MODULE – COMMUNITY HEALTH (Unit – DEMOGRAPHY)

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Duration – 10 hours

Objective

This module is designed to enable acquire knowledge on demography and undertake demographic surveys

Outline

1. Introduction to Demography
   - Description and definition of demography: narrow, broader and wider sense; history of demography; definitions; main branches of demography, demographic data - sources, measures and indicators; principles and concepts of demography; demographic transition – definition, theories and cycle

2. Population
   - Definitions, population change factors; measurement of population phenomena; census; population change; housing census; Common demographic indicators as applied to Kenya,

3. Population pyramids
   - Introduction; terminology; construction of pyramids; prototypes; population transition and types of pyramids)

4. Migration
   - Definition, theories, models, patterns, causes and effects; urbanisation and distribution

5. Fertility and Nuptiality
   - Fertility: - definition, rates-crude birth, general fertility, age-specific fertility, grosses reproductive rate, net reproductive; replacement level fertility illegitimacy rate, abortion rate; Nuptiality- definition, marriage rate, median age at first marriage, divorce rate, remarriage rate;

6. Mortality and Morbidity: Mortality: - definition, rates- death, age specific, case specific, infant, neonatal, maternal, Perinatal under five, child, case fatality rate, proportion dying from a specific cause; Morbidity: definition, incidence rate, prevalence rate, case rate

7. Population Issues in Kenya
   - Population trends; Population policy in Kenya, role of service providers in implementing population policy; population and resources (land, health and educational facilities, housing, employment, food); population and development

Lesson 1: INTRODUCTION TO DEMOGRAPHY

Objectives

At the end of the lesson the learner will be able to: -

1) Define various terminologies
2) Describe the demographic stages/cycle
3) Discuss demographic data – measurements, sources and indicators

1.0 INTRODUCTION

Changes in population provide the background to which the development of society has to adjust. Population changes relate to all the phenomena concerning people such as births, deaths, migration, marriages and divorces. Demography studies population development, that is, the number of births, deaths and migration and other phenomena influencing population change, such as the marriage and divorce rates of the population. Demography also examines what kinds of effects changes in population have on the economic and social development of society. Demography describes population from three main aspects - **size**, **composition** and **distribution**.

Demography also examines the mutual interaction of these phenomena and their connection to economic and social life. Demography is the scientific study of human populations, primarily with respect to their size, their structure and their development and encompasses determinants and consequences of population change and is concerned with **virtually everything** that influences or can be influenced by population size, growth or decline, processes (levels and trends in mortality, fertility and migration that are determining population size and change), characteristics (education, religion, or ethnicity) and structure (how many by age).

2.0 DEFINITION OF DEMOGRAPHY

In Greek language *"demos"* means *people* and *"graph"* means *shape* or *description*. So demography is the science that studies human population from different aspects. Demography is very important for health planning, recruitment and allocation of resources.

1) Study of human population, its composition, distribution, density, growth rate, movement and socio-economic characteristics
2) Mathematical knowledge of populations, their general movements, and their physical, civil, intellectual and moral state' (Guillard 1855).
3) Is the study of development of population, its size and structure and changes in population (the changes relate to people's births, marriages, divorces, migration and deaths).
4) Study of a population in its **static** and **dynamic** aspects. The static aspects are the characteristics at a point in time e.g. composition by age, race, sex, marital status and economic characteristics while dynamic aspects include fertility, mortality, nuptiality, migration and growth. .

Human population is dynamic thus the need for all this information and can also be defined from 2 perspectives: - narrow and wide definition

<u>Narrow definition</u>

Also called formal demography is concerned with the size of the people, distribution and biological composition (age and sex) and focuses on three demographic variables - fertility, mortality, and migration.

Basic equation(s)

Suppose that a country (or other entity) contains $Population_t$ persons at time t. What is the size of the population at time $t + 1$?

$$Population_{t+1} = Population_t + Naturalincrease_t + Netmigration_t$$

Natural increase from time t to $t + 1$:

$$Naturalincrease_t = Births_t - Deaths_t$$

Net migration from time t to $t + 1$:

$$Netmigration_t = Immigration_t - Emigration_t$$

- The population pyramid is typical of developing countries where fertility is high and mortality is also high.
- It depicts age, sex composition in relation to fertility and mortality.

Wide definition

The wide definition takes into account additional characteristics of the population such as income, ethnicity, mother tongue, literacy, marital status, occupation, religious affiliation and nationality. It depicts population change on one hand vis-à-vis development …many issues e.g. population versus urbanisation, population versus income distribution and population versus environmental degradation.

3.0 HISTORY OF DEMOGRAPHY

Throughout history, rulers have been interested in the number of population for the important purposes of taxation, resource distribution, power and war (a large number of men fit for military service) while many philosophers pondered about the meaning of the number and structure of population.

- In China Confucius (551-479 BC) suggested restricting the number of population because the environment did not guarantee sufficient subsistence to the ever growing population. Although the population of China at the time was only a fraction of what it is at present, the cultivation methods were so underdeveloped that the excessive population growth often caused shortage of food. As a result of this, people moved long distances to gain more living space.
- Plato (429-347 BC) put forth 5,040 as the number of population for his ideal city. In his calculations Plato was more concerned about the quality of the population than their number and based his ideal number of population on the fact that the figure 5,040 was divisible by all figures up till nine. In Plato's opinion, tax collection and military recruiting would be thus made easier.
- Plato's student Aristotle (384-322 BC) described the relation between population growth and environment (he thought excessive population growth caused poverty, which was followed by rebellions and crime).
- Roman Emperor Augustus (63 BC - 14 AD) was concerned about the corruption of his people's family life, he enacted the laws - Lex Julia and Lex Papia - which restricted polygamy and supported the growth of birth rate. He ordered the most important census in world history.
- The Romans needed information for tax collection and thus Joseph and Maria went from Nazareth - their town of domicile - to Bethlehem where their family lived.
- John Graunt (Father of demography) was interested in lists of baptisms and burials; published his study entitled "Natural and Political Observations Mentioned in the Following Index, and Made upon the Bills of Mortality, with Reference to the Government, Religion, Trade, Growth, Air, Diseases and the Several Changes of the Said City". This

volume was the beginning of a systematic, continuous study later known as demography. The name of Graunt's book would indicate that he could easily have been the father of many other fields of science as well.

- Edmund Halley (1656-1742) examined lists of deaths in Bleslau (the present Polish town of Wroclaw). These lists were more complete than those used in London at the time as they also indicated the age and gender of the deceased person. Based on this material, Halley calculated life expectancies using age group specific mortality rates for the first time ever. At the time the life expectancy of a newborn baby was just 30 years!
- In 1741 a Prussian clergyman - Johann Peter Süssmilch (1707-1767) published a volume "The Godly Order", where he demonstrated regularities in different population events in his study of the population structure and birth and death rates in different years.
- Wilhelm Lexis (1837 – 1914) – a 19th century the German mathematician and economist who developed the two-dimensional approach that helps temporal examination of population phenomena.
- Benjamin Gompertz and law of mortality: In 1825 the English mathematician Benjamin Gompertz (1779-1865) realised that mortality can also be described by this same geometric growth.
- American biologist/statistician Alfred Lotka (1880-1949) examined the relation between the birth and death rates and the age structure of population and proved that population growth in the USA has been produced artificially by taking in immigrants. In contrast, natural population growth no longer guarantees the growth of population (in the 1920s) but in the long run the number of population will fall if no immigrants are allowed into the country.

