and rates and discuss their importance
- List and calculate the different measures of fertility and mortality

The major demographic processes of fertility, mortality and migration constitute the basic components to determine the size, composition and distribution of a population which require basic tools and techniques of measurement.

1. Tools of Measurement

The tools of measurement include:

- Ratios
- Proportions and
- Rates

1.1. **Ratios**: Ratio is a quecient of any two demographic quantities. It is the result of dividing one quantity by another. Ratio quantifies the magnitude of one occurrence or condition in relation to another. It is expressed in the form of:

$$\frac{a}{b}, \quad \text{or} \quad a ; b$$

Examples:

- Sex Ratio (male – female) = $\frac{\text{Males}}{\text{Females}}$
- Doctor to Population Ratio = $\frac{\text{Number of Doctors}}{\text{Number of Population}}$
- Dependency Ratio = $\frac{\text{No. of People} < 15 \text{ years} + 65 \text{ years and above}}{\text{No. of Population 15-64 years of age}}$

Qualification:

- The numerator and denominator (a and b) are defined for a specific geographic area and period of time.
- The numerator may or may not be a sub – group of the denominator.

1.2. **Proportion:** A proportion is a ratio which indicates the relation in magnitude of a part of the whole. The numerator is always included in the

denominator. A proportion is usually expressed as a percentage.

Example: Males to total population ratio

$$\frac{\text{Males}}{\text{Males + females}} \times 100$$

- Illegitimate Birth Ratio = $\frac{\text{No. of illegitimate live births}}{\text{Total No. of live births}}$ x 100

1.3. Rates: A rate measures the occurrence of some particular event (example death) in a population during a given time period. It is a statement of the risk of developing a condition. It indicates the change in some event that takes place in a population over a period of time. It is defined per unit of time.

$$\textbf{Rate} = \frac{\text{Vital event}}{\text{Population at risk}} \times (K)$$

Example: Death Rate = $\frac{\text{No. of deaths in one year}}{\text{Mid year population}}$ X 1000

A rate comprises the following elements:

- Numerator
- Denominator

- Time specification and
- Multiplier or constant (100, 1000, 10000, 100,000 etc)

A Rate is a ratio or a proportion in which the numerator is part of the denominator. All rates are ratios, but all ratios are not rates.

2. Techniques of Demographic Measurement

A change in the overall size of a population is the result of three cumulative changes in the number of births, deaths and migrants. Since births and deaths occur continuously, and since people frequently change their place of residence, they are the bases of demographic analysis. Depending on their direction and magnitude these processes are important for social and economic planning, in assessing the present needs and the needs of the future expansion of socio-economic infrastructure. The techniques for measuring fertility, mortality and migration are described further.

2.1. Measure of Fertility

Fertility is the reproductive performance of an individual, a couple, a group or a population. It is meant the actual bearing of children. Some demographers prefer to use natality in place of fertility.

Fertility leads to increase of population. It differs from fecundity – which refers to the physiological capability of a woman to reproduce. A woman's reproductive period is roughly 15 – 49 years of age.

The most important measures of fertility include:

2.1.1. Crude Birth Rate (CBR)

The crude birth rate indicates the number of live births (children born alive) per 1000 mid – year population in a given year.

$$\textbf{CBR} = \frac{\text{Number of live births in a year}}{\text{Total mid – year population}} \times 1000$$

In the world CBR varies widely from population to population. It is high for population of the developing countries and low for those of the developed ones.

Example: According to world population data sheet of the Population Reference Bureau the Crude Birth Rate for 2003 was:

- World = 22/1000 population
- More developed counties = 11/1000 population

- Less developed countries = 24/1000 Population
- Less developed (except China) = 28/1000 population
- Africa = 38/1000 population
- Sub-Saharan Africa = 40/1000 population
- Eastern Africa = 41/1000 population
- Ethiopia = 40/1000 population
- Ethiopia = 45/1000 (1984 population census)
- Ethiopia = 44/1000 (1994 population census)

Fertility may be grossly determined as high, medium or low based on CBR values.

High fertility Rate = > 30/1000

Medium fertility rate = 20-30/1000

Low fertility rate = < 20/1000

2.1.2 General Fertility Rate (GFR)

The General Fertility Rate is the number of live births per 1000 females aged 15-49 years (fertile age group) in a given year. The GFR in more sensitive measure of fertility than the CBR, since it refers to the age and sex group capable of giving birth (females 15-49 years of age). It eliminates distortions that might arise due to different age and sex distributions among the total population. The major limitation of GFR is that not all women in the denominator are exposed to the risk of child birth.

$$\textbf{GFR} = \frac{\text{Number of live births in a year}}{} \times 1000$$

Number of females 15-49 years of age

The GFR is approximately four times the CBR.

2.1.3 Age specific fertility rates (ASFR)

The Age specific fertility rate is defined as the number of children born alive to females in a specific age group per 1000 females in that specific age group, example (15-19), (20-24),….. (45-49) years of age.

$$\textbf{ASFR} = \frac{\text{No. of live births to females in a specific age group in a year}}{\text{Mid-year population of females of the same age group}} \times 1000$$

For example, ASFR for women 20 – 24 years of age is expressed as:

$$\textbf{ASFR (20-24)} = \frac{\text{Live births to women 20- 24 years of age}}{\text{Total No. of females 20 – 24 years of age}} \times 1000$$

For instance if there were 4,000,000 women (females) in the age group 20-24 years and if the there were 200,000 live births to women in the same age group, the Age specific fertility rate for these women (20-24 years of age) will be;

$$\textbf{ASFR (20-24) years of age} = \frac{200{,}000}{} \times 1000 = 50$$

4,000,000

That is, there are 50 live births for every 1000 women 20-24 years of age.

2.1.4. Total Fertility Rate (TFR)

The total Fertility Rate is the average number of children that would be born to a woman throughout her life time or her child bearing age (15-49 years), if she were to pass through all her child bearing years at the same rates as the women now in each age group.

The TFR sums up in a single number the Age Specific Fertility Rates of all women at a given point in time. If 5 – year age groups are used, the sum of the rates is multiplied by 5. This measure gives the approximate magnitude of "completed family size".

The TFR is one of most useful indicators of fertility, because it gives the best picture of how many children women are having currently.

TFR = Sum of all Age specific fertility rates multiplied by age interval

(Usually 5).

Example:

Table 2.1: Calculation of Total Fertility Rate

Age group of mothers	**Number of Women**	**Number of live births to the age group**	**Age specific birth rates**
15-19 years	1,237,721	117,583	0.095
20-24	978,136	268,987	0.275
25-29	979,623	283,111	0.289
30-34	989,693	254,351	0.257
35-39	814,243	162,034	0.199
40-44	548,882	57,633	0.105
45-49	406,540	22,766	0.056
Total	5,954,838	1,166,465	1.276

TFR* = *5 x 1.276 = 6.38

i.e. 6.38 children per woman in her reproductive life.

Total fertility rate also varies widely between populations in the world. It is higher for developing countries than developed ones. According to World Population Data Sheet of the population Bureau the TFR for 2003 was:

- World = 2.8 children per woman
- More Developed Countries = 1.5 children per woman

- Less developed countries = 3.1 Children per woman
- Less Developed countries (Excluding china) = 3.5 Children per woman
- Africa = 5.2. Children per woman
- Sub – Sahara Africa = 5.6 Children per woman
- Eastern Africa = 5.6 Children per woman
- Ethiopia = 5.9 Children per woman
- Ethiopia 1994 = 6.5 Children per woman
- Ethiopia 1984 = 7.2 Children per woman

2.1.5. Gross Reproduction Rate (GRR)

The Gross Reproduction Rate is the average number of daughters that would be born to a woman throughout her lifetime or child bearing age (15-49 years), if she were to pass through all her child bearing age.

This rate is like the TFR except that it counts only daughters and literally measures "reproduction"; a woman reproducing herself by having a daughter.

The GRR is calculated by multiplying the TFR by the proportion of female births (Sex Ratio at birth).

$$\textbf{GRR} = \textbf{TFR} \times \frac{\text{Male births}}{\text{Male + Female births}}$$

Example: - The sex ratio at birth of Ethiopia (2001) = 100.6
(i.e 100.6 males for every 100 females)

- and the TFR (2001) = 5.9 (5.9 children per women)

GRR = TFR X proportion of female births

$$GRR = 5.9 \times \frac{100}{200.6} = 2.94$$

= 2.9 daughters /woman

2.1.6. Child – Woman Ratio (CWR)

Child woman ratio is defined as the number of children 0 – 4 years of age per 1000 women of child bearing age, (15 -49 years). This ratio is used where birth registration statistics do not exist or are inadequate. It is estimated through data derived from censuses.

$$\textbf{CWR} = \frac{\text{No of children 0 – 4 years of age}}{\text{Total No of women 15 – 49 years age}} \times 1000$$

Example:

If the number of children under 5 years of age in an area is 2,000,000 and the number of women 15 – 49 years of age is 8,000,000.

$$\textbf{The CWR} = \frac{2{,}000{,}000}{8{,}000{,}000} \times 1000 = \frac{250}{1000}$$

That is 250 children 0 – 4 years of age (under five) per 1000 women of the reproductive age.

2.2. Measures of Mortality (Death)

Mortality refers to deaths that occur within a population (reduction of population). The incidence of death can reveal much about the living standard, the health status of a population and the availability of health services.

Mortality (Death) rates have three essential elements:

- A population group exposed to the risk of death (denominator)
- The number of deaths occurring in that population group (numerator)
- A time period.

Measures of mortality include:

2.2.1. Crude Death (Mortality) Rate (CDR)

The crude death rate is the number of deaths per 1000 population in a given year.

$$\textbf{CDR} = \frac{\text{Total number of deaths in a year}}{\text{Mid-year population}} \times 1000$$

As its name implies the CDR is not a sensitive measure (indicator) of health status of a population. It is affected by particularly the age structure of the population.

Crude Death Rate also varies between populations of the world. According to the "World Population Data Sheet of the population Reference Bureau the crude Death Rate during 2003 was.

- World = 9 deaths per 1000 population
- More developed countries =10 deaths per 1000 population
- Less Developed countries = 8 deaths per 1000 population
- Less Developed countries (Excluding China) = 9 deaths per 1000 population
- Africa =14 deaths per 1000 population
- Sub – Saharan Africa =16 deaths per 1000 population
- Eastern Africa = 17 deaths per 1000 population

- Ethiopia = 13 deaths per 1000 population
- Ethiopia 1994 = 15 deaths per 1000 population
- Ethiopia 1984 = 19 deaths per 1000 population

2.2.2. Age specific Death (Mortality) Rates

Death Rates can be calculated for specific age groups, in order to compare mortality at different ages. E.g. for infants (< one year of age), children 1-4 yeas of age, children under five years, etc.

$$\text{ASMR} = \frac{\text{Number of deaths in a specific age group}}{\text{Mid-year population of the same age group}} \times 1000$$

- **Infant Mortality Rate (IMR)**

Infant Mortality Rate is the number of deaths of infants under one year of age (0-11 months of age) per 1000 live births in a given year.

Infant (children under one year of age) are at highest risk of death than any other age group.

$$\textbf{IMR} = \frac{\text{Number of death of children < 1 year of age in a year}}{\text{Total live births during that year}} \times 1000$$

The infant mortality rate is considered to be a sensitive indicator of the health status of a community, because it reflects the socio-economic condition of the population; i.e. the level of education, environmental sanitation, adequate and safe water supply, communicable diseases, provision of health services etc. These factors mostly affect infants and children under five years of age. Hence, IMR widely varies between countries in the world.

According to the "world population Data sheet of the population reference Bureau for 2003", the infant mortality rate of:

- World = 55 infant deaths per 1000 live births
- More developed countries = 7 infant deaths per 1000 live births
- Less developed countries = 61 infant deaths per 1000 live births
- Africa = 88 infant deaths per 1000 live births
- Sub Saharan Africa = 93 infant deaths per 1000 live births
- Easter Africa = 102 infant deaths per 1000 live births
- Ethiopia = 97 infant deaths per 1000 live birth
- Ethiopia (1994) = 110 infant deaths per 1000 live births

- **Child Mortality Rate (CMR)**

It is the number of deaths of children 1-4 years of age per 1000 children 1-4 years of age. It is a sensitive indicators of the health status of a community.

$$\textbf{CMR} = \frac{\text{Number of deaths of children 1-4 year of age in a year}}{\text{Total number of children 1-4 years of age}} \times 000$$

- **Under Five Mortality Rate (<5MR)**

It is the number of deaths of children under five years of age in a year (0-4 years of age) per 1000 children under five years of age (0-4 year). It is also a very good indicator of the health states of a community

It can also be calculated as the number of deaths of children under five years of age in a year per 1000 live births.

$$\textbf{<5MR} = \frac{\text{Number of deaths of children <5 yrs in a year}}{\text{Total number of children < 5 years of age}} \times 1000$$

OR

$$\textbf{< 5MR} = \frac{\text{Number of deaths of children <5years in a year}}{\text{Total live births in the same year}} \times 1000$$

- According to Health and Health Related Indicators (MOH), the under five mortality Rate of Ethiopia is estimated to be:
  - 140/1000 live births, currently
  - 161/1000 live births, (1994)

➢ **Neonatal Mortality Rate (NNMR**)

Neonatal period is the first month of age of an infant. Neonatal mortality (death) is the death of infants under one month (<4 weeks). Per 1000 live births.

$$\textbf{Neonatal Mortality Rate (NNMR)} = \frac{\textbf{Number of deaths of infants < 1 mouth in a year}}{\text{Total number of live births in the same year}} \textbf{ X 1000}$$

Neonatal mortality rate reflects mortality due to:

. Maternal factors during pregnancy

. Birth injuries

. Neonatal infection, etc.

It is an indicator of the level of prenatal and obstetric components of maternal and child health care (MCH).

- **Post-Neonatal Mortality Rate (PNNMR)**

The past neonatal age is the period of time between one month up to one year.

Post – Neonatal mortality (death) is deaths of infants one month (four weeks) of age up to one year (1 – 11 months age of) per 1000 live births.

$$\textbf{PNNMR} = \frac{\text{Number of deaths of infants 1 month to 1 year of age in a year}}{\text{Total Number of live births during the same year}} \times 1000$$

The post-neonatal mortality rate reflects deaths due to factors related to;

- Environmental sanitation
- Infections (communicable diseases)
- Nutritional problems
- Child care etc.