4.0 DEFINITIONS

1. **Population**
   - Number of people living in a given geographical area at a given point in time
   - Total number of inhabitants constituting a particular race, class, or group in a specified area
   - A group of individuals of the same species occupying a particular geographic area.
   - Populations may be relatively small and closed, as on an island or in a valley, or they may be more diffuse and without a clear boundary between them and a neighbouring population of the same species.
   - Population can be divided into permanent or temporary residents. Temporary residents live in the area for a certain predetermined time. A person is considered to live permanently in some area if he or she intends to live there for over one year. The UN uses two concepts in population statistics:
     - **De jure population** is the population living in the area permanently - legally.
     - **De facto population** is the actual population of the area including all the persons living there temporarily. In some countries even tourists are taken in this group.

2. **Population group**

Describes an individual population group sharing a certain feature e.g. the child population, population of working age or elderly population. In the same context, we often refer to **population a group, which clearly defines** the population according to some special characteristics. These special characteristics can be - as above - age, but the defining factors can be citizenship (alien population), refugee status (refugee population) or ethnicity (Sami population).

3. **Population changes**

The size of population is dependent on changes in the number of three factors - *births*, *deaths* and *migration*. The number of births increases population, while that of deaths decreases it. In English the term **vital events** is often used to talk about births and deaths. The effect of migration on the size of population can be either increasing or decreasing. When examining only the effect of the number of births and deaths on the size of population, we refer to so-called **natural increase** or **natural population growth**. When the change in population size is viewed by taking migration into account as well, we talk about **population growth**.

4. **Population status**

In demography the objects of study are factors describing population status such as the size of population, age, gender and marital status structure and information on the regional distribution of population. In addition, population status can also be described according to nationality, language, and religious group, country of birth, municipality of birth, education, occupation and source of livelihood.

5. **Population density**

The population density is the number of population per unit of total land area of a country.

6. **Vital events**

Demography also studies vital events, that is, births, deaths and migration. In addition, vital events include marriages contracted and divorces. Vital events also have their own "internal" structure according to age and gender. For example - the number of deaths can be examined by age and gender, children born by the age of mother and divorces by the duration of marriage. The generality of vital events is highly dependent on age. Children are borne to parents between the ages of 25 and 30, migration occurs most among persons entering working life and deaths become more general the older the people become. Vital events are "age dependent".

7. **Demographic analysis**

This is the study of components and change in demographic variables and the relationship between them. Also called the **formal demographic method**

8. **Population studies**

Study of relationship between demography variables and other variables such as social and economic variables

5.0 MAIN BRANCHES OF DEMOGRAPHY

Demography can be divided into two main branches: **descriptive demography** and **mathematical or formal demography**

Descriptive demography

- Looks to other traditional disciplines such as sociology, economics, social policy, etc. - in its search for answers to changes in population phenomena
- Aims to find out why the number of births has decreased, why the number of divorces is higher than in many other countries, and why people move from rural into urban areas.
- Changes in demographic phenomena can be explained on the basis of changes taking place in society: for example, how does the level of education influence the number of

children born, do women with more education have fewer children than women with a lower level of education? On the other hand, researchers may also be interested to study the impacts of demographic phenomena on society: for example, how does high population growth influence socio-economic development, does migration into urban areas support development in these areas, what are the effects on the countryside?

Mathematical or formal demography

- Employs mathematical formulae and models to describe population changes (**demometry)** or the measurement of demographic phenomena
- Most common approach is to compare some vital events to the size of the population
- Demography is largely an exercise in calculating various ratios and in comparing these ratios with one another either at a certain point in time or within a certain period of time.

6.0 BASIC DEMOGRAPHIC DATA (POPULATION STATISTICS)

- Population statistics provide information concerning the status and changes of the population. **Current population statistics** contain information related to the number and structure of the population. In addition to age and gender, the information on population structure includes information on people's marital status (unmarried, married, divorced, widow) and place of residence (e.g. region, municipality)
- The population structure statistics also comprise information on the nationality, country of birth and native language of the population.

Statistics of population changes

- Contain statistics on births, deaths, marriages contracted, divorces granted and migration
- Besides quantitative data, the statistics of population changes also encompass much structural information on vital events
- Such structural information may include information on children by age of mother, migrants by age and gender, and deaths by age and place of residence.

Sources

The main information sources used in demography are current population statistics and statistics of population changes.

1. **Primary Sources**
   a) Census
   b) Sample surveys
   c) Vital registration

a) Census

The purpose of the population census is to take a census of the population and gather information on occupations, sources of livelihood and on the structure of families and household-dwelling units. It often includes calculation of dwellings, buildings and real estate. Population censuses are statutory exercises carried out in accordance with the recommendations and instructions drawn up by the United Nations (UN) to ensure that the data on different countries are mutually comparable.

- **Advantages**
  - o Fiscal support from donors if a country conducts a regular census.

- **Limitations**
  - i) Cumbersome exercise
  - ii) Expensive undertaking thus taken once every 10 years (decennial census)
  - iii) Some people are missed.
  - iv) Poor coverage especially in communities who are nomadic.
  - v) Analysis – faulty machines (scanners), wrong entry in computer (human error)
  - vi) There is a big time lapse between time of census being taken and release data therefore data become obsolete and out-dated.
  - vii) Under numeration therefore one has conduct a post enumeration.

b) Sample surveys

Population statistics are the main source of demographic information, but they do not always give all the answers that researchers are looking for about population development. They may show, for example, that the birth rate is falling, but they will not be able to shed any light on the reasons for this; the only way to find out is to ask people.

An interview survey is based on a questionnaire, which is sent out to be filled in by the people included in the sample. Alternatively, it is possible to conduct personal interviews where the interviewer puts the questions directly to the interviewee. Interviews are nowadays often conducted over the phone. However a telephone interview is not possible if the survey includes several sensitive questions. In a survey concerning the birth rate, for example, one sensitive issue is the number of abortions. The interview survey is a good way of obtaining more detailed information about factors relating to population development. It is also a useful instrument for collecting information on people's opinions.

- The surveys could be economic, political or population.
  - o Examples - Kenya Demographic and Health surveys (KDHS) under NCPD (National Council for Population and development, Kenya fertility survey, Kenya contraceptive prevalence survey.
- Are done more regularly then census.
- Are sponsored by either the government or private sponsors.
- The monitors variables e.g. birth, fertility, trend analysis, labour force, income, unemployment, attitudes, behaviour.

Advantages

- Generate detailed information
- Gain information on sensitive issues (depends on choice of method)
- Flexibility

Limitations

- Lack representativeness as they pay particular attention to a group of people thus leading to bias
- High cost of implementation
- Reliability challenges (sampling and interviewing techniques help improve reliability of interviews).

c) Vital registration system

- Registration of births, deaths, marriage, divorce, annulment, baptism.
- Events that occur regularly and require documentation.
- May be incomplete because of inaccurate data.

Population registers

Is a computer register containing the key demographic information on all persons permanently resident in the country and updated regularly by amending the information (marriages contracted) or by adding (births) and removing (deaths) the information. The domicile of the person changes in the population register upon moving.