It can be used as an indicator to evaluate Maternal and Child Health Care services and socio-economic development of a community or country.

2.2.3. Maternal Mortaly (Death) Rate (MMR)

Maternal mortality rate is the number of maternal deaths related to pregnancy, child birth and post natal (peurperium) complications per 1000 live births (usually per 100,000 L.B).

$$\textbf{MMR} = \frac{\text{Number of deaths of women related to pregnancy child birth and peurperium in a year}}{\text{Total number of live births in the same year}} \times 100{,}000$$

It is a sensitive indicator of health status of a population. It reflects the socio- economic status of a community.

The Maternal Mortality Rate of Ethiopia is estimated to be more than 850 deaths per 100,000 live births annually. This is among the highest in the world.

2.2.4. Sex Specific Death Rates (SSDR)

Sex Specific Death Rate is the number of deaths among a specific sex group (males or females) per 1000 population of the same sex group.

$$\text{Sex specific Death (Mortality) Rate for males} = \frac{\text{Number of deaths among males}}{\text{Total number of males}} \times 100$$

Sex specific mortality rate is used to determine which sex group is at higher risk of death than the other.

Study Questions

1. What are ratios, proportions and rates? Explain their differences.
2. Distinguish the difference between natality, fertility and fecundity
3. List and define the important demographic measures of fertility and mortality.

Ethiopia Public Health Training Initiative • EPHTI • Ethiopia Public Health Training Initiative

4. Exercise on Fertility & Mortality

A survey was conducted in town "X" in September 2003. It revealed a total population of 389,000 (196,500 males and 192,500 females). Total number of children born a live during the previous year was 16,400. The survey has also recorded a total of 5835 deaths (3200 meals and 2635 females) during the same year. The survey has also identified the following deaths among the population.

- Children < 1 month = 370
- Children 1 month - 11 months =1100
- Children 1 year – 4 years = 1865
- Children 5 – 4 years = 800
- Persons 15 – 49 years = 700
- Previous 50 years and above = 1000
- Death of mothers during pregnancy and child birth =130

Questions

Based on the above data provided and tables 1and2, calculate the following measures of fertility and mortality. If there no date available to calculate any one of the following measures of fertility or mortality your answer has to be "Data Not Available".

1. Crude Birth Rate
2. Crude Death Rate
3. General Fertility Rate
4. Infant Mortality Rate
5. Neonatal Morality Rate
6. Post Neonatal Rate
7. Sex Ratio at Birth
8. Under five morality Rate
9. Sex Specific Mortality Rate for Females
10. Sex specific Mortality Rate for Males
11. Maternal Mortality Rate
12. Total Fertility Rate
13. Gross Reproductive Rate

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative • EPHTI

CHAPTER THREE

GROWTH OF POPUALTIONS

Instructional Objectives

After completing this chapter the learner is able to:

- Define demography
- Identify the different sources of demographic data
- Explain the differences between the major sources of data
- List and state steps needed in conducting population census

If we assume that the number of individuals entering a population (immigration), equals the number of leaving (emigration), population growth is the result of the increase of births over deaths. This relationship is summarized by a formula known as the balancing equation. It is expressed as:

$$P_2 = P_1 + (B - D) + (I + E)$$

Where:-

P_2 = Size of population for the year under consideration

P_1 = Size of population in the preceding year

B = Number of births between the two dates

D = Number of deaths between the two date.

I = Number of immigrants in the time under consideration (between P_2 and P_1)

E = Number of emigrants in the time under consideration (between P_2 and P_1)

The differences between births and deaths in a population produces the **Natural** Increase (or Decrease) of a population. The rate of Natural Population increase is the rate at which a population is increasing (or decreasing) in a given year due to excess (or deficit) of births over deaths expressed as a percentage of the base population.

$$\textbf{RNI} = \frac{\text{Births} - \text{Deaths}}{\text{Total Population}} \times 100$$

OR

$$\frac{\text{Birth Rate} - \text{Death Rats}}{10}$$

Net Migration: is the difference between the numbers of persons entering a geographic area (Immigrants) and those leaving the area (emigrants).

Total Population Growth Rate

It is the rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration expressed as a percentage of the base population.

$$\textbf{Total Growth Rate} = \frac{\text{Natural increase + Net Migration}}{\text{Total Population}} \times 100$$

1. Reasons For Population Growth

Thomas Malthus, (1766-1834), English clergyman and economist in his “essay, “The Principles of Population”, hypothesised that there is relationship between economic development and population growth. He claimed that population was increasing faster than food production, and he feared eventual global starvation.

Malthus was criticized that he could not foresee how modern technology would increase food production, and that he considered people only as consumers, but they are also producers, since “with every mouth God sends a pair of hands”. However, his observations how populations increase and his arguments are important when there are fixed resources such as land, energy resources, etc.

He suggested that populations tend to grow in geometric progression (Exponential), doubling in size every 'n' years depending on the population growth rate; while food supplies can at best grow in arithmetic progression.

Geometric Progression:- A series of ordered numbers is said to be in geometric progression if the proportion of any two adjacent numbers is the same.

e.g. 3, 9, 27, 81 ……..; or 1, 2, 4, 8, …….. etc.

Population size over a period of years is said to follow a geometrical pattern of growth, if the change within a particular year is proportional to the population size at the beginning of that year.

Arithmetic progression:- a series of figures is said to be in arithmetic progression, when the difference between any two adjacent figures is the same.

e.g. 3, 5, 7, 9, 11,……; or 1. 2, 3, 4, …….. etc.
Population size over a period of years is said to be in arithmetic progression, if the size changes by a constant amount each year.

The doubling time of a population is the number of years it would take for a population to double in size if the present rate of growth remained unchanged. Its purpose has been to emphasize how quickly populations can grow, doubling their numbers geometrically. Doubling time cannot be used to

project future population size because it assumes a constant growth rate over decades, where as growth rates do change over time. To calculate doubling time, divide the number 70 (actually 69.3 for better accuracy) by the population growth rate expressed in percent. For example a country with a population growth rate of one percent would double its population in about 70 years; at 2% in 35 years; at 3% in 23 years.

$$\textbf{Doubling Time} = \frac{70}{\text{Population Growth Rate}}$$

Malthus said that if the growth of population exceeds that of food, preventive checks such as continence (self resistance in refraining from sexual intercourse) and delayed marriage must be introduced; or Positive Checks, such as starvation or famine, disease and war will plague the society. He grouped these checks under the heading of "Misery and Vices".

2. Population Growth Forms

Populations have characteristic patterns of increase which are called **Population Growth Forms.**

There are two patterns of population growth forms.

A. Exponential Growth Form (J - Shaped Growth Curve)

In this growth form density increases rapidly in exponential or compound interest fashion, when there is no environmental restrictions; and then stops abruptly as environmental resistance or other limits of resources become effective more or less suddenly. This resistance is the carrying capacity, the upper level beyond which no major increase can occur (K).

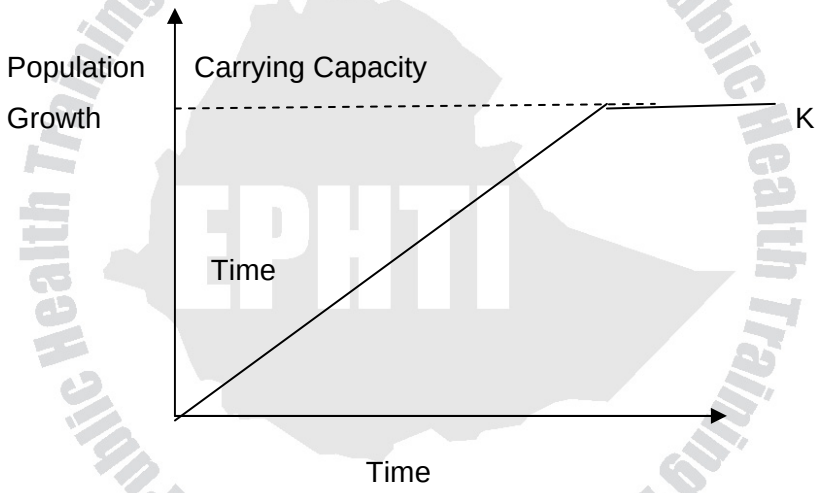


Fig. 3.1.: Exponential Grow Curve (J – shaped)

B. Sigmoid Growth Form (S - Shaped)

In this growth form the population increases slowly at first (establishment or positive acceleration), then increases more rapidly (perhaps approaching a logarithmic phase), but soon it slows down gradually as the environmental resistance

increases percentage wise (the negative acceleration phase), until a more or less equilibrium level is reached and maintained that is the carrying capacity, showing more or less an S – shaped curve.

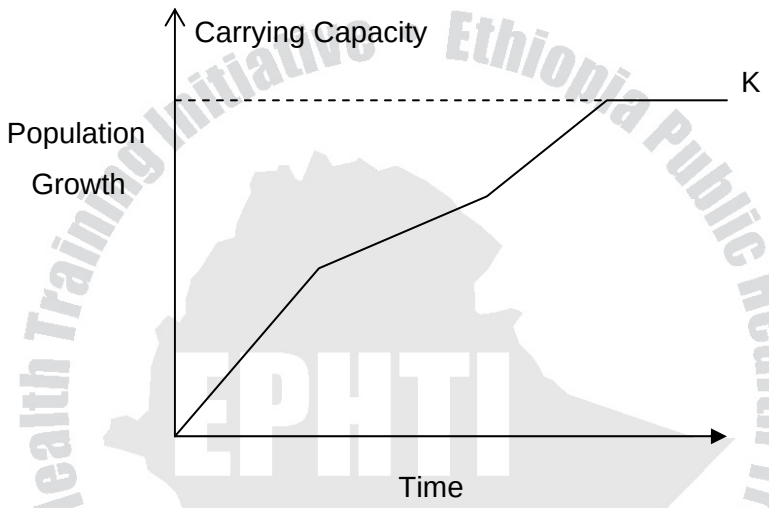


Fig. 3.2: Sigmoid Growth Curve (S- shaped)

3. Population Dynamics

- **Definition**

Population dynamics is the study of the changes in population size and structure over time

- **Major Factors in Population Dynamics**

  Three major factors or variables determine the population of a defined area and its growth over time. There are:

  - Births (Fertility)
  - Deaths (Mortality)
  - Migration
    a) immigration (in migration)
    b) emigration (out migration)

The balance among these three factors determines whether a population increases, remains stationary, or decreases in number. The relation between births and deaths is referred to as Natural Population Increase (Natural Population Growth). When the net effect of migration is added to natural increase, this is referred to as Total Increase (Total Growth).

4. Population structure (composition)

Aside from the total size, the most important demographic characteristic of a population is its population structure. Population structure refers to the composition of the population in terms of Age, sex, occupation, religion, educational status, geographical distribution, socio– economic status etc. The structure of a population is influenced or

affected by births, deaths and migration and their predisposing factors.

The age – sex structure determines potential for future growth of specific age groups, as well as the total population. For these reasons the age structure has significant government policy implications. A population of young people needs a sufficient number of schools and later, enough jobs to accommodate them. Countries with a large proportion of older people must develop retirement systems and medical facilities to serve them. Therefore, as a population ages needs change from child care schools and jobs tol to jobs, housing, and medical care.

5. Population pyramid

The age–sex structure of a country can be studied through population pyramids. Population pyramids show pictorially (graphically) the effects of the three factors that influence population. The overall shape of the pyramid indicates the potential for future growth. Population pyramids present the population of an area or country interms of its composition by age and sex at a point in time. The series of horizontal bars in a pyramid represent the percentage contribution of each age and sex groups (often of five years age group interval) in the population. A glance at a population pyramid can tell a great

deal about that population. One can easily see whether a population is young or old. By convention males are shown on the left and females on the right of the pyramid. Young persons at the bottom and the elderly at the top.

The ratio or percentage of the various age groups in a population determines the current reproductive status of the population and indicate what may be expected in the future.

The shape of the pyramid reflects the major influences on births and deaths, plus any change due to migration over three or four generations proceeding the date of the pyramid. The following four representations of population age – sex structure provide an overall example of what a pyramid for different levels of population growth would look like – rapid growth, slow growth, zero growth and negative growth (Fig 3.3).

a. A pyramid with a Broad Base

This indicates a high percentage of young population. Rapid population growth. The low survivorship and high natality of human population in many developing countries result in a pyramidal stable age - structure, in which most of the population is young.

b. A Bell shaped Polygon:-

This indicates a moderate proportion of young to old Population. Slow population growth.

c. A Rectangular Polygon:-

In a more developed countries high survivorship and low natality produce populations with an almost rectangular, stable age structure in which all age groups are equally abundant. Zero population growth.

d. An Urn - shaped Figure

This type of shape indicates a low percentage of young Population, which is characteristic of a declining Population. Negative population growth.

6. The Ecological Ages

The ecological age include:

- Pre - reproductive - Population less than 15 year old
- Reproductive - Reproductive age groups (15 - 49 years)
- Post reproductive - Elderly people (> 49 years - females)

A stationary population will have a more even distribution of all age classes.

A rapidly expanding population will usually contain large proportion of young individuals. A declining population will contain a large proportion of old individuals and a small proportion of young individuals.