2. Secondary Sources

- Processed data e.g. Journals, books, atlas, newspapers, research reports, pamphlets.

7.0 DEMOGRAPHIC MEASURES

1. Rates

- Events e.g. births, death
- Measured per period of time usually p.a. e.g. crude birth rate

2. Ratio

- Relationship between two parameters e.g. M: F = 1.04: 1.0 at birth
- Thereafter there is a disproportionally high mortality among men than women. By 5 years M:F = 96:100. It contains decreasing.

3. Fraction/proportion

- Expressing a parameter as part of a whole …express proportion with decimals

8.0 DEMOGRAPHIC INDICATORS

Demographic indicators include - births, deaths, fertility, migration, population composition and population distribution

1) Crude birth rate (CBR) = $\frac{\text{Total live births in 1 year}}{\text{Total population}} \times 1000$

2) Crude death rate (CDR) = $\frac{\text{Total deaths in a year}}{\text{Total population}} \times 1000$

3) Emigration = $\frac{\text{Number of persons leaving a country in a year}}{\text{Total population in one year}}$

4) Immigration = $\frac{\text{Number of persons entering a country in a year}}{\text{Total population}}$

5) Natural population growth (NAT.PGF) = CBR - CDR

6) Net population growth (NET.PGF) = NAT.PG + (Entering – Leaving)

7) General Fertility rate (GFR) = $\frac{\text{Total live births in a year}}{\text{Total women (15 -49) years of age (fertile women)}}$

8) Total fertility rates – Number of children a woman can have in her life time (Kenya – 4.9 per woman, KDHS, 2003)
9) Age specific fertility rate – number of birth to a woman divided by number of women at that age

10) Child mortality rate – Number of children 1 – 5 years that die in a given year per 1000 children in that age group during the period. (Kenya – 115 per 1000 live births, KDHS, 2003)

11) Infant mortality rate – number of deaths of infants under 1 year per 1000 live births in a year. (Kenya – 77 per 1000 live births, KDHS, 2003)

12) Maternal mortality rate - number of women who die as a result of child bearing in a given year (Kenya, 414 per 100 000 live births, KDHS, 2003)

13) Life expectancy – estimated average number of years a person is expected to live if the current mortality trend continue

14) Dependency ratio – number of economically dependent persons compared to the reproductive persons in a given population

15) General Dependency rate (GDR) = $\frac{\text{Persons aged < 15 years + persons ages > 60 years}}{\text{Population of 15 – 64 years of age}}$

16) Elderly Dependency rate (GDR) = $\frac{\text{Persons ages > 60 years}}{\text{Population of 15 – 60 years of age in the same locality}}$

9.0 PRINCIPLES OF DEMOGRAPHY

Demography may describe population from three main aspects, namely **size**, **composition** and **distribution**.

9.1 Population Size

To know the number of all persons in the community we use either **census** or **estimated population**. Census is a process of enumeration of all persons in the community while estimated population is is the number of population of any of the inter-census (non-census) years. The methods of estimation include natural increase method (number of live births - no. of deaths in the years following the census) and the arithmetic method. In the arithmetic method data is obtained from the last two consecutive populations of the community and the mean annual increase calculated and multiplied by the years passed since last census and added to its population, but it is rough, not accurate.

Example Census 1985 = 30,000, 1995 = 40,000 so mean annual increase

$= \frac{40{,}000 - 30{,}000}{10} = 1000$

So the population in 1998 is 40000 + (3 x 1000) = 43,000
The arithmetic method employs the geometric method (most accurate method where a special formula is used to find out the annual rate of population growth, to be applied to the census population to get the estimated population of the following years) and the graphic

method (number of successive census population is plotted on a graph and joined together by straight line, which is extended over future year).

9.2 Composition

Is the description of the quality of the population as shown by population pyramid (graphical presentation of age and sex composition of the community). The point in the vertical axis of age through which passes the horizontal line that divides the surface area of the pyramid into two equal parts (50% younger and 50% older).

9.3 Distribution

How people are distributed in the country by regions, urban versus rural or desert, natives and foreigners and racial

10.0 CONCEPTS OF DEMOGRAPHY

1. Person

Demography studies changes occurring to persons, such as births, deaths and migration. The information is also collected for statistics on the so-called individual level, which means that the information concerns persons. Persons are examined according to different variables, such as age, gender and marital status. Persons can also be viewed by their occupation and education, for instance.

2. Family

A **family** is formed by people living together in a married or cohabiting union and their children, by a mother or a father with their children, and by married and cohabiting partners without children. A family can at most consist of two successive generations. In many cultures the family is conceived as a much larger unit than the conventional nuclear family. The family may include several wives or it is understood as a broad family composed of relatives. A **family with children** refers to a family with at least one child under the age of 18 living at home.

3. Household

A household is formed by family members living together and by other persons who have a shared household. Thus parents, their children and a grandmother living with them constitute a household. Excluded from households are people living in various institutions and thus in shared households e.g. old people's homes and prisons.

4. Household-dwelling unit

A household-dwelling unit is formed by all people living permanently in the same dwelling. When a household is formed by people with a shared household, this definition of household -dwelling unit is not applied. The household-dwelling unit is nowadays used in Finland and Denmark because in these countries population statistics are compiled by utilising various administrative registers.

5. Population size

Population size varies according to the area in question. The population of the world (around 6.2 billion) is very unevenly divided by country. The over one billion populations of China and India make up as much as 37 per cent of the population of the world.

Assignment

Find out the population for Kenya

6. Population density

Population is often examined in proportion to the surface area of the country. In this way populations living in areas of different size can be compared. The figure obtained is called **population density**. Population density is calculated per square kilometre (km²). Either the total area contained inside the borders of the country (including water systems) or land area is used. The population density in the world's most populous country, China, is 132 persons per km^2 and in the second most populous country, India, 300 persons per km^2.

> **Assignment**
> Find out the population density for Kenya and each of its Counties

7. Age

Age is usually calculated in full years, in which case it refers to the number of years on the latest birthday. A child born is 0 years old in the first year of her life and after her first birthday she becomes one year old. Age is a very central concept in demography, similarly as in life itself. Demand for various services depends on age and how many people are at a certain age. In population statistics age is usually determined at the end of the year or at the time of some vital event, such as moving. Then the actual vital event may take place before or after the birthday.

8. Age pyramid

The age pyramid (also known as the population pyramid) describes the population by age group. The size of age groups is presented by stacked horizontal bars where the bars for men are on the left side of the vertical axis and the bars for women on the right side. Age is given on the vertical axis so that the youngest age group is at the bottom (e.g. 0 to 4-year-olds) and the oldest age group (e.g. over 100-year-olds) is at the top. The age pyramid can be made either by using numbers by age group, by calculating the relative proportion of each age group in total population, or by calculating the relative proportion separately from the sum of men and women.

9. Gender

In demography the quantitative differences between genders are described by calculating women per 1,000 men. This is naturally due to the fact that women outlive men. Kuwait is at the other extreme, with just 722 women per 1,000 men.

10. Marital status

Marital status means division of population into groups according to whether people are unmarried, married, divorced or widowed. Those who have never been married are unmarried. Other marital statuses are determined either on the basis of marriages contracted, divorces granted by courts or death of spouse. Demography uses the official classification of marital status: unmarried, married, divorced or widowed. Cohabiting unions have become more common especially during the last few decades. Cohabiting unions are not formalised in the same way as marriages, but cohabitation is often equated with marriage in demography - similarly as in ordinary life. In many countries it is difficult to obtain information about the numbers of people living in cohabiting unions.