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative • EPHTI

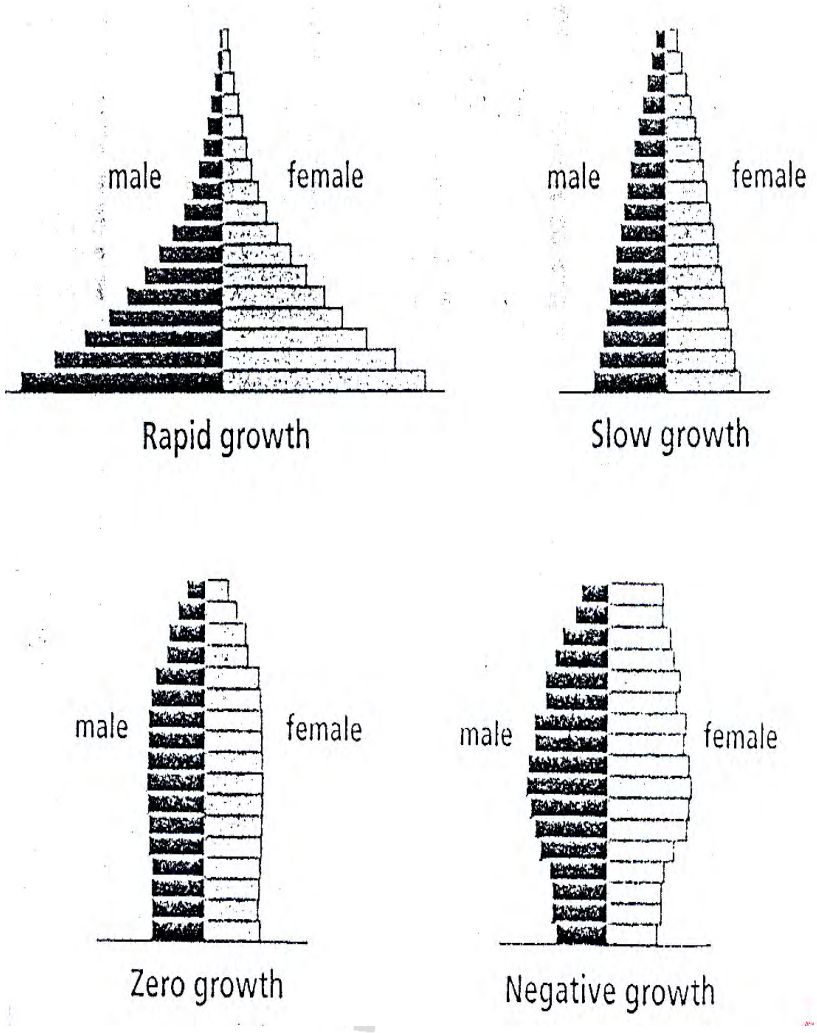


Fig. 3.3. Age- Sex Structure in Transition

7. Type of Populations

Population s may be categorized into four major groups depending on their state of expansion:

a. TYPE I - EXPANSIVE

This is characteristic of traditional poor countries indicated by:-

i. High Fertility
ii. High Morality
iii. High proportion of children (young age)
iv. Moderate Growth Rate.

b. TYPE II - EXPANSIVE

Includes modern, less developed countries characterised by:-

i. High Fertility
ii. Declining Mortality
iii. High Growth Rate
iv. Very young population

c. TYPE III - STATIONARY

This includes contemporary developed countries characterised by:-

i. Declining Fertility
ii. Declining Mortality
iii. Moderate Growth Rate
iv. Aging population

d. TYPE IV - CONSTRICTIVE

These are future developed countries characterised by:-

i. Low fertility
ii. Low Mortality
iii. Ceasing Growth Rate
iv. Very old Population

8. Theory of Demographic Transition

Demographic transition is the historical shift of birth and death rates from high to low levels in a population; a term used to describe the major demographic trends of the past centuries (Fig 3.4)

The change in populations basically consists of a shift from an equilibrium condition of high birth and death rates, characteristic of agrarian societies to a newer equilibrium in which both birth and death rates are at much lower level.

The period of transition, at least in Western Europe, was initiated by a drop in death rates that was followed some years later by a fall in birth rates. The intermediate period was one of a rapid population growth (population explosion). The period of transition is described by four major stages.

STAGE ONE

Agrarian civilizations (primitive stage) are characterised by stable or slowly growing populations with crude birth rates greater than 45 per 1000 and crude death rates greater than 35 per 1000 births. Agricultural existence favours large families. However high birth rates are balanced by high death rates from diseases famine, war etc resulting in very low population growth.

STAGE TWO

Advances in sanitation and improved availability and quality of food, water, and shelter lead to fall in death rate and an increase in life expectancy. This has usually occurred without an immediate change in birth rate; however, the improved conditions of life may favour an increase in fertility. During this period, a marked excess of births over deaths developed leading to a rapid expansion of population.

STAGE THREE: Characterized by falling growth Rates.

After a time, birth rates tend to fall, largely as a reflection of industrialisation and consequent urbanisation. With industrialization people tend to migrate from rural to urban areas. Urban living not only breaks the traditional patterns but also creates incentives for having small families. Living quarters are cramped, children being a financial liability rather than asset. There is a grater need for cash, since food and clothing can no longer be produced at home. For these reasons husbands and wives are impelled to seek work outside the home for wages. There is a greater geographic proximity to health care service and to the availability of information and service for disease and family planning. These various factors increase the likelihood that contraceptive practices will be adopted. In some places abortion has been included in the measures available for the control of fertility.

This stage is a situation in which birth rates and death rates are again essentially in balance, but at a lower level as compared with those of the primitive first stage, when both crude birth rate and crude death rate are in the vicinity of less than 20 per 1000 and 10 per thousand respectively.

STAGE FOUR

This stage is reached in highly developed societies when both birth and death rates are low and population growth rates are zero or even negative.

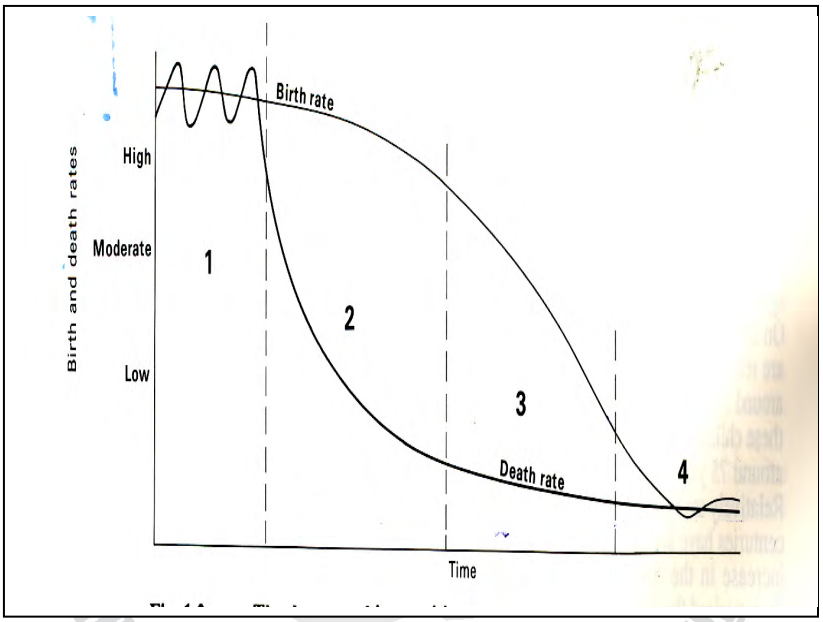


Fig: 3.4: The Demographic Transition Model

Study Questions

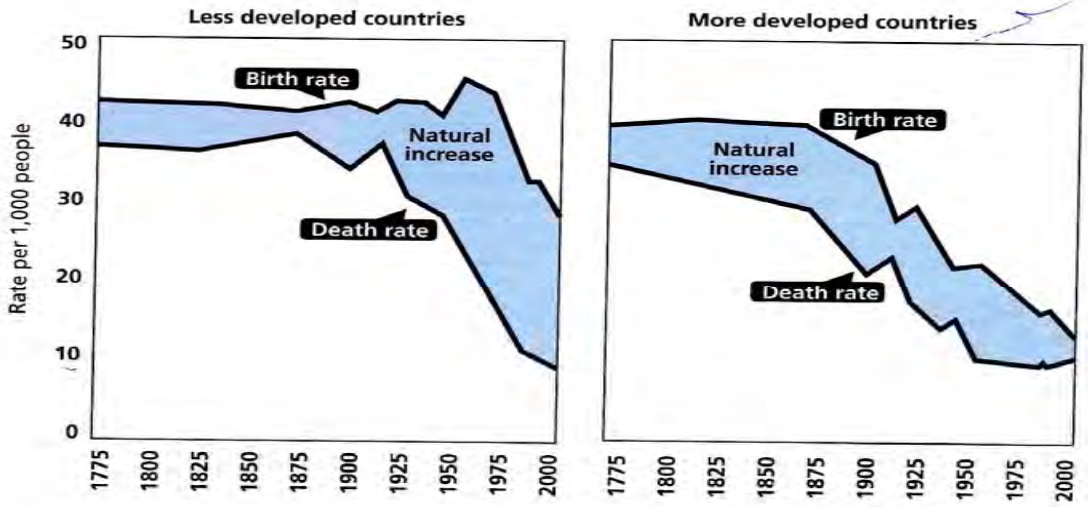
1. Define the following demographic terms Natural population increase, Progression, Population doubling time, Population Dynamics.
2. Discuss the hypothesis of Thomas Malthus on Population Growth.
3. Explain the differences between the Exponential Growth Form and the sigmoid Growth Form of populations.
4. What is the demographic transition and why was population growth so slow during the first stages of the transition.
5. How can the Age-sex structure of a population determine the needs of that population?
6. What does it mean to have a “young” or “old” population?
7. A population structure of District “A” is indicated in table 3.1. Draw a population pyramid of District “A” based on the table and identify what type of pyramid it is.
8. Figure 3.5. Shows population growth through Natural Increase, 1775–2000.
    a. What were the levels of birth and death rates in less developed countries and in more developed countries in 1775?

b. Describe how the birth and death rates in the less developed and more developed countries changed from 1775 to 1995?

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative
EPHTI

Table 3.1. Population structure of Town “A” by Age and Sex, September 2003

Age Groups	Male		Female		Total	
	Number	**%**	**Number**	**%**	**Number**	**%**
0 – 4	26,000		24,000		50,000	
5 – 9	18,000		22,000		40,000	
10 – 14	14,000		16,000		30,000	
15 – 19	10,000		12,000		22,000	
20 – 24	9,000		10,000		11,000	
25 – 29	8,000		10,000		1,800	
30 – 34	6,000		7,000		13,000	
35 – 39	5,000		6,000		11,000	
40 – 44	4,500		3,500		8,000	
45 – 49	4,000		4,000		8,000	
50 – 54	3,200		3,000		6,200	
55 – 59	3,000		2,500		5,500	
60 – 64	2,800		2,000		4,800	
65 – 69	2,500		1,500		4,000	
70 - 74	2,400		1,200		3,600	
75 – 79	2000		1,000		3,000	
> 80	2,200		1,400		3,600	
Total			**127,100**		**249,700**	



Source: Population Reference Bureau.

Fig: 3.5. Population Growth Through Natural Increase 1775 – 2000

Initiative • Ethiopia

CHAPTER FOUR

WORLD POPULATION GROWTH, CURRENT TRENDS, PATTERNS AND INTERPRETATIONS

Instructional Objectives

After completing this chapter the learner is able to:

- Trace and discuss the major trends and pattern of world population growth before and after 1750 AD.
- Name the fastest and lowest growing regions and countries of world population.
- List and discuss factors which influence fertility and mortality differentials among region of the world.
- Discuss the causes and effects of internal and international migration.

Anthropologists believe, that human species dates back at least 3 million years. For most of our history these distant ancestors lived a precarious existence as hunters and gatherers. This way of life kept their total numbers small, probably less than 10 million. However, as agriculture was

introduced, communities evolved that could support more people.

World population expanded to about 300 million by A.D. 1 and continued to grow at a moderate rate. But after the start of the Industrial Revolution in the 18th century, living standards rose and widespread famines and epidemics diminished in some regions. Population growth accelerated. The population climbed to about 760 million in 1750, reached 1 billion around 1800, and 6 billion by the end of the twentieth century (Fig. 4.1. and 4.2).

World population accelerated after world war II, when the population of less developed countries began to increase dramatically. After million of years of extremely slow growth, the human population indeed grew explosively, doubling again and again; a billion people were added between 1960 and 1975; another billion were added between 1975 and 1987. Throughout the 20th century each additional billion has been obtained in a shorter period of time.

July 11, 1987 was designated as the day on which world population reached 5000 million- ‘a day to celebrate’, ‘a day to contemplate’. October 12 , 1999 was also celebrated in which the population reached 6000 million.

It is estimated that population numbers had grown to 1000 million around 1800, and by 1900 the total was 1,700 million. By the end of the 1st half of the 20th century the figure was 2500 mill, and less than 40 years later had reached 5000 million, a huge figure in the context of the history of the world population growth.

By 2000 the number has grown to 6,100 million. Human population entered the 20th century with 1.6 billion people and left the century with 6.1 billion people.

The history of the world population growth can be divided into 2 periods. For most of the time that human beings have inhabited the planet, population has grown very slowly indeed. The pace of growth began to increase from around the beginning of the 18th century, accelerating to the very rapid rates characteristic of the 2nd half of the 20th century. During the 1960's the rate of growth was 2 % per anum, a rate double that of the 1st half of the 20th century, which inturn was double that of the 19th century.

1. World Population Distribution & Regional Growth Rates.

The rapid growth of world population, especially in the 2nd half of the 20th century, had been accompanied by a shift of

population away from the developed regions of the world towards the developing world.

During the last two centuries most of the world's people lived in Asia, while relatively few lived in Latin America, North America and Oceania. Europe ranks second to Asia, but its share is decreasing while Africa's share is increasing.

Prior to 1800 Asia's population represented roughly two thirds of the world total. Europe and Africa fluctuated, each usually holding between 15% and 20% of the world population. The remaining few people were scattered in Latin America, North America and Oceania with Latin America having the largest number. By 1800, the Industrial Revolution began in Europe and its share of global population increased. Asia maintained two thirds of the world's people and Africa's share declined. Less than 5% resided in the Americas and Oceania combined. By 1900, Asia's share of the world population declined to about one half, while Europe North America and Latin America grew rapidly.

In 2000, Asia's population rose again to account for 60% of the world total. Africa's share increased to be equal to Europe's portion. It current trends continue, Asia will remain at 60% of the world total in 2050. Africa's share will rise to about

20% and Europe's share will drop below Latin America's-less than 10%.

The more developed countries in Europe and North America, as well as Japan, Australia, and New Zealand, are growing by less than one percent annually. Population growth rates are negative in many European countries, including Russia (-0.6%), Estonia (-0.5%), Hungary (-04%), and Ukraine (-0.4%). If the growth rates of these countries continue to fall below zero, population size would slowly decline.

The largest absolute growth in the world was taking place in South Asia. Up to the year 2000, South Asia was expected to add about 33 million people a year to world population, and then about 30 million a year to 2025. Its share of world population will increase from 32 % in 1980 to 34 % by 2025, even though its growth rate will have declined from 2.3. % in 1980 to 1.5 % by 2000-5 and 0.9 % by 2020-25.

On the other hand, East Asia (which includes China) experienced the largest decline of growth rate in the 1970's from 2.1 % in 1970 -75 to 1.2 % in 1980-85 , largely as a result of the dramatic decline in fertility that took place in China during this period. This sharp decline in the growth rate in China is expected to continue to the end of the century and

beyond, reaching to 0.1 % by 2025 in China and 0.5 % in the region. Although the rising from 1250 million in 1985 to a projected 1721 million in 2025, East Asia's share of world population is expected to decline from 26 % in 1980 to 21 % by 2025.

At the other end of the spectrum, Europe is the lowest growing region of the world. Its rate of growth has declined from 0.9 % per annum in 1960-65 to 0.3 % in 1980-85, and is expected to fall further to 0.2 % in 2000- 5, finally achieving near 0 growth rates of 0.04 % by 2020-25. Both N. America and USSR have similar slow growth rates and their respective share of world population are expected to decline from about 6 % in 1980 to just over 4 % in 2025. (Table 4.1)

Africa had the highest average annual growth rate at around 3.0% in 1985-90. This had decreased to about 2.4% by 2000, and there will be a slow decline to 1.9% by 2020-25. The population of Africa grew from 479 million in 1980 to 872 million by 2000 and 1617 million in 2025, when it will comprise 20% of the world's population compared with only 9.0% in 1950 and 11.0% in 1980.

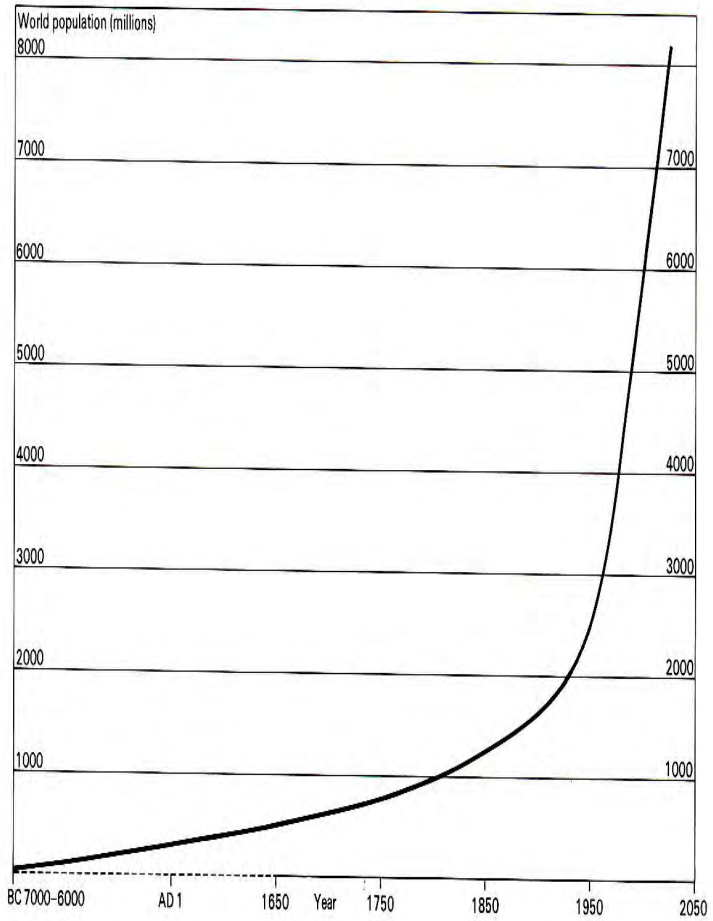
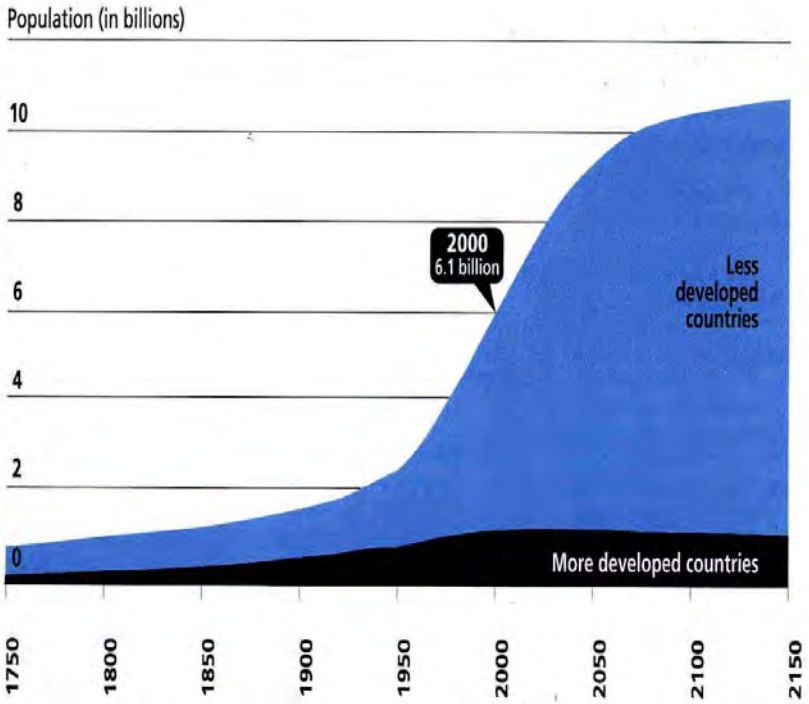


Fig. 4.1.: World Population Growth



Source: United Nations, *World Population Prospects, The 1998 Revision*; and estimates by the Population Reference Bureau.

Fig. 4.2 World Population Growth, 1750 - 2150

Table 4.1: Distribution Of World Population By Regions (%) 1950, 1990 2025

	1950	**1990**	**2025**
Africa	8.8	12.1	18.8
Latin America	6.6	8.5	8.9
Asia	54.7	58.8	57.8
China	22.1	21.5	17.8
India	14.2	16.1	17.0
Other Asia	18.4	21.2	23.0
North America	6.6	5.2	3.9
Europe	15.6	9.4	6.1
Oceania	0.5	0.5	0.5

But world population distribution and growth rates are very different from the distribution of world wealth (Table 4.2 and 4.3.) The per capita income of the poorest nations rose by only 1 % a year between 1960 and 1981 and at the 1985 data the per capita income of the richest country (United Arab Emrates) is 174 times that of the poorest country (Ethiopia). Overall the economies of the developing world grew by 1.9 % per annum between 1980 and 1982 while their populations grew by 2.0 % per annum.

Table 4.2.World Population Numbers, Vital Rates & GNP In 1992.

	Population timate mid 92 (Millions)	Crude Birth Rate (Per 1000)	Crude Death Rate (Per 1000)	Natural increase (%)	Population Doubling time (year at current rate)	Per Capita GNP (GNI) 1990 (US $)
World	5,420	26	9	1.7	41	3,790
Developed	1,224	14	9	0.5	148	17,900
Developing	4,196	30	9	2.0	34	810
Africa	654	43	14	3.0	23	630
Asia (excluding China	2,042	30	10	2.0	34	2,520
China	1,166	20	7	1.3	53	370
North America	283	16	8	0.8	89	21,580
Latin America	453	28	7	2.1	34	2,170
Europe	511	12	10	0.2	338	12,990
Oceania	28	20	8	1.2	57	13,190

Table 4.3 Comparison of Gross National Income and Gross National Income in PPP, (1999)

Country	Gross National Income per Capital (US$)	Gross National Income in Purchasing Power Parity Per Capita (US$)
Brazil	4,350	6,840
China	780	3,550
Ethiopia	100	620
India	440	2,230
Indonesia	600	2,660
Japan	32,030	25,170
Nigeria	260	770
Rusia	2,250	6,990
Switzerland	38,380	28,760
United States	31,910	31,910

Purchasing Power Party (PPP)

Gross National Income or Gross National Product (GNI or GNP) is the total of all goods and services produced within a country, plus net income earned abroad by nationals. GNI PPP refers to gross national income converted to "International" dollars using a purchasing power party

conversion factor. International dollars indicate the amount of goods or services one could buy in the USA with a given amount of money.

GNI PPP provides an indicator of the welfare of people that is comparable across countries free of price and exchange rate distortion that occur when GNI is converted using market exchange rates. In Ethiopia, for example, GNI per capita is low, US$100 (table 4.3.); but when adjusted for purchasing power, it rises considerably to US$ 620, a result of the lower cost of goods and services in Ethiopia relative to the United States. In other words, US$100 in Ethiopia would buy purchases worth US $620 in the United States.

The changing pattern of growth rates will have enormous implications for the future size of nation states. Whereas in 1990 the 25 most populous countries included only ten with populations of more than 100 million, by 2025 there will be 15 countries with such huge numbers (Table 4.4).

In 1990, five European countries are included in a list of the 25 most populous countries while only two, France and the UK, appear in a list for the year 2025. Meanwhile, seven African countries have moved into the list by 2025 (including Ethiopia) compared with only three in 1990. Nigeria will have moved

from 10th most populous country with over 109 million people to sixth most populous country with over 281 million people. Kenya, in 1992 was the world's fastest growing country with an annual growth rate of bout 4 % (Doubling time about 18 years), had a population of under 6 million in 1950. This had grown to 26.2 million by 1992 and 29.8 million in 2001. The population growth rate of Kenya (2001) was 2%, and if this trend continues Kenya will have a population of about 60 million by 2035.

Table 4.4: The 25 Most Populous Countries Ranked By Size, Medium Variant, 1990 and 2025.

1990		2025	
Country	**Population (Millions)**	**Country**	**Population (Millions)**
China	1139	China	1513
India	853	India	1442
USSR	289	Former USSR	352
USA	249	USA	300
Indonesia	184	Indonesia	286
Brazil	150	Nigeria	281
Japan	123	Pakistan	267
Pakistan	123	Brazil	246

Bangladesh	116	Bangladesh	235
Nigeria	109	Mexico	150
Mexico	89	Japan	127
Vietnam	67	Ethiopia	127
Philippines	62	Vietnam	117
Germany (Fed. rep-of)	61	Iran	114
Italy	57	Philippines	112
United Kingdom	57	Zaire	99
France	56	Egypt	90
Turkey	56	Turkey	88
Thailand	56	Tanzania	85
Iran	55	Thailand	81
Egypt	52	Kenya	79
Ethiopia	49	Burma	73
Republic of Korea	43	South Africa	65
Burma	42	France	60
Spain	39	United Kingdom	60

2. Trends of Fertility

There has never been as a wide variation in child bearing patterns as exists in the world today. Fertility (Total fertility rate) ranges from 1.2 in a number of industrialized countries to 8.0 in Niger and 5.9 in Ethiopia (2003).

In general, fertility has increased in importance in determining population growth as mortality has fallen to low levels, and future trends in world population growth will be determined largely by levels of fertility. The interrelationships between fertility and mortality can be clearly seen in the very rapid growth of world population numbers since 1945.

This growth is a result of rapidly declining death rates in the developing world at a time when birth rates remained high. At the same time in the developed world there was an increase in the birth rates which in many countries peaked in about 1964 and was followed by a rapid decline in births. The first small signs of a downturn in births in the developing world became apparent towards the end of the 1960^{s} and by the 1970's fertility decline was more widespread and was proceeding at a rapid rate in some countries of the developing world.

2.1. Ranges in Birth Rates

The wide range of birth rates within the world and the contrasts that exist within the developing world (20 in Cuba and Singapore; 50 in sub-Saharan Africa) and between the developing world (average birth rate of 33) and the developed world (average rate of 16) is testimony to the variety of factors that impinge on birth rates.

Fertility levels have traditionally been seen as closely related to development, (as assumed in the demographic transition model), but today in the developing world the relationship between fertility and development is less close than it was even 20-30 years ago. In some African countries for example, rising fertility has been observed recently and is related to a variety of factors including changes of breast feeding and the reduction in traditional sexual abstinence after childbearing.

2.2. Low Fertility in Developed Countries

In nearly all of Europe and some parts of East Asia and other regions, couples have fewer than two children too few to replace themselves when they die. If sustained overtime, such low fertility leads to population aging and population decline. Both of these phenomena have profound economic, social and political consequences.

In Europe, for example, where women have on overage only 1.4 births, governments are concerned about too few workers in future years to support the aging number of retirees in the population. An aging population strains a nation's social security system and pension plans, and puts pressure on health budgets, because of higher health care costs for the elderly. Some governments are also concerned about whether a lack of working – age people will mean a greater need for immigrants, and whether population decline signals a weakening of political and economic power.

2.3. Fertility Decline in the Developing World.

In the developing world, fertility has also fallen nearly everywhere, but the pace of decline has varied greatly from one country to another. Even where fertility declines, populations continue to grow because large numbers of young people (from previous decades of high fertility) move into their reproductive years. This bulge of young people insures decades of continued population increase.

A variety of factors affect fertility including demographic factors such as age structure, age and type of marriage (polygamous or monogamous), infant and child mortality rates and socio-economic factors such as education, women's status and employment, rural or urban residence, social

development, health factors, breast feeding, contraceptive use and abortion prevalence.

Fertility decline in both the developed and the developing world has been the subject of much debate. Great emphasis has been put on economic explanations so that as in the theory of demographic transition, economic development or modernisation has been seen as the essential precursor of fertility decline. Modernisation has been described as “the best contraceptive“It has been argued that with economic development parental demand for children is reduced as child bearing costs increase and their contribution to the family economy decline.

But there is also argument that the decline of fertility is seen as a much more complex process involving sociological and cultural rather than economic factors, in which fertility decline may itself be a precursor to economic development. The communication of new ideas seems to be of key importance in the decline of fertility, and education seems to play an important role in this.

In 2004, total fertility in Asia and Latin America stands at 2.6 births per woman, about one half of levels seen in 1970. Fertility has also declined in Africa, but it remains well above the average for any other region. Regional average mask differences among individual countries; however, in some

countries, fertility rates have dropped to levels matching to those found in developed countries, while in others there has been little or no recent change in fertility at all.

China represents the first extreme, as women have only 1.7 children on average. Fertility is also near or below 2 in Brazin, Costa Rica, South Korea, Thailand and Kazakhstan. The youth populations in these countries ensure continued population growth, but they will age over time and total population size will stabilize or decline if low fertility continues.