11. Area

Demography usually makes use of administrative area classifications. This is because population statistics, like other statistics, are compiled according the boundaries of administrative areas. All countries are divided into administrative areas. In Kenya we have counties, districts, divisions, locations, sub location

11.0 DEMOGRAPHIC TRANSITION

Demographic transition (DT) refers to the transition from high birth and death rates to low birth and death rates as a country develops from a pre-industrial to an industrialized economic system. This is typically demonstrated through a demographic transition model. The term "demographic transition" denotes the effects on population of the social and economic changes of the industrial revolution, which transformed Europe in the eighteenth and nineteenth centuries and spread to the rest of the world in the twentieth century.

11.1 Demographic Transition Theory

States that societies progress from a pre-modern regime of high fertility and high mortality to a post-modern regime of low fertility and low mortality. The transition is brought about by reduction of death and modernization where children have become more costly and cultural changes have weakened the importance of children. Increasing empowerment of women on reproductive rights has led to the change in values that emphasize on the quality of children rather than their quantity. Fertility transition is a universal phenomenon. Frank W. Notestein (1945) ascertained that the rapid growth of population during the past three centuries was mainly due to the decline in the death rate resulting from the process of modernization.

11.2 Demographic Transition Stages

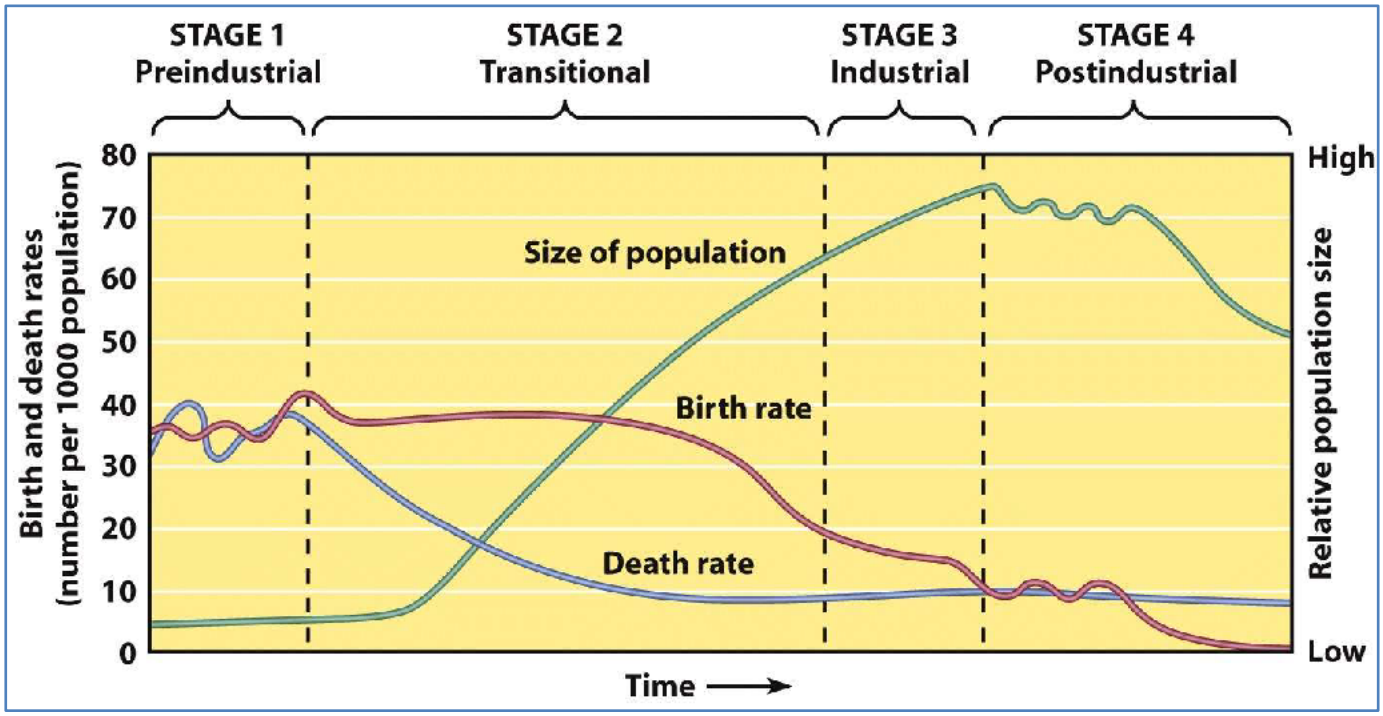
1. Pre-industrial Stage
   - Birth and death rates high
   - Modest population growth

2. Transitional Stage
   - Lowered death rate
   - Rapid population growth

3. Industrial Stage
   - Birth rate decline
   - Population growth slow

4. Post Industrial Stage
   - Low birth and death rates
   - Population growth very slow

Four Stage Demographic Transition



Demographic Cycle (C.P. Blacker – 1947)

Stage 1 - High Stationary

- Birth Rate and Death rate are both high and roughly in balance
- Population growth is slow and fluctuating.
- Reasons
  - Birth rate is high as a result of lack of family planning, high Infant Mortality Rate: putting babies in the 'bank', need for workers in agriculture, religious beliefs and children as economic assets
  - Death rate is high because of high levels of disease, famine, lack of clean water and sanitation, lack of health care, manmade and natural disasters e.g. war, famine and floods; competition for food from predators such as rats and lack of education
- Examples - Typical of Britain in the 18th century and the Least Economically Developed Countries (LEDC's) today.

Stage 2 - Early Expanding

- Birth rate remains high and death rate is falling
- The countries in this stage experience a large increase in population.
- Population begins to rise steadily.
- Reasons
  - Death Rate is falling as a result of improved health care (e.g. Smallpox Vaccine), hygiene (Water for drinking boiled), sanitation, food production, transport and storage
  - Decreased Infant Mortality Rates
- Examples - Typical of Britain in 19th century; Bangladesh; Nigeria

Stage 3 - Late Expanding

- Birth rate starts to fall while death rate continues to fall
- Population rising
- Reasons:

- Family planning available; lower infant mortality rate; increased mechanization reduces need for workers; increased standard of living; changing status of women – education, social, economic; urbanization and increased wages
- Examples - Typical of Britain in late 19th and early 20th century; China; Brazil

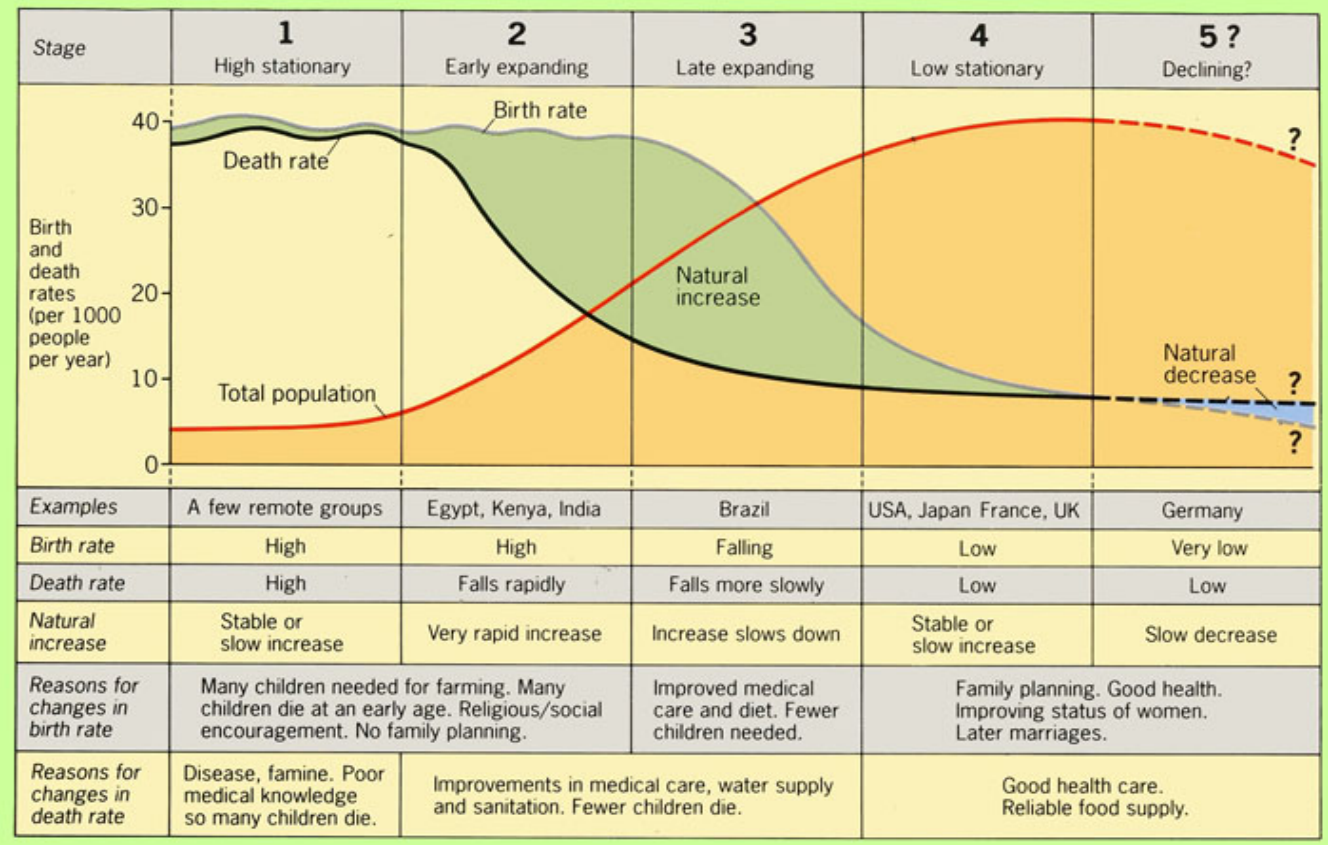
Stage 4 - Low Stationary

- Birth rate and death rate both low
- Population steady
- Birth rates may drop to well below replacement level as has happened in countries like Germany, Italy, and Japan, leading to a shrinking population
  Examples - Typical of USA; Sweden; Japan; Britain

Stage 5 – Declining Stage

The population begins to decline due to lower birth rate as compared to death rate. Developed countries are facing this problem. England was the first country to pass through the demographic transition. This took approximately 200 years. Some other countries, such as Japan, which started the process rather later than England, completed their passage through the transition in less than half that time.

5 Stage Demographic Cycle



Stage	1 High stationary	2 Early expanding	3 Late expanding	4 Low stationary	5 ? Declining?
Examples	A few remote groups	Egypt, Kenya, India	Brazil	USA, Japan France, UK	Germany
Birth rate	High	High	Falling	Low	Very low
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down	Stable or slow increase	Slow decrease
Reasons for changes in birth rate	Many children needed for farming. Many children die at an early age. Religious/social encouragement. No family planning.		Improved medical care and diet. Fewer children needed.	Family planning. Good health. Improving status of women. Later marriages.	
Reasons for changes in death rate	Disease, famine. Poor medical knowledge so many children die.	Improvements in medical care, water supply and sanitation. Fewer children die.		Good health care. Reliable food supply.	

Stage 6 – what do you expect to be happening in this stage?

Lesson 2: POPULATION AND HOUSING CENSUS

Objectives

At the end of the lesson the learner will be able to: -
1) Define various terms
2) Describe population change factors
3) Discuss measurement of population phenomena
4) Discuss the population census

POPULATION CENSUS

1.0 POPULATION CHANGE FACTORS

Changes occurring in the population are viewed by means of population change factors such as births (fertility), deaths (mortality) and migration (changes of domicile). In migration, internal migration and international migration (immigration and emigration) are separated. The population change factors have a direct effect on the development of population size. In demography births and deaths are also known as so-called natural population changes (vital events). Other population change factors are marriages contracted and divorces.

1. Fertility

Fertility refers to a phenomenon where the interest is with the proportion of children born in the population (reproduction). At childbirth, women may give birth to more than one child, known as multiple deliveries (twins, triplets, quadruplets). A child may be live-born or stillborn. The fertility level is influenced by miscarriages and abortions (terminations of pregnancy). In demography the word birth rate is often used to refer to the key ratio describing the fertility phenomenon. The terms fertility and birth rate often have the same meaning.

2. Mortality

Mortality refers to the relative proportion of deaths in population. Mortality is examined particularly by age. Thus a separate group is formed for deaths under the age of one year, or infant deaths. In addition, the difference between the mortality of men and women is considerable. Causes of death are classified according to the disease classification approved by the World Health Organization (WHO).

3. Marriage rate

Marriage rate refers to the phenomenon measuring relatively the number of marriages contracted. Marriages are contracted with the formalities required by the law and customs of each country. In many countries marriages involve a wedding ceremony. In the last few decades, it has become more common to live together without getting married. This is known as unions cohabitation. In demography cohabiting are usually considered equal to marriages.

Assignment: What are the laws and customs governing

4. Divorce rate

Divorce rate refers to the relative number of marriages dissolved. Applications for divorce are submitted to a court of law. Divorce legislation varies widely between different countries.

Many Catholic countries do not accept divorce at all.

5. Migration rate

Migration rate refers to the phenomenon measuring relatively the volume of changes of residence - migration. Migration may be temporary or permanent. Demography mainly examines permanent migration (changes of residence lasting at least one year). Migration is mainly studied within or between administrative boundaries of areas. In migration distinction is made between internal migration, i.e. changes of residence within the borders of the country, and international migration (immigration and emigration) across the borders of the country.

2.0 MEASUREMENT OF POPULATION PHENOMENA

1. Measurement of birth rate

The birth rate is measured by the **general birth rate** (*the annual number of births is divided by the mean population and multiplied by one thousand*). The general birth rate can also be calculated from a longer time span (say five years) then an *average is calculated from the number of births, which is expressed as a proportion to the mean population of the period, and the derived figure is multiplied by one thousand.* The term "**crude birth rate**" may illustrate better that it is a very rough measure especially when the general birth rate is used to compare different countries with one another, different age structures of populations influence the result.
Advantage of the general birth rate is that it can be calculated fast. It should not be used for any far-going conclusions on how large or small the birth rate is because age structures are very different in various countries. In contrast, the general birth rate can be safely used for measuring the birth rate in one country in different years because changes in age structure are slow.