At the other extreme are countries where fertility remains extremely high by world standards – 6 children per woman or higher. More of these countries are in the Middle East (Yemen) or in extremely poor regions of sub-saharan Africa (Mali and Uganda).

2.4. Marital fertility Decline

Fertility is declining in the developing world although there is still a wide spread of birth -rates. The immediate reasons for the decline include increased age at marriage, more contraception and more induced abortion. On the other hand, changes in the age structure of the population of developing countries as more adults survive, have tended to retard declines in the crude birth rate.

2.5. Age of Marriage

Age of marriage, traditionally at a young age (often the early teens) in the developing world compared with Europe, has been increasing in the past and has changed most in Asia and least in Africa. One survey of 12 developing countries suggested that changes in age of marriage accounted for about a third of all fertility change between 1960-75. Age at marriage is, however, intimately related to the role of women within a society and in many traditional societies, such as are found in Africa or the Middle East, there is no place for an unmarried woman and marriage remains early and universal.

Single women employed outside agriculture are more likely to delay marriage beyond 20. In general, rural women marry about two years earlier than urban women. Age of marriage tends to be earlier in populations with high mortality levels again increasing fertility.

2.6. Infant Mortality

Infant mortality seems to be related to fertility in various ways. In general, higher infant and child mortality support high fertility levels since parents want to guarantee a certain number of surviving children. Infant mortality can act directly on the birth rate: an infant death will stop breast feeding and sexual abstinence if practised, and so increase the likelihood

of conception lowering infant mortality rate, although it increases population growth rates initially, appears to lower fertility through increased contraceptive use. But the relationship may be indirect, since increased female education is also associated with lower infant mortality and increased contraceptive use. Increased birth intervals which follow the adoption of contraception help to lower infant mortality further, since longer birth intervals are associated with increased child survival rates.

2.7. Contraception

Contraception is used by majority of couples in the developed world and increasing proportions in the developing world. The diffusion of modern efficient contraception in the developing world has reached the stage where over three-quarter of women are aware of it, half are in favour of it and about one quarter are now using it. Substantial proportions of women using contraception are rural, uneducated and poor. World fertility surveys (W.FS) show higher use of contraception in Latin America, Caribbean and the Far- East and low use rates in Africa. Among the factors that appear to contribute to the efficient use of contraception are ***urbanisation*** and ***education***. ***Occupational variations*** are also evident: the wives of professional and clerical workers use contraception more than do the wives of men in agriculture.

2.8. Family Size Preference

Data from surveys suggest that fertility would decline if women carried out their family size preferences, although population growth rates will still remain high.

2.9. Education

Education has a much stronger link with contraceptive use than do the purely economic characteristics of couples, and in the majority of countries the length of formal schooling of the wife is much more important than that of the husband in determining reproductive behaviour. Education for girls has the effect of raising marriage age: the completion of primary education shifts age of marriage above 16 and secondary education increases it still further

3. Trends In Mortality

Inadequate data in the developing world pose a major problem for studies of mortality. Over all, death registration is more complete in Latin America and least reliable for the countries of tropical Africa where for some countries, data on mortality trends and differentials are virtually non- existent. Information from a wide variety of sources has to be used in place of death registration data, including incurring small sample surveys, questions in census or surveys about the survival of children, age structure comparisons between two censuses

and so forth. Mortality data extracted in this way are not as reliable as that from vital registration so the national trends can be misleading for particular countries.

Mortality can be measured by crude death rates (the number of deaths in a year as a proportion of the total population at the mid- point of that year), but they are highly influenced by age structure. The most common measure of mortality is life expectancy, a succinct way of comparing mortality either between population groups, regions or countries. Life expectancy measures the years of future life for an individual at a particular age, most usually at birth, assuming that the individual will be subject to the age specific death rates operating in the country at that particular date.

The decline in levels of mortality and the increase in life expectancy has been the most tangible and universal reward of development. On a world scale three quarters of the total improvement in longevity has been achieved in the 20th century. In 1900 world life expectancy was about 30 years, by 1950 -55 it was 46 years and by 1985-90 it had increased to 63.9 years. In 1985 - 90 life expectancy was 61.4 years in developing countries compared with 74.0 years in the developed world , a difference of 12.6 years; while in 1950- 55

the differential was 24.7 years, with life expectancy of 41.1 years in the developing world and 65.8 in the developed world.

Africa is the continent with the highest level of mortality with average life expectancy of 52 years in 2000 compared with an estimated 37.7 years in 1950 -55. South Asia also has high mortality rates with a life expectancy of 56.8 years in 1985-90 compared with 39.9 years in 1950- 55. In East Asia on the other hand, progress in reducing mortality over the last 30 year has been rapid with an increase in life expectancy from 42.7 years in 1950-55 to 70.4 years in 1985- 90. Life expectancies are now approaching 80 years in some countries of the region: in Japan male life expectancy is 76 and female 82, a combined life expectancy of 79 years, which is higher than either the United Kingdom (76) or Sweden (77.5). Latin America has seen a smaller rate of improvement than in East Asia, so that life expectancy has increased only by 14.8 years, from 51.9 years in 1950-55 to 66.7 years in 1985-90. At the other extreme, in the countries of the developed world, life expectancy is everywhere over 70 years; in Europe the figure for 1985-90 was 74.4 years compared with 65.8 years in 1950- 55 (Table 4.5).

Table 4.5: Crude Death Rates And Life Expectancy In World and Regions

	1950-55		1985-90		2000		2003		2020-25	
	CDR	L.E	C D R	L.E	CDR	L.E	CDR	LE	CDR	L.E
Africa	26.9	37.7	14.7	52.0	14.0	52	14	52	7.0	65.6
Latin America	15.4	51.9	7.4	66.7	6.0	70	6	71	7.0	73.2
North America	9.4	69.0	8.7	75.6	9.0	77	8	77	9.9	79.8
Asia	24.1	42.0	9.0	62.7	8.0	66	7	67	7.2	73.4
Europe	11.0	65.8	10.7	74.4	11.0	74	12	74	11.5	79.2
Oceania	12.4	60.8	8.1	71.3	7.0	74	7	75	8.3	77.9
USSR	9.2	64.1	10.6	70.0	15.0	67	-	-	9.4	76.9
World	19.7	47.5	9.8	63.9	9.0	66	9	67	7.6	72.9

3.1. Mechanism of Mortality Decline

From the end of the second world war the main reasons for increasing life expectancy, particularly in the developing world appear to be the result of a combination of factors. Better public health , such as vaccination and anti-malarial campaigns and other large - scale disease eradication and control programs; education and greater political stability along with economic development and consequent rises in

living standards including improved food supplies, have all made their contribution.

3.2. Mortality Differentials

Just as there are differences among the countries of the developing world in mortality levels so within countries there are significant differences in mortality among different groups in the population. The universal differentials are those of age and sex which are found in the developed and developing world although in varying ways. But there are also significant differences in the mortality of groups by urban or rural residence, income level, education and literacy levels, and occupation. These variables are closely associated with standard of living and will also reflect factors such as knowledge of hygiene, nutritional needs and accessibility of medical facilities. Similarly, mortality differences among social classes continue to persist in the developed world reflecting differences in occupation, housing, income, and education: in England and Wales, for example, there are significant differences in the mortality rates among social classes.

Urban- rural differentials exist in most developing countries, with urban areas experiencing lower mortality than rural areas: but within urban areas lower income groups have higher mortality than the average for rural areas. It is in urban areas

that public health measures and environmental control are more easily organised, and are more accessible to the people, so that in general mortality declines begin in urban rather than rural areas.

3.3. Infant Mortality

Infant mortality (the number of live born babies that die in the first year of life) together with deaths of children aged one to four, account for a disproportionate number of all deaths in the world. And while mortality at older ages appears to be falling infant mortality is falling less quickly. Infant mortality remains at high levels in many parts of the world and it keeps life expectancy at birth in these countries low.

- **Regional Variations**

World infant mortality declined by 36% between 1950-55 and 1975-80, from 138 / 1000 to 88 /1000 live births. The lowest rates of decline in this period were in Africa: 31% and south Asia: 34%. At the other extreme, East Asia experienced a 64% decline and Europe a 69% decline.

Infant mortality rates vary enormously throughout the world, showing much the greatest variation of the basic demographic variables: 1992 data suggest a world figure of 68/1000, with a rate of 18 for the developed world and 75 for the developing,

increasing to 84 if China is excluded. National rates ranged from 4.6 / 1000 in Japan to 172/1000 in Afghanistan. The lowest world regional rates in 1990 were for North America (9) and Europe (11).

The highest regional rates were for Africa (99) (110 for Ethiopia), and south Asia (95). Overall, infant mortality in most of the less developed world is hovering just below the 100 mark and is proving difficult to reduce further. In 1980 the United Nations set objectives for the 3rd UN Development Decade one of which was an infant mortality level of 50 by the year 2000. But 69 countries - 47 in Africa, 3 in Latin America ,18 in South Asia and 1 in Oceania - this objective who unlikely to be met.

- **Infant Mortality Differentials**

The demographic variables that have a great impact on the chances of survival of infants and young children are:

- The age of the mother at the time of birth. In general, babies born to a very young or old mothers are more at risk.
- The Child's birth order. First and high order births are more at risk in the first year, and after the first year mortality rises with birth order.

- Birth interval; children born less than two years apart are much more likely to die, while an interval of more than 4 years makes death much less likely.
- The child's sex. In general, males have higher mortality at all ages than females.
- Breast feeding. Brest fed children have more chance of survival. Alternative feeding (bottle feeding) has higher risk of death.

3.4. Female Education

In many studies conducted, mothers with no education had twice as many dead children as mothers with elementary education and four times as many as mothers with secondary education.

4. Migration

Migration is the movement of individuals or groups from one place to another which involves permanent or semi permanent change of usual residence.

Migration is the most volatile of the basic demographic variables- quickly reflecting changing social, economic and political circumstances; both at the national and international level. Internal and international migration are essentially geared by the same forces and the majority of migrants in the

world to- day are rural dwelres moving to the towns and cities either of their own or another country.

Most people move for economic reasons, but some migrate to escape political or religious persecution or simply to fulfil a personal dream. Some people divide the reasons for migration into **Push factors** and ***Pull factors***. *Push factors* include, widespread unemployment lack of farm land, famine or war at home. In the 1980's and 1990's hundreds of thousands of Africans were pushed out of their homelands to neighbouring countries because of famine and civil war. Factors that attract migrants, pull factors, include booming economy, favourable immigration laws, or free agricultural land in the area to which the migrant is moving. Both types of migration bring with them pressures for receiving areas: in the case of internal migrations, the sheer problems of rapidly growing cities whose infrastructure can barely cope; or social pressures of adjusting to cultural conflicts that can result from international migration.

International Migration

In general, world patterns of migration are characterised by flows from the poorer, less developed countries to the richer more developed countries, but these flows have changed with the fluctuating economic and social circumstance of particular sending or receiving countries.

The United Nations produced a list of 63 countries for which net migration was not zero for the period 1980-85, the annual net numbers of migrants ranged from - 320,000 in Afghanistan to + 450,000 in the United states , but for 28 of these countries net annual numbers of migrants was small, ranging between ± 10, 000.

In terms of net migration rates, the traditionally most important receiving countries of the more developed world have given way to the oil rich countries of the Middle East with their booming economies and laborer shortage (the United Arab Emirates, Kuwait, Qatar, Saudi Arabia and Oman). Although the United States still heads the list of the most important receiving countries in terms of absolute numbers of immigrants for the period 1980- 85, Saudi Arabia received a large number of people than either Canada or Australia in that period.

Conflict is another potent cause of migration. The second most important receiving country in the period 1980-85 was Pakistan, while the most important sending country was Afghanistan, the country of origin of Pakistan's immigrants, as refugees were driven from their native country by civil conflict. The United kingdom is the only developed country in the list of

12 most important sending countries in terms of absolute numbers for the period 1980-85.

Compared with migration rates in the nineteenth and early twentieth century, present- day rates. are small and account for a very small proportion of the total increase.

Between 1840 and 1930's for example, approximately 52 million people left Europe for North America.

Three types of international migration can be identified in the 1970's and 1980's: permanent migration, temporary labour migration, both legal and illegal, and refugees movements but the motivation of migrants, apart from the refugees, is higher wages.

In general, international migration whether permanent or labour migration has been from the developing to the richer developed countries.

The four traditional immigration countries of the USA, Canada, Australia and Newzerland have together accepted a total of fewer than one million immigrants a year over recent years. Their immigration polices have become increasingly restrictive, giving preference to migrants with assets, education and specific skills.

A new area of labour migration emerged in the 1970's as the resource- rich states of the Middle East encouraged migrant workers first from neighbouring Arab States and then from Asia . At first the movements were relatively unrestricted. But as the receiving countries have become aware of the problems of temporary migrants staying permanently together with the problems of an excessively large foreign community, so there is now much more emphasis on the rotation of workers. Once a contract has ended they must return home. As the largest importer of foreign workers, Saudi Arabia is also trying to reduce its dependence on foreign workers. Like wise Kuwait had large numbers of foreign workers (29% of the total population), and again there is pressure to reduce dependence on foreign workers. In the United Arab Emirates, foreign workers constitute nearly 90% of the active population. Overall, it has been estimated that there were 3 million migrant workers together with one million dependants in the countries of Middle East.

4.2. Internal Migration

Internal migration is the means by which the majority of people maximise opportunities, whether economic, social or environmental. Most movement is from areas of decline to areas of growth. Nineteenth century Europe experienced large

scale rural to urban migration resulting in the highly urbanised populations of the developed world today.

The majority of internal migration in the developing world is of rural dewellers moving to towns which as a result are growing rapidly. Urban growth rates are roughly double the national population growth rates in the developing world.

Migration to cities is a manifestation of more fundamental structural change in national economies which are undergoing a transformation from being agrarian to industrial based. People are moving from the countryside to the towns for higher income and better jobs. In many parts of Africa, seasonal labour migration is common, with men working in cities or in mines and sending, the money home to their wives and children in the rural areas, as well as within and between urban areas in response to changing economic conditions.