2. Measurement of fertility

Fertility compares the number of live-born children with women of fertility age (usually aged 15 to 49). Age group-specific fertility rates are generally calculated either by five-year age group or one-year age group by comparing the numbers of children born to women of a certain age with the mean female population of the same age. To make the comparison easier the figure derived is multiplied by one thousand. Age group-specific fertility rate is the women's probability to give birth at a certain age when the figure is not multiplied by one thousand. When these probabilities are added up the sum indicates the average number of children born to women. This is called the **total fertility rate** (sum of age group-specific fertility rates) which is the best describer of fertility and it is usually used when comparing the fertility of different countries. Most typically calculated using women's data by five-year age group. The figure obtained is multiplied by five because each age group has five one-year age groups.

3. Measurement of death rate

Death rate is measured by the **general death rate**, in which the *annual number of deaths is divided by the mean population and multiplied by one thousand*. The general death rate can also be calculated from a longer time span and then an average is calculated from the number of deaths, which is divided by the mean population of the period and multiplied by one thousand. The general death rate describes mortality in one country in different years

fairly well but comparison of countries with different age structures by means of the general death rate may give an erroneous image of the level of mortality. Age group-specific death rates are calculated by age group for both men and women by comparing deaths at a given age with the mean population of each age group. The age groups used in calculation of age group-specific death rates are usually one-year or five-year age groups.

Death rate is also measured by age group-specific probability of death rates. They differ from age group-specific death rates in that they are not calculated per mean population. The probability of death rates are calculated according to age so that deaths at a certain age are divided by the same age population and, where necessary, the figure is multiplied by one thousand.

4. Measurement of infant mortality

The level of infant mortality is measured by the **infant mortality rate**, in *which the number of deaths in infancy, i.e. under one year old, i*s *divided by the number of live births during the same year*. The derived figure is multiplied by one thousand. The infant mortality rate is calculated for the calendar year so that all live-born in a certain year are included, that is, all those aged 0 in the course of that year. In contrast, those dying at the age of under one may have been born during the preceding year or died at age one in the year following the year of calculation.

5. Life expectancy

One of the most used key ratios describing mortality is the so-called **life expectancy**, also known as **expectation of life**. Life expectancy *is a statistical ratio expressing the remaining lifetime of living persons of a given age*. The lifetime of new-born children, i.e. those aged 0 is the most commonly used ratio. Similarly as the infant mortality rate, life expectancy is one of the main key ratios describing the living standard of countries. The longer people live, the more advanced is the standard of health care in that country. At the same time, economic and social living conditions are better among those "living long". Life expectancy is calculated by utilising the probability of death rates and indicates the level of mortality precisely in the period from which it is calculated. It can be interpreted as a "**prediction**" of the future level of mortality.

6. Measuring marriages

Marriages are measured by the number of marriages contracted is expressed in proportion to the mean population. The most commonly used index is the **crude marriage rate**, which is the number of marriages contracted per one thousand in the mean population. The prevalence of marriage depends very much on age, and indeed the most accurate measures are provided by various age-specific statistics. Age-specific statistics are calculated separately for men and women because men are some two years older than women when they marry for the first time.

Age-specific marriage rates are calculated separately for men and women by counting the number of persons in each five-year (or one-year) age group who have married per one thousand same-aged and eligible (unmarried, divorced and widowed) persons in the mean population. These age-specific marriage rates are often counted separately for persons who have married for the first time. In this case the number of unmarried persons will be used as the mean population.

The **total marriage rate** describes *the proportion of the population who marry during their lifetime* and is calculated separately for men and women, although the figure usually quoted is the total marriage rate in women. This statistic is counted by summing up the age-specific marriage rates. The number of women (men) in all age groups rather than the number of unmarried persons is used as the mean population.

The *mean age at marriage is calculated on the basis of the mean age of men and women who have married*. It is counted separately for persons marrying for the first time, for the second or subsequent time and of course for everyone who has married during the year under study.

7. Measuring divorces

The **crude divorce rate** is *the number of divorces registered during one year per one thousand in the mean population*. It is a crude measure because the mean population includes large numbers who are not exposed to the risk of divorce. A more accurate measure is therefore provided by *age-specific divorce rates*. The divorce rate is dependent on age and the rates are counted separately for men and women. Age-specific divorce rates *describe the number of same-aged persons divorcing in each five-year (or one-year) age group per one thousand* ***married*** *persons in the mean population*.

The total divorce rate expresses the proportion of marriages that end in divorce and is counted on the basis of the divorce rate for one year. It is noteworthy that the total divorce rate is a **statistical estimate** based on the assumption that the **divorce rate for the year concerned** remains unchanged throughout the duration of the marriage. The same applies to the interpretation of figures from life expectancy tables: they are estimates of the future based on assumptions of no change.

8. Measuring migration

The **crude gross migration rate** is *the number of people who have moved per one thousand in the mean population.* To get a more accurate picture of migration it is possible to calculate age-specific migration rates separately for men and women. These rates are usually counted for five-year or one-year age groups. However age-specific migration rates are often computed for the whole population and without gender differentiation. Women do move more often than men, though, so from this point of view it is useful to count the statistics separately for men and women. These statistics can be produced separately for internal and international migration and it is also possible to produce separate calculations for out-migration and in-migration.

9. Age standardisation

Population phenomena are dependent on age thus comparisons of mortality in different populations are often complicated by differences in age structures. Age standardisation is a useful tool for comparing populations with different age structures. Comparisons of populations that have different age structures are based on standard population. There are two methods of age standardisation namely **direct and indirect age standardization**. In the direct method both the age-specific mortality rates and the age structure of the study population are known whereas in the indirect method only the total number of deaths in the population and its age structure are known.

Direct age standardisation

- Uses the age-specific mortality rates for the study population to compute the number of people who would die in the standard population
- Mortality rates for the study population are applied directly to the standard population and the crude mortality rate is calculated

Indirect age standardisation

- Uses the age-specific mortality rates for the standard population to compute the number of people who would die in the study population
- The next step is to compare the number of expected and observed deaths giving the indirectly standardised mortality ratio (SMR).

3.0 POPULATION CENSUS

The population and housing census is one of the pillars for data collection on the number and characteristics of the population of a country. It is part of an integrated national statistical system, which may include other censuses (for example, agriculture), surveys, registers and administrative files and provides, at regular intervals, the benchmark for population count at national and local levels. It provides a solid framework to develop sampling frames.

A population and/or housing census *is the total process of collecting, compiling, evaluating, analysing and releasing demographic and/or housing, economic and social data pertaining to all persons and their living quarters (United Nations, 2007).* Traditionally, censuses are conducted at specified times (every 10 years in Kenya) in an entire country or a well-delimited part of it. Some countries have started carrying out continuing surveys to cover the whole country, using a "long" form, to provide complete coverage over time.

A population census is the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country or in a well delimited part of a country.

What do you understand by the meaning of de jure and de facto census?

Population is basic to the production and distribution of material wealth thus in order to plan for, and implement, economic and social development, administrative activity or scientific research, it is necessary to have reliable and detailed data on the size, distribution and composition of population. The population census is a primary source of these basic benchmark statistics, covering not only the settled population but also homeless persons and nomadic groups.