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative

Study Questions

1. According to the projection shown on “World Population Growth: 1750-2150” (Fig. 4.2), about what percent of growth is projected to occur in less developed countries after 2100?
2. Based on Fig. 4.2, during what “age” of human history did the worlds’ population begin to grow rapidly?
3. Discuss the reason for the increasing world population growth since the 18th century.
4. What is migration? And why do people move?
5. What are some of the ways that education can play a role in determining family size?
6. What determines the number of children a woman will have.

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative EPHTI

CHAPTER FIVE

WOMEN AND DEVELOPMENT

Instructional Objectives

After completing this chapter the learner is able to:

- Discuss the role of women in development.
- Define gender – based violence
- Explain how gender differences affect women's health and well – being
- Discuss the status of women in Ethiopia

1. Introduction

Whether and when the world's population stabilizes will depend in large measures on changes in the status of women around the world. There is a growing body of scientific evidence supporting the view that improvement in women's status is good development policy and may well be the key to lower birth rates.

Based on national reports the UN received from 150 countries for the 1994 International Conference on Population and Development (ICPD), certain characteristics of the status of

women are common to all regions of the world: lower status and salary levels than men in the formal work force; large proportions of women in the informal sector of the economy; a rising number of female headed households; lack of enforcement of legislation protecting women's rights; and under – representation of women in politics and decision making positions. Women are poorly represented in national governments around the world.

Cultures throughout the world have historically given men and boys preferential treatment in a broad range of life matters; education, food, health care, employment opportunities, and decision-making authority. While the disparities are usually much greater in developing countries, there are barriers to break down in all countries.

The International Conference on Population and Development (ICPD) held in Cairo, Egypt in 1994 document notes that "in all parts of the world, women are facing threats to their lives, health and well – being as a result of being overburdened with work and of their lack of power and influence".

Women often jugle multiple roles, balancing their time between household responsibilities and economic activity. Women are the primary custodians of the health and well

being of the family. Increasingly, they contribute to family income without a corresponding decrease in domestic chores.

As more households are headed by women (up to one – third in some countries), elevating women's status becomes an even more urgent national concern, Women – headed households tend to be poorer than those headed by men, and many women have all the household responsibilities without the power or resources necessary to meet them.

2. Understanding Gender

Gender refers to the different roles that men and women play in a society, and the relative power they wield. Gender roles vary from one country to another, but almost everywhere, women face disadvantages relative to men in social, economic and political spheres of life. Where men are viewed as the principal decision makers, women often hold a subordinate position in negotiations about limiting family size, contraceptive use, managing family resources, protecting family health, or seeking jobs.

Gender differences affect women's health and well – being throughout the life cycle:

- Before or at birth, parents who prefer boys may put girls at risk of sex- selective abortion (where technology is available to identify the sex) or infanticide.
- Where food is scarce, girls often eat last, and usually less than boys.
- Girls may be less likely than boys to receive health care when they are ill.
- In some countries mainly in Africa, girls are subject to female genital mutilation.
- Adolescent girls may be pressured into having sex at an early age – within an arranged marriage, by adolescent boys proving their virility, or by older men looking for partners not infected with STIs,.
- Married women may be pressured by husbands or families to have more children than they prefer and women may be unable to seek or use contraceptives.
- Married and unmarried women may be unable to deny sexual advances or persuade partners to use a condom, thereby exposing themselves to the risk of sexually transmitted infections (STI).
- In all societies, women are more likely than men to experience domestic violence. Women may sustain injuries from physical abuse by male partners or family members, and the fear of abuse can make women less

willing to resist the demands of their husbands or families.

3. Violence Against Women

Around the world at least one woman in every three has been beaten, coerced into sex, or otherwise abused in her life time. Most often the abuser is a member of her own family. Increasingly, gender – based violence is recognized as a major public health concern and a violation of human rights.

The effect of violence can be devastating to a woman's reproductive health as well as to other aspects of her physical and mental well – being. In addition to causing injury, violence increases women's long – term risk of a number of other health problems, including chronic pain, physical disability, drug and alcohol abuse, and depression. Women with a history of physical or sexual abuse are also at increased risk for unintended pregnancy, sexually transmitted infections, and adverse pregnancy outcomes. Yet victims of violence who seek care from health professionals often have needs that providers do not recognize, do not ask about, and do not know how to address.

4. Gender - Based Violence

Violence against women and girls includes physical, sexual, psychological, and economic abuse. It is often known as "gender – based" violence because it evolves in part from women's subordinate status in society. Gender – based violence includes spousal battering sexual abuse of female children, dowry related violence, rape including marital rape, traditional practices harmful to women, such as female genital mutilation (FGM). They also include non – spousal violence, sexual harassment and intimidation at work and in school, trafficking in women, forced position, and violence perpetuated or condoned by the state, such as rape in war. Many cultures have beliefs, norms, and social institutions that legitimize and therefore perpetuate violence against women.

5. Empowering Women

5.1. Education

Education is the primary avenue for elevating women's status. Two – thirds of the world's illiterate adults are women; and 70 percent of the children not enrolled in primary school are girls. There is abundant evidence that more educated women tend to marry later; thus they delay child bearing and have fewer children over the course of their lives. In many countries,

women with secondary education have about half as many children as those with no education.

As women gain more autonomy over their lives as a result of education, this gives them wider employment opportunities and may make them want to delay marriage. Education means they are more able to make decisions over the number of children they wish to have. As they gain control over their reproductive lives so they can gain control over the rest of their lives. Their greater autonomy in turn increases the livelihood that their children will survive and in turn be educated.

5.2. Employment Opportunities

Education also expands women's employment possibilities and their ability to secure their own economic resources. Women are less likely than men to hold a paying job in part, because women are not treated as equals to men in the work place. Women are paid less than men throughout the world, although the gap is somewhat smaller in developed countries. In many developing countries, women hold less than 25 percent of formal sector jobs. Instead, women work in the informal economy – in subsistence agriculture, in the markets, or in cottage industries – where their contribution often is not counted in official statistics.

5.3. Legislating Equality

Governments have to enact legislation to provide equal opportunities for women and men and to protect women from discrimination. However, legislation to improve women's status is often not enough to change behaviour. Cultural and religious barriers to women's advancement are deeply rooted. In many societies, laws to protect women's rights were designed merely to placate vocal minorities, and the mechanisms for enforcing them are weak or nonexistent. The elimination of exploitation, abuse, and violence against women and of other forms of gender–based discrimination is considered essential to increasing women's participation in national development agendas and much has to be done beyond enacting legislation.

5.4. Emphasizing the Girl Child

Discrimination can begin even before girls are born. Sex–selective abortions have been reported in some countries of the world, such as China and India, where sons have a higher economic and social value than daughters. The preference for boys encourages families to invest more in their sons than their daughters, further, perpetuating gender disparities. When boys receive preferential treatment within the family and community, girls grow up thinking that their contribution to society is less worthy than that of their brothers. Increasing the

awareness of the value of girls and investing early in girls' lives – with more education, better health care, and sufficient nutrition–are the first steps towards advancing women's status. The Cairo document of the ICPD notes that "Since in all societies, discrimination on the basis of sex often starts at the earliest stage of life, greater equality for the girl child is a necessary first step in ensuring that women realize their full potential and become equal partners in development.

5.5. Male Responsibility

Programs designed to elevate women's status are unlikely to succeed if they do not have the backing of men. Men have a deceive role in eliminating gender disparities because they hold the power to influence societal thinking in most parts of the world. Government policies and programs have to pay special attention to the role men can play in easing women's domestic burdens; encouraging men to take active part in all aspects of family life: attending to children's health, nutrition, and education; practicing family planning; providing economic support; caring for their own as well as their partners' – reproductive and sexual health.

5.6. Program of Action of the ICPD

In addition to providing educational and employment opportunities, the program of Action of the Cairo International Conference on Population and Development (1994) calls on governments and private sector entities (as appropriate) to take the following steps to end discrimination against women:

- Ensure that women can own property equally with men, obtain credit and negotiate contracts in their own names, and exercise their rights of inheritance;
- Eliminate gender discrimination in hiring, training, and wages
- Eliminate exploitation, abuse, and violence against women, and
- Enact laws and implement programs enabling both sexes to organize their work around their family responsibilities.

A common theme that runs through any discussion of population policy is the role of women in population policy and the relationship of women to population growth. Women bear children and take the bulk of the responsibility for their rearing. They are the primary health care workers and educator's. Any successful development policy must pay attention to the need to improve the status of women.

Active policy to raise the status of women is prerequisite for both a successful population policy and indeed development in general. Unfortunately it is easier to change legislation than traditional attitudes and customs. In all societies there are cultural institutions, beliefs, and practices that undermine women's autonomy and contribute to gender-based violence. The need to end discrimination against women is now widely recognised, and the improvement in the status of women is seen as a goal in itself independent of any population concerns.

6. The Status Of Women In Ethiopia

In Ethiopia gender bias is manifested in the following conditions.

6.1 Working Conditions

a. In the rural Areas

More than 85 % of Ethiopians live in the rural areas. Because of the rudimentariness of the methods of production used in the rural areas, nearly most of women's labour is wasted on such arduous activities as farming and animal husbandry activities in which traditional technique of production is applied. Even though, the division of labour differs from place to place, depending on the climatic conditions, women participate in all types of agricultural work, including weeding,

raking, harvesting and preparing trashing field and grain bins. Women in nomadic societies are entrusted with the responsibility of erecting mobile huts, dismantling them and carrying the parts to the next place of stay, in addition to cattle raising and herding. With respect to house work, rural women have to grind grain, fetch water, gather fire wood, prepare cow dung, prepare food and raise children they work for about 13 - 17 hours/ day.

Although rural women's share of the division of labour is very tiresome and much time consuming, it is derogatively refereed to a "women's work" and is not valued. Rural women have also been barred from access to productive assets, such as ownership and control of property, since their contribution continued to be undervalued.

b. In the Urban Areas

Majority of the low-wage-earners in the urban areas are women. In the factories for instance, women make up 30% of labour force, whereas their share of total salaries paid is only 21%. Although a very small number of women hold high-position jobs that require college training and technological know-how, most Ethiopian women are engaged in all types of odd jobs. These include low-income jobs, such as selling '***injera'*** and ***'tella'***, working as house maids as well as

prostitution and brothel or bar management. Working as house maid is, of course, the first occupation most young women who move to cities from rural areas in search of a better life embark on. Prostitution, for example, is an occupation frowned upon by all societies, degrading to women, a manifestation of backwardness and a breeding ground for many kinds of diseases and social evils.

Yet a staggeringly large number of Ethiopian women derive their livelihood from it, because they have no alternative employment opportunity. In general, urban women are engaged in such low paying jobs in the informal sector as well as in the formal sector, such as in factories, offices, hospitals etc.

c. The Formal Sector

According to the study done by Ministry of labour and Social Affair's in 1988, the number of male employed in both the public and private sectors, where employment opportunities are limited, was about 82.1 % of the total work force, where as, women constitute only 17.9 %. A related source of information showed that among those workers who have been employed through the Ministry of labour and Social Affairs and Civil Service commission, the number of women is much lower.

The number of business women, is relatively low. Actually, most women are engaged in the service sector as bar, groceries and restaurants owners, because they lack the appropriate skills and capital. All these facts have resulted in a poor situation.

d. The Informal Sector

A very large of women, especially young women, non literate female headed households, or widowers, eke out a living engaged in such activities of the informal sector as gathering and selling fire wood, hawking cheap goods and services, selling 'tella' and working as maid servants or prostitutes. Even though these activities, falling under the informal sector are undocumented, they bear witness to the miserable conditions Ethiopian women live in.

6.2. Social Services

a. Social Issues

Rural young women who come to cities and become prostitutes or drug addicts often end up becoming juvenile delinquents. The rest take low - paying Jobs that require little or no skill. On top of that some of them are raped and give birth to children. They have to raise on their own. Furthermore, women more than men bear the brunt of civil wars, drought,

displacements, health problems, disruptions of normal life as a result of natural and man made disasters.

b. Health

The most striking thing about the overall health condition of Ethiopian women is that, it is pathetic. Between 19 to 60 % of women suffer from inadequate nutrition. About 5 % of pregnant women have access to the services of trained mid wives, the rest have to settle for traditional mid wives, and death of women related to pregnancies and child birth is more than 50 times of the developed countries. Ethiopian women feel the burden of fertility (TFR. 7.3 children/ woman 1984) one of the highest in the world. About 98 % of mothers and potential mothers had no access to family planning.

Therefore, most women lack the knowledge about the spacing of children, the problems of premature pregnancy as well as post - prime age pregnancy.

c. Harmful customs and practices

Though the figure varies from one culture to another as well as between ethnic groups and regions, at least 50% of Ethiopians who are affected by harmful customs and practices are women. If a woman exhibits intelligence, she is taken for a “crafty person”, if she dares to express her views, she is

labelled " long tongued," If she happens to be gusty and vigorous, dubbed " masculine", if she is not hard-working she is considered to be not only lazy but lacking cooking and house - keeping skills as well. Women as a whole, are viewed as a personification of weakness and as treacherous beings who do their duties if and when they are whipped or beaten. Young girls who live in rural areas are usually forced to marry before they reach puberty time either pre-arranged by their parents or forced upon them through kidnapping. Women are victims of circumcision and other harmful practices that come with pregnancy and child births.

d. Education

Even though the education policy of Ethiopia does not make explicit discrimination between sexes, it promotes male supremacy indirectly. Traditional education in Ethiopia advocates the categorisation of subjects into "those that may be given to male boys and girls" and "Those that are taught exclusively to boys". Both the explicit and implicit ways of promoting male supremacy are recurring themes in many writings, speeches, paintings, fables and proverbs. One could, therefore rightly say that our country's curriculum is still discriminatory toward girls and women.

Fifty percent of the Ethiopian population comprises of women. But they make up only 23 % of the student population.

Percentage of female students of the different levels of Education in 1984.

Level of Education	Female %
Elementary school	30
Junior High school	41
High school	30
Junior College	14.5
Four - Year college (Degree providing college)	8.2
Graduate school	6.4

The number of female students decreases as the level of education rises. The number of female students that fail examinations and drop out of school, too, is great.

e. Law

The laws of the land, like many other things, are prejudicial to women. As such, that reflect and reinforce societies backward attitude toward women, no less than certain cultures and religions do. Consequently, they are obstacles to women's attempts at having their right, to enjoying the fruits of their

labour and participation ensured. Laws are reflections of society's political and economic life. If we, for example, take a look at the Laws decreed in Ethiopia before 40 years, are discriminatory towards women. Examples, include articles concerning citizenship, the family and retirement benefits.

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative
EPHTI

Study Questions

1. What does gender mean?
2. Explain the significance of women on development.
3. List the acts of gender – based violence and discuss their effects.
4. What does women empowerment mean? Explain how women can be empowered.
5. Describe the status of women in Ethiopia
6. Identify and explain the most important barriers to women empowerment.

Ethiopia Public Health Training Initiative • EPHTI • Ethiopia Public Health Training Initiative

CHAPTER SIX

IMPACT OF RAPID POPULATION GROWTH ON SOCIO ECONOMIC DEVELOPMENT

Instructional Objectives

After completing this chapter the learner is able to:

- Describe the social, economic and environmental implications of population growth.
- Explain the relationship and effects of health on development.
- Mention the widely used measures of economic development and explain their limitations.
- List the social indicators of development

1. Social Implications Of Population Growth

Rapid population growth in less developed countries is linked to many problems, including poverty, hunger, high infant mortality and inadequate social services and infrastructure (transportation, communication etc.) Rapid population growth may intensify the hunger problem in the most rapidly growing countries. Population growth can reduce or eliminate

food production gains resulting from modernization of farming. Population pressures may also encourage practices such as over irrigation and overuse of crop lands, which undermine the capacity to feed larger numbers. In some cases population growth is quite directly related to a social problem because it increases the absolute numbers whose needs must be met. For example some less developed countries have made enormous progress in increasing the percentage of children enrolled in school. However, because of population growth during the same period, the number of children who are not enrolled in school also increased because there were insufficient resources to meet the growing need. Similar observations could be made about jobs and employment, housing, sanitation and other human needs such as water supply, transportation, energy requirement etc. These problem are compounded when large numbers migrate from rural to urban areas and increase the burden placed on already inadequate supplies and services.

2. Population Growth And Environment

The relationship between population growth and environmental degradation may appear to be rather straight foreword. More people demand more resources and generate more waste. Clearly one of the challenges of a

growing population is the mere presence of so many people sharing a limited number of resources strains the environment.

Many of the world's population live in poor countries already strained by food insecurity; inadequate sanitation, water supply and housing; and an inability to meet the basic needs of the current population. These same countries are also among the fastest growing places in the world. A large proportion of these populations are supported through subsistence agriculture. As populations grow competition for fertile land and the used of limited resources increases. Meeting the increasing demand for food is probably the most basic challenge and the most salient population and environment crisis.

Traditional agricultural farming in developing countries with increasing population growth rate, often involves the cultivation of fragile soils that are difficult to farm, such as dry lands, highlands, and forests. When farm lands expand towards fragile lands in order to keep pace with the needs of a growing population in a region, it can lead to deforestation, erosion and desertification.

3. Health And Development

Development is movement of the whole system up ward. Improving health conditions used to be low priority of most least developed countries (LDC) governments. It was regarded as something the governments would like to do if possible, but not at the expense of more directly productive expenditure categories. Development specialists generally took similar view as far as known. No previous economic development textbook includes a chapter on health and nutrition.

Recently, however, more attention has been devoted to relationship between health and development. *One reason* for this is the growing interest in equity- oriented development strategies for the *basic human needs* variety, in which provision of basic health services necessarily plays an important part. *A second reason is* that health expenditures, like education expenditures, are increasingly regarded as investments in human capital. The health- development relationship is reciprocal one. Proponents of health -sector programs often deny that development can or will do the job, arguing that special programs in nutrition, health care and environmental sanitation are also needed. Sometimes these proponents go so far to argue that development can be injurious to health, or that provision of appropriate health

programs can do the job by itself, even in the absence of significant over all development. Opponents of this view reply that health status is generally relocated to income level, and specific health measures often fail to have much effect when the surrounding socio- economic and physical environments are unfavorable to health.

3.1 Effects of Health on Development

Better health is an important goal in its own right.

Health increases the range of human potentialities of all kinds and is rightly regarded as ***a basic human need.***

Health is valued for its own sake. Everyone can benefit from better health in the present, and improved health for the young will lead to healthier population in the future.

Like education, health services increase the quality of human resources both now and in the future. Better worker health can provide immediate benefits by increasing the worker's strength and ability to concentrate while on the job.

Better child health and nutrition promote future productively by helping children develop in-to stronger, healthier adults. In

addition they supplement the acquisition of productive skills and attitudes through schooling.

It has been shown that healthy well- fed children have higher attendance rates and are able to concentrate better while they are in school.

Unlike education, health expenditure also increase the quantity of human resources in the future by lengthening the expected working life. In this way too, they complement, since returns in education should be higher if people can be expected to work and even can for longer period.

Besides increasing the quantity and quality of human resource, health also increase the productivity of non human resources. The most important example is the large tracts of land rendered uninhabitable or unusable by endemc diseases which had blocked access to certain areas were brought under relatively effective control in the 20th century.

Malaria and yellow fever blocked access to many parts of Latin America, Africa, and Asia before these diseases were brought under relatively effective control in the 20th century.

Even today schistasomiasis makes it unsafe for people to enter lakes and streams in sections in Africa, while trypanosomiasis (African sleeping sickness) restricts the range of livestock industry.

Some of the causes of sickness and premature death in the LDCs that deserve more careful examination are environmental health problems, malnutrition and lack of medical care of adequate quantity, quality and type.

The principal problem of environmental sanitation in LDCs is the contamination of the water supply, and sometimes also of food and soil, with human waste. This occurs in villages and cities alike. Although most urban residents have access to piped drinking water, the public water supply is often rendered unsafe by contamination in the distribution process as the result of a faulty or non-existent sewage system.

Few rural residents enjoy either piped water or decent sanitation.

Many of the infectious diseases, parasitic and respiratory diseases that cause so much sickness and death in poor countries are waterborne. Typhoid, dysentery, and cholera are leading examples.

A second type of environmental sanitation problem arises from housing with insufficient space; ventilation and access to sunlight, (more common in urban areas) promote the spread of air-borne diseases such as tuberculosis.

Historically, improvements in sanitation seem to be closely associated with reduction in disease, becoming effective long before successive treatment have been discovered.

Medical Services

Most LDCs have too few health services, too poorly distributed.

Public expenditure on health services are much smaller in developing countries even as a percentage of Gross National Product (GNP). Governments in the poorer countries were spending $ 2 per capita around 1980.

The inadequacy becomes clear when we consider that in LDCs in contrast to USA; the public sector expenditure represents the bulk of the modern, western-style medical and health services.

Low medical expenditures in the past have lead to inadequate stock of health facilities and manpower in most developing

countries. Medical training in many of the poorest countries may not benefit society, because doctors are highly mobile and once trained, many emigrate to seek higher income elsewhere. In many cases increasing the supply of nurses and other health auxiliaries may be a better way to improve services.

3.2. Measures (Indicators) Of Development

Ever since economists have tackled the development problems of the less developed countries, the principal yardsticks for measurement of economic development have been GNP, its components, and their growth. Despite the many problems with national accounting in developing countries, the nationals accounts have continued to be the main focus of discussions of growth, the allocations between investment, consumption and saving, and the relative influence of various sectors in total value added. GNP per head is widely accepted as the best single indicator of development, both historically and for international comparison, despite well known problems.

Despite the overwhelming attention to growth, the deficiencies of GNP per head as an indicator of economic development have been apparent to many for some years. It has been pointed out that economic welfare comprises not only national

income per head, but also its distribution and the degree of steadiness or fluctuation over time.

Measurement problems become apparent when one attempts to make inter country comparisons of GNP/head. Part of the problem rises from the fact that official exchange rates do not measure relative domestic purchasing power, since a large portion of marked GNP does not enter into world trade.

In addition trade policies often create distortions in nominal exchange rates, so that they fail to reflect the true value of even that proportion of GNP which is traded.

3.3. GNP and Social Indicators

Several studies have indicated a high correlation between economic indicators, including GNP and social indicators. This might suggest that GNP can be used as a proxy measure of social development.

The current discussion of basic-needs orientated development focuses on the alleviation of poverty through a variety of measures other than nearly redistribution of incremental output. Such a focus supplements attention to what is produced, in what ways, from whom and with what impact. Obviously the rapid growth of output will still be important to

the alleviation of poverty, and GNP per head remains an important figure. What is required are some indicators of the composition and beneficiaries of GNP which would supplement the GNP data, not replace them. The ***basic needs approach***, therefore, can be the instrument for giving the necessary focus to work on social indicators.

Widely used Development Indicators include:

- GNP PER CAPITA (GROSS NATIONAL PRODUCT PER CAPITA).
- GROWTH RATE OF GNP.
- GNP is the market value of all the production in the economy during one year.

Approaches To Measure GNP

- Output Approach
- Income Approach
- Expenditure Approach

All three approaches measure flow of goods and services produced and consumed in the country from different perspectives.

- All expenditures must be income to someone else in the society. Purchase and sale of goods.

- Output produced is the source of income and expenditure.
- So, all three approaches should provide identical values.

How Good Is GNP /Capita As A Measure Of Development?

- Positive relationship between income and life expectancy
- Positive relationship between income and health/nutritional status
- Positive relationship between income and education
- Positive relationship between income and environment (Quality of housing, water supply etc).

In general, the relationship between income and other variables indicating socio-economic development is positive. However, there are some exceptions.

- Oil- rich middle-eastern countries. Their GNPs/ capita are high but the social indicators are low.
- Sri-Lanka and China.
  Their GNP/ capita are relatively low but the social indicators are high.

GNP/Capita Or Its Growth Rate May Be A Misleading Indicator Of Social And Economic Development Because:

- It fails to indicate the pattern of income distribution in the country or the society.
- The measurement of GNP itself is problematic.
- All commodities, irrespective of its impact on human welfare, evaluated at market price and added together to derive GNP.
- Problem of international comparison.

Adjustments can be made to GNP to make it a more Sensitive Measure of Social Welfare or Human Development These Adjustments Are:

- Adjust GNP or GNP growth for income distribution in the country.
- Adjust GNP for the value of goods not included in GNP calculations and the value of "goods" added.
- Purchasing power parity rate for international comparison.

Social Indicators Of Development Include:

Health -Life expectancy at birth.

Education -Literacy.

-Primary school enrolment (as % of population aged 5-14).

Food -Calorie supply per head or calorie supply as a percent of requirements

Water supply -Infant mortality (per thousand live births).

-Percent of population with access to potable water.

Sanitation -Infant mortality (Per thousand live births).

-Percent of population with access to sanitation facilities.

* Infant mortality is assumed to be a good indicator of the availability of sanitation and clear water facilities, because of the susceptibility of infants to water-borne diseases, and data on infant mortality are readily available than data on access to clean water.

3.4. Health Indicators and GNP

It is observed that mortality is negatively related to GNP per capita.

The Infant mortality Rate:-Falls from more than 100 per 1000 live births to only 12 per 1000 as one moves up the income scale from countries with less than 300 a year to countries with more than 5000 per capita.

Crude Death Rate:- Also, falls although less than one would expect, because of the younger population structure in the poorer countries.

Life Expectancy- Another way to look at the relationship between development and mortality in terms of life expectancy (Average number of years members of a given population are expected to live).Children born in 1980 in the poorest countries could expect to live only 53 years on average, while children born in the same period in the richest countries were likely to live 75 years on average. This difference provides one measure of the effect of economic development of health.

Reports also revealed that death rates fall as countries develop, and consequently life expectancy rises.

Table 6.1.: Life-expectancy at Birth by Income Group, 1983.

Income Group	**Life-Expectancy**
< $ 300	53
$ 300-500	64
$ 500-1000	55
$ 1000-2000	64
$ 2000-5000	68
$>5000	75

Links Between Health and Income

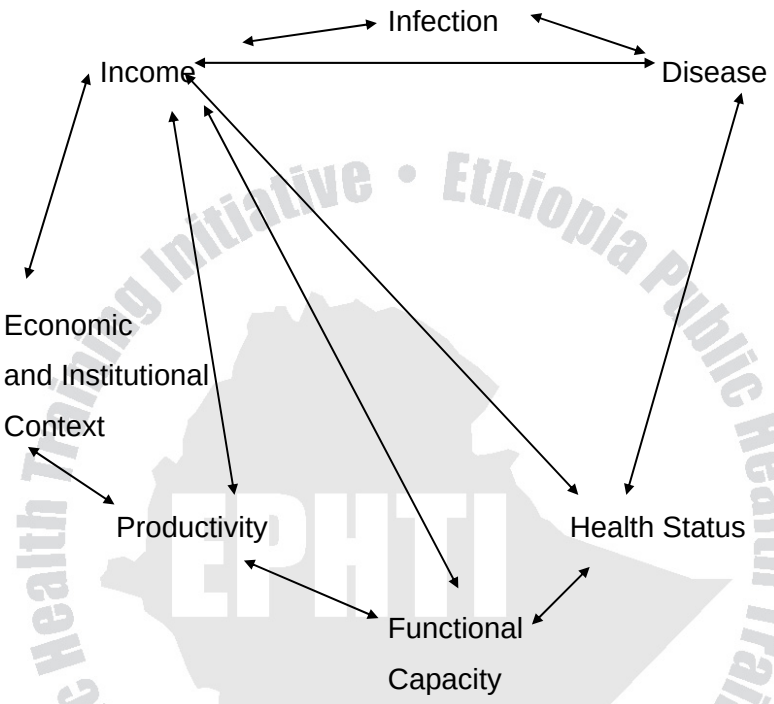


Fig. 6.1: Links Between Health and Income.

Investing In People

There is overwhelming evidence that human capital is one of the keys to reducing poverty. Moreover, improvements in health, education and nutrition reinforce each other. But the poor generally luck access to basic services. There is too little investment in their human capital, and this increases the probability that they and their children will remain poor. To

break this vicious circle, governments must make reaching the poor priority in its own right.

Providing Access To The Poor

Providing the poor with access to social services requires a clear commitment. This must be reflected in the infrastructure and organization of the social sectors and in the way they are financed. Much can be learned from decades of experience in countries at different levels of development and with varying needs.

Infrastructure and Organization

The biggest obstacle for the poor in gaining access to health and education services is the lack of physical structure, especially in rural areas.