3.1 Essential features

The essential features of population and housing censuses are: -

a) Individual enumeration
b) Universality within a defined territory
c) Simultaneity
d) Defined periodicity

Individual enumeration

- Each individual and each set of living quarters is enumerated separately and that the characteristics thereof are separately recorded
- Allows for the data on the various characteristics be cross classified

Universality within a defined territory

- Census should cover a precisely defined territory (e.g. the entire country or a well-delimited part of it) and include every person present and/or residing within its scope, depending upon the type of population count required as well as every set of living quarters irrespective of type.

Simultaneity

- Each person and each set of living quarters should be enumerated as of the same well-defined point in time and the data collected should refer to a well-defined reference period

Defined periodicity

- Censuses should be taken at regular intervals so that comparable information is made available in a fixed sequence

3.2 Uses

Population census

1) Policy making
2) Planning
3) Administration
4) Management and evaluation of programmes in education, labour force, family planning, housing, health, transportation and rural development
5) Administrative (political) use is in the demarcation of constituencies and allocation of representation to governing bodies
6) Resource for research providing data for scientific analysis of the composition and distribution of the population and for statistical models to forecast its future growth
7) Provides business and industry with the basic data they need to appraise the demand for housing, schools, furnishings, food, clothing, recreational facilities, medical supplies and other goods and services.

Housing census

1) Uses for development of benchmark housing statistics
2) Uses for the formulation of housing policy and programmes
3) Assessment of the quality of housing

3.3 Methodological approaches

1. The traditional approach
   - Comprises a complex operation of actively collecting information from individuals and households on a range of topics at a specified time, accompanied by the compilation, evaluation, analysis and dissemination of demographic, economic, and social data pertaining to a country or a well-delimited part of the country.
   - Members of the public respond to a census questionnaire, or interviewers are deployed to collect information from respondents.
   - For interviewer-based censuses, enumerators assigned to different enumeration areas cover all households and persons in the enumeration area during a specified and usually short period of time in order to meet the requirements of universality and simultaneity. Both short and long forms may be used within the context of traditional censuses.
   - The short form contains only questions intended for universal coverage, while the long form is used to collect information from only a sample of households and population
   - Various methods can be used for collecting the data, including a mailed or dropped-off questionnaire, the telephone, the Internet, personal visit follow-up, or a combination of such methods, countries employing the traditional design may utilize very different methodologies in doing so.

<u>Advantages</u>

i) Provides a snapshot of the entire population at a specified period and the availability of data for small geographic domains
ii) particularly suitable for countries having a federal structure and having the requirement of producing population numbers by various social and economic characteristics simultaneously for all geographical levels to meet the needs of planning and the allocation of funds

<u>Disadvantages</u>

i) Costly
ii) Complex task requires full awareness and agreement of the public to participate in it.

2. The register-based approach
   - The concept emerged in the 2000 round of censuses
   - The philosophy underlying this concept is to take advantage of the existing administrative sources, namely, different kinds of registers, of which the following are of primary importance: households, dwellings and individuals.

<u>Advantages</u>

i) Reduced cost for the census process
ii) Greater frequency of data

<u>Disadvantages</u>

i) Establishing and conducting administrative registers involve higher costs
ii) Register-based descriptions have to rely exclusively on the information contents that can be formed on the basis of the registers available
iii) Registers are legally restricted to use for another purpose
iv) Accurate information is not adequately reflected in the register.

3. The rolling census approach

- Involves a continuous cumulative survey covering the whole country over a long period of time (generally years), rather than a particular day or short period of enumeration
- Two main parameters - the length of the period of enumeration (which is linked to the frequency of updates required) and the sampling rate (which depends on the available budget and the geographic levels required for dissemination purposes)

Advantages

i) Higher frequency for updating data
ii) Smoothing the burden of the census, instead of the high cost and labour requirement of a traditional census
iii) Possible to improve the process year after year and test new technologies

Disadvantages

i) No longer provides a simultaneous snapshot of the whole population complicating comparisons between areas owing to different enumeration times
ii) Covers the whole country over a long period of time, some respondents move thus some people may be surveyed several times and some other people will not be surveyed. As a result, universality might not be ensured unless careful

4. Traditional enumeration with yearly updates of characteristics
   - Focuses on counting the population and collecting only the basic demographic data in the census year. A very large household survey collects and tabulates detailed demographic, social, economic, and housing data every year throughout the decade, replacing a census-year long form to collect these detailed data from a sample of the population

4.1 THE CENSUS PROCESS

All censuses and surveys share certain major features that include:-

a) Preparatory
b) Enumeration or collection
c) Data processing, including data entry (keying or scanning), editing and tabulating
d) Databases construction and dissemination
e) Evaluation
f) Analysis of the results

CARRYING OUT THE CENSUS

A. Preparatory - preparatory work includes many elements such as

1. Determining the legal basis for the census
2. Financial basis, budget and cost control
3. Developing the census calendar
4. Administrative organization - cartography; creating a listing of dwelling units; developing of the tabulation program; preparing the questionnaire; and developing plans and training staff for enumeration, pre-tests,
5. Census communication activities: user consultations, census publicity and promotion of census products
6. Plans for the quality assurance and improvement programme
7. Mapping
8. Small-area identification
9. Living quarters and household listing
10. Tabulation programme and database design

11. Questionnaire preparation
12. Census tests
13. Plan of enumeration
14. Plan for data processing, census outputs and dissemination
15. Staff recruitment and training
16. Contracting out

B. Enumeration

- There are two major methods of enumeration - **the canvasser** (or enumerator) method and **householder** method.

Canvasser Method

- Information for each individual (in a population census) and for each set of living quarters and the occupants thereof (in a housing census) is collected and entered in the questionnaire by a census official designated to perform this operation in a specified area
- Advantages
  - Can be used in largely illiterate populations or in other population groups that may be unwilling to complete the census forms themselves or find it difficult to do so
- Disadvantages
  - May be prohibitively expensive to encourage enumerators to go beyond even the "first responsible adult" they encounter in each household

Householder method

- Major responsibility for entering the information is given to a person in the unit being enumerated (usually the head of the household), although the questionnaire is usually distributed, collected and checked by a census official
- In some countries, postal distribution of the questionnaire, with or without postal return, is used in conjunction with the householder method
- The mail-out and mail-back procedure can be used exclusively or combined with on-site checking by a census official
- Advantage

i) allows for, and its instructions may encourage, at no extra cost to the census organization, consultations among family members when they complete the census form

- Disadvantage

Enumeration of nomads

- Pay full attention to the preparatory work in order to determine the suitable enumeration techniques
- The particular method suitable for a country undertaking to enumerate nomads as part of the census should be determined only after a detailed preliminary study and after field testing. Some of the methods used to enumerate nomads and semi-nomads may be classified as follows: (a) group-assembly approach, (b) tribal or hierarchical approach, (c) enumeration-area approach, (d) water-point approach and (e) camp approach. Sometimes a combination of two or more methods may be used.

Timing and length of the enumeration period

Select a period in which the census is likely to be most successful and to yield the most

useful data. These factors include seasonal events, weather festivities, agricultural activities, educational activities

Supervision

Adequate supervision of the enumeration is essential

C. Data processing

An important element of a successful processing operation is the close and continuing collaboration, at all levels, between the data processing staff, and the subject-matter and the general statistical staff.

Method of processing

Rapid advances in data-processing technology have greatly increased the speed and reliability of producing detailed tabulation, thereby making computer processing the standard method of processing around the world

Coding

Whenever possible, pre-coded responses should be used in census questionnaires with numerical or alphanumeric codes being printed next to each category.

Data capture

Converting the information obtained in the census to a format that can be interpreted by a computer is called data capture

Data editing

- Processing control
- Master file for tabulation
- Methods of tabulation
- Provisional census results

Based on the summaries prepared by enumerators, provisional census results may be processed manually or by computer and issued soon after the enumeration is completed. For reasons of efficiency and quality, the use of computers is always preferable. Provisional results will normally cover information only on total population by sex and by major division.

D. Databases

Census databases assist data users by providing easy access to a wide range of census data. The establishment of such databases can enhance the dissemination of the census results as well as increase their usefulness by combining census data together with related information from other demographic inquiries in a common format. In addition, such databases can improve the coherence of the input and output processing systems.

E. Dissemination of the results

- Census is not complete until the information collected is made available to potential users in a form suited to their needs. The information may be included in published tables and reports for general distribution, produced as tables in unpublished form for limited distribution or stored in a database and supplied upon request, or disseminated

online (in this case it will be available only to connected populations).
- All dissemination is subject to issues of (*a*) quality assurance, (*b*) possible disclosure of information about identifiable respondents and (*c*) copyright and ownership
- Publication of printed tables and reports
- Dissemination on computer media
- Online dissemination
- Privacy and confidentiality
- Acceptance of results

F. Evaluation of the results
- Purpose of census evaluation
- Methods of census evaluation
- Demographic analysis for census evaluation
- Post-enumeration survey and re-interview surveys

G. Analysis of the results

In order to ensure the fullest possible utilization of census results by national and local governmental authorities, by academic researchers and by others, it is advisable to draw up a comprehensive and coordinated programme of analytical studies, phased over a period of several years

ERRORS IN THE CENSUS PROCESS

1. Coverage errors
   - Coverage errors arise from omissions or duplications of persons or housing units in the census enumeration
   - Sources of coverage error include incomplete or inaccurate maps or lists of enumeration areas, failure by enumerators to canvass all the units in their assignment areas, duplicate counting, and omission of persons who are not willing to be enumerated, erroneous treatment of certain categories of persons such as visitors or non-resident aliens and loss or destruction of census records after enumeration.

2. Content errors
   (a) Errors in questionnaire design
   (b) Enumerator errors
   (c) Respondent errors
   (d) Coding errors
   (e) Data entry errors
   (f) Errors in computer editing
   (g) Errors in tabulation

GROUPS DIFFICULT TO ENUMERATE

1) Seasonal migrants
2) Homeless persons
3) Nomads and persons living in areas to which access is difficult
4) Civilian residents temporarily absent from the country
5) Refugees

4.0 HOUSING CENSUS

The units of enumeration in housing censuses are buildings, living quarters and occupants of living quarters. The United Nations has developed a list of the key aspects of the housing

census.
The topics are shown by type of units of enumeration.

1. Living quarters

The living quarters may be divided into the following categories:

a. Housing units
   i. Conventional dwellings (with all basic facilities or does not have all basic facilities)
   ii. Other housing units such as semi-permanent, mobile housing, improvised housing units and housing units in permanent buildings not intended for human habitation

b. Collective living quarters
   i. Hotels, rooming houses and other lodging houses
   ii. Institutions – hospitals, correctional institutions (prisons, penitentiaries, military institutions, religious institutions (monasteries, convents, etc.), retirement homes, homes for elderly, student dormitories and similar, staff quarters (for example, hostels and nurses' homes), orphanages
   iii. Camps and workers' quarters e.g. military camps, worker camps, refugee camps, camps for internally displaced people

2. Location of living quarters

Location of living quarters is a geographical variable

3. Occupancy status

Classification of occupancy status for conventional dwellings is as occupied or vacant e.g. seasonally vacant (holiday homes, seasonal workers' quarters) and non-seasonally vacant (secondary residences, for rent, for sale, for demolition). If the housing unit is occupied, the number of occupants and the count of population records must not be zero. If no persons are recorded, either the unit is vacant or the persons are missing.

4. Ownership

The classification of housing units by type of ownership is as owner-occupied or non-owner-occupied (publicly owned, privately owned, communally owned and cooperatively owned). If ownership is related to tenure, this should be taken into account in

5. Number of Rooms

A room is defined as a space in a housing unit or other living quarters enclosed by walls reaching from the floor to the ceiling or roof covering, or to a height of at least two metres, of an area large enough to hold a bed for an adult, that is, at least four square metres. The total number of types of rooms therefore includes bedrooms, dining rooms, living rooms, studies, habitable attics, servants' rooms, kitchens, rooms used for professional or business purposes and other separate spaces used or intended for dwelling purposes, so long as they meet the criteria concerning walls and floor space. Passageways, verandas, lobbies, bathrooms and toilet rooms should not be counted as rooms,

6. Number of Bedrooms

A bedroom is defined as a room equipped with a bed and used for night rest (United Nations, 2008).

7. Useful floor space

Floor space refers to the useful floor space in housing units: that is, the floor space measured inside the outer walls of housing units, excluding non-habitable cellars and attics. In multiple-dwelling buildings, all common spaces should be excluded. The approaches for housing units and collective living quarters should differ (United Nations, 2008).

8. Water supply system and facilities

According to the United Nations (2008), the basic information to be obtained in the census regarding a water supply system is whether housing units have or do not have a piped water installation. The recommended classification of housing unit by water supply system is as follows:

- Piped water inside the unit (from the community scheme, individual source
- Piped water outside the unit but within 200 metres (from the community scheme for exclusive use or shared; from an individual source for exclusive use or shared)

A community scheme is one that is subject to inspection and control by public authorities. Such schemes are generally operated by a public body or a cooperative or private enterprise. Important aspects on water facilities include water supply system, drinking water, toilet and sewerage facilities, bathing facilities and availability of hot water

Bathing facilities

The recommended classification of housing units by availability and type of bathing facilities is as follows: with fixed bath or shower within housing unit or without fixed bath or shower within housing unit - fixed bath or shower available outside housing unit for exclusive use or shared. No fixed bath or shower available

9. Toilet and Sewage disposal

United Nations (2008,) recommendations for classification of housing unit by toilet facilities include:

- With toilet within housing unit (flush/pour flush toilet or other)
- With toilet outside housing unit - for exclusive use or shared (flush/pour flush toilet, VIP, pit latrine without ventilation with covering, holes or dug pits with temporary coverings or without shelter)
- No toilet available - service or bucket facility (excreta manually removed) or use of natural environment, for example, bush, river, stream and so forth

10. Availability of a Kitchen

Provides a convenient opportunity to gather information on the kind of equipment that is used for cooking, such as a stove, hotplate or open fire, and on the availability of a kitchen sink and a space for food storage so as to prevent spoilage. The recommended classification of housing units by availability of a kitchen or other space reserved for cooking is as follows: - with kitchen within housing unit or With other space for cooking within housing unit, such as kitchenette for exclusive use or shared; without kitchen or other space for cooking within housing unit; kitchen or other space for cooking available outside housing