The urban bias in the provision of services affects both quantity and quality. The sheer lack of facilities makes necessary a continued expansion of appropriate services, especially rural health clinics and primary schools. This will almost certainly benefit the poor. Improving quality will require more funds, better use of the available resources and greater accountability in administration.

Health: - The government is usually the dominant provider of health care, but in many countries the private sector also provides some (mostly curative) services. Although different countries have different needs several broad principles hold.

First: - The state should take responsibility for health intervention that have a public- good character (example, clean air, and traffic) or that generate benefits to the community in addition to private benefits (example, immunization against communicable diseases).

Second: - in curative care the main role of the state as a provider of services should be to supply basic services in those regions that the private sector is unlikely to serve.

Third: If a private delivery system is in place, the state should make sure that, the poor have access to basic care. In many countries, in other words, the government should continue to expand basic services but with a greater emphasis on access for the poor.

Study Questions

1. What does development mean**?**
2. How does rapid population growth affect the overall development of a country?
3. Describe the effect of population growth on Environment.
4. Explain the relationship between health and the overall development of a country.
5. Name the widely used indicators of economic development and explain their limitations.
6. Discuss the differences between health and social indicators; and GNP or GNP percapita.

Ethiopia Public Health Training Initiative • EPHTI

CHAPTER SEVEN

POPULATION POLCIES

Instructional Objectives

After completing this chapter the learner is able to:

- Define Population Policy
- Explain why governments need to formulate population policies.
- Discuss the rationale, goals and objectives of the population policy of Ethiopia formulated in 1994.

Definition:

Population policy is explicit or implicit measures instituted by a government to influence population size, growth, distribution or composition. They are government actions (laws, regulations, programs), that try to influence the three agents of population change (births, deaths and migration), as a way to promote social and economic development. The stated intent of these policies often, is to improve the quality of life, consistent with the available resource in a country.

National Population projections are often the stimulus for the introduction of population policies as governments realize the implication of current growth rates for the future size and structure of their population.

Population policies are concerned with influencing growth rates, regulating fertility, lowering mortality altering patterns of internal migration and hence population distribution and controlling international migration.

Population problems are integral parts of wider development problems and a variety of polices are formulated to deal with them. Even so, the integration of demographic factors in to policies concerned with wider development planning has been slow.

Population polices entered the agenda of many governments of the developing world during the 1970s as the implications of rapid population growth rates became apparent. During the second half of the 20th century a large number of countries developed policies that focused on slowing the unprecedented pace of population growth.

The Population Policy Of Ethiopia

Ethiopia has formulated its population policy for the first time in 1993. The adverse climatic conditions and the decline productivity in all sectors of the economy, combined with the political situation that had existed in the past two decades reduced the population of Ethiopia in a side of absolute poverty. The economy grew at a rate lower than the population growth.

1. Background:

1.1. Population Growth

The total population in 1900 was estimated at 11.8 million. It took only 28 years for the population in 1960 to double to 47.3 million in 1988. The population growth rate was estimated at 0.3% per year at the beginning of this century. It grew at an average annual rate of 2.5% between 1965 and 1980, at 2.9% between 1980 and 1989, and up to 3.2% during the 1990's.

1.2. Population Distribution

a. Age Structure

The population of Ethiopia is very young with a mean age of about 17 years and the population under the age of 15 was 48% in 1984.

Two consequences of a young population age structure are:

a. There is a high potential for a rapid population growth; due to addition of a large population of women in their reproductive years.
b. A high proportion of the total population, 48%, are children under 15 years of age which are outside the labour force (dependent). When combined with the 4.0% of the total population (60 years and older), it means a high age dependency burden. The age dependency burden is likely to continue to be heavy, if no significant and immediate measures begin to take place. In 1993, for example every 100 active persons in the labour force carried 116 inactive (dependent) ones.

1.3. Spatial Distribution

The spatial distribution of the population of Ethiopia describes the degree and quality of access of a population to land and other resources. The man/land ratio has been increasing over the last several decades due to:-

a. the rapid rate of population growth
b. the secular decline in environmental quality.

The geographic distribution is uneven. The average population density is estimated at 47 persons per square kilometre, ranging from 120 persons per. km. in Shewa to 14.5 persons per sq. km. in Bale.

1.4. Distribution By Residence

In 1984 the urban population constituted about 11% of the total population as compared to the estimates of 1993 about 14.6%, indicating rapid increase of urban population. There are regional variations in the level of urbanisation. In 1993, the variation ranged between 7.7% in Gamo Gofa and 28.2% in Shewa. The rate of growth of urban population (5.4%) is higher than the rate of growth of the total population (3.2%).

1.5. Population and Environment

In Ethiopia, it has been shown that as the number of people increased, the population carrying capacity of the environment decreased for the last two decades. A high population growth rate induces increased demand for resources and the rate at which these resources are exploited. Technology has not kept pace with the growing demands for greater productivity. In order to meet immediate needs, environmentally harmful and economically counter-productive methods of exploiting land and associated resources (forests, animal resources) are resorted.

As a result, climatic conditions are becoming worse and soil quality is declining at an alarming rate.

The land area which had been covered by forests has gone down from about 40% at the beginning of the century to about 3% at present time. The annual rate of deforestation is estimated at 88,000 hectares per year, while the replacement by forestation is about 6000 hectares per year. The soil has been eroded due to lack of coherent and sustained conservation efforts and law awareness of the people of conservation issues.

1.6. Population and Agriculture

Crop producing areas have become less and less productive due to lack of proper agricultural policy designed to stimulate dynamism in the sector; limited accessibility of modern factor inputs to small farmers (like providing suitable farm implements, fertilisers, pest control systems, methods of harvesting and storage, etc.). Agricultural extension service have been weak and, largely ineffective. But more importantly the declining productivity is due to increasing man/land ratio as a result of rapid population growth and the recurrent drought.

1.7. Population and Education

A large proportion of the school age population still remains outside the school system, inspite of significant increase of student enrolment during the last several decades. The quality of education has seriously deteriorated due to more rapid rate at which enrolment increased relative to facilities. Student/teacher ratio, number of students per class room and number of students per text book at all levels have been increasing and continue to increase rapidly. The school age population (ages 7-18) is expected to increase from 12 million in 1984 to 42.5 million in the year 2020 representing an average annual growth rate of 3.5%. Taking the budgetary constraints of the country, it is not difficult to understand the cost implications of achieving the goal of "access to second and third level" facilities.

1.8. Population and Health

It is estimated that only less than 46% of the population of Ethiopia has access to modern health services. The ratio of different health personnel to population and health facilities to population are extremely high. Only 18% of the rural population and 78% of the urban population has access to safe water supply, and 5.3% use any form of latrines. The continuing rapid population growth rate will still aggravate this situation. the coverage of the Expanded Programme on Immunisation (EPI)

is very low, ranging from 9% to 19% for the different antigens in children less than one year of age. The coverage for women in child bearing age is only 7% (TT-2+). Continued shortage of basic drugs has stunted the development of a coherent community based approach to health care. Only 10% of children under 5 years of age attend modern health services.

- **Fertility And Maternal And Child Health**

High fertility is usually associated with high maternal, infant and child mortality rates. Foetal deaths, low birth weight and other related problems are also associated with unregulated fertility. Short birth intervals, pregnancies under the age of 20 and above 35 are some of the causes for high maternal moralities, infant and child moralities aggravated by high prevalence of infectious and communicable diseases and malnutrition. The limited budget allocated to the health section is not adequate to alleviate these problems and even aggravated by poor resource utilisation capacity. Significant reduction in the rate of the growth of the population will decrease the future burden of rapidly increasing demand of resources.

1.9. Population and Housing

The quality of hosing in Ethiopia is very low:

a. 70.2% of dwelling units in the country have one room only
b. The average number of rooms per dwelling unit is 2.3; most of the dwelling units in the country are below standard and lack adequate living space.
c. A large proportion of the dwelling units are shared by more than one household
d. The majority of dwelling units lack even the most basic sanitary facilities.

1.10. Population and Welfare

- **Labour Force and Unemployment**

Unemployment and underemployment have been major problems of the Ethiopian society during the second half of the century and the situation had progressively deteriorated in the 1970s and 1980s. Currently, there are thousands of school leavers who are without job. The situation is likely to be further aggravated by the rapid rate at which the population of the working age is expected to increase under the high population growth. The total economically active population is expected to grow at the rate 3.2 to 3.6% a year.

- **The Situation Of Women**

The level of fertility in any society is associated with the economic, social and political status of women. The roles of women are restricted to household management and matrimonial duties and are expected to replenish the race by bearing a large number of children. Women are economically dependent on men and the decision to have or not to have children rests, primarily in the husband and his relatives. High fertility is induced by the desire to more children in order to composite the high infant and child mortality, assuming that not all children born survive. Since education resources are scarce, parents often decide to use the limited resources available to them in sending male children to school in reference to females. This is reflected by the low participation in form education and the high illiteracy rate among females (80.4%) as compare to males (65.4%) around 1984. Low status of women is also reflected by their poor participation in the labour force. Even when they are employed most of them perform non-professional duties. They represent low proportion of persons employed in profession laws restrict the right of women to regulate fertility and discourage the widespread use of modern contraceptive methods, resulting in low contraceptive prevalence rate, about 4%. Laws that have existed permit female marriage at

age 15, but cultural practice allowed marriage to take place at even earlier ages, and hence they begin their reproductive careers early enough. This is one of the factors that contribute not only to high fertility but also to high maternal, infant and child morbidity and mortality. Unwanted pregnancy is a serious problem leading to high maternal morbidity and mortality. A recent study conducted in Addis Ababa revealed 3244 (55.2%) women among 6198 cases who visited obstetric/Gynaecology departments were abortion cases, and in a study a year later 58.6% were abortion cases. These can only reports a very small proportion of women, particularly those of younger ages who seek abortion from unauthorised sources.

- **The Situation Of Children and Adolescents**

Children and adolescents are the segments of the population most affected by draught, famine and war related displacement. Thousands of children have lost their parents forcing them to abandon their communities to urban streets. They are exposed to adverse climatic effects, hunger, violence, diseases etc. The chance of outbreaks of epidemics increases as their number increases. Many children are born and raised in the streets and are exposed to street culture from an early age. The risk of unwanted pregnancies and criminal abortions is high among street adolescents. Immediate means and steps need to be taken to enable street families and others marginalized by

adverse social and economic conditions to be self supporting and to make family planning sources accessible to them.

2. Rational for The National Population Policy

In Ethiopia demographic factors such as rapid population growth, young age structure and the uneven spatial distribution of the population aggravated by a continuing high fertility manifest the severe state of underdevelopment that characterises the present Ethiopian society. Underdevelopment manifests itself, among others, in the following ways.

1. Low productivity in almost all sectors of the economy resulting in high rates of unemployment and underemployment.
2. Low accessibility to education, health services and housing.
3. The perennial problem of food insecurity.
4. High prevalence of maternal, infant and child morbidity and mortality.
5. Low life expectancy.

3. Objectives of the National Population Policy

The National Population Policy of Ethiopia has for its major goal the harmonisation of the rate of population growth and the capacity of the country for the development and rational utilisation of natural resources, there by creating conditions conductive to the improvement of the level of welfare of the population.

The task of harmonising the rate of population growth with the rate of economic and social development requires the involvement and collaboration of a number of governmental and non- governmental agencies. The general objectives specified in the policy can not be handled without reference to the need for a well defined division of labour among these agencies.

1.10. General Objectives of the national population Policy

- Closing the gap between high population growth and low economic productivity through planned reduction of population growth and increasing economic returns.

- Expending economic and social development processes through holistic integrated development programs designed to expedite the structural differentiation of the economy and employment.

- Reducing the rate of rural to urban migration.

- Maintaining/ improving the carrying capacity of the environment by taking appropriate environmental protection/ conservation measures.

- Raising the economic and social status of women by freeing them from the restrictions and drudgeries of traditional life and making it possible for them to participate productively in the larger community.

- Significantly improving the social and economic status of vulnerable groups (women, youth, children and elderly).

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative • EPHTI

Study Questions

1. What is Population Policy?
2. What are the reasons which stimulate governments to formulate population policies?
3. When was the population policy of Ethiopia formulated?
4. When did most countries developed their population polices.
5. What is the rational and objectives of the National Population Policy of Ethiopia.

Ethiopia Public Health Training Initiative • Ethiopia Public Health Training Initiative
EPHTI

REFERENCES

1. Ray Hall, 1993, UPDATE, World Population Trends.
2. PRB, 2000; Human Population, Fundamentals of growth and change.
3. CSO, 1984, Ethiopia: Statistical Abstract.
4. Population and Housing Census Commission; Population and housing census of Ethiopia, 1994. Analytical Report for Addis Ababa.
5. K. Park, 1997; Park's Text book of Preventive and Social Medicine.
6. Helmut Kloos & Zein A. Zein; 1993, The Ecology of Health and Diseases in Ethiopia.
7. WHO, 1986. Teaching Health Statistics
8. PRB, 2004, Health Bulletin, Improving the Health of the World's Poorest People.
9. PRB, 2004. World Population Highlights 2004
10. PRB, 1999. World Population Data Sheet
11. PRB, 2002. Women of our World.
12. PRB, 2004. World Population Data Sheet
13. PRB, 2004. The Wealth Gap in Health
14. PRB, 2001. World Population Data Sheet
15. Lori S.Ashord PRB, 2001. Population Bulletin., New Population Policies:

Advancing Women Health and Rights. Vol. 567, Number 1
Policies: Advancing Women Health and Rights.
16. MOH, 2000/01. Health and Health Related Indicator
17. MOH, 2002/03 Health and Health Related Indicator
18. Scott C. Ratzn & et.al, PRB, 2000. Population Bulletin, Attaining Global
Health: Challenges and Opportunity.
19. Lori S. Ashford; PRB 1995. Population Bulletin; New Perspectives on
Population: Lessons from Cairo. Vol. 50, Number 1.
20. Centre for Health and Gender Equity; 1999, Issues in World Health,
Population Reports: Vol. XXVII, Number 4.
21. PRB, 2000; World Population Data Sheet.
22. Dara Carr, PRB, 2004. Health Bulletin: Improving the Health of the World's Poorest People, Number 1.
23. WHO, 2001, Female Genatala Mutilation: the Prevention and the management of the Health complications.
24. PRB, 2004. World Population Data Sheet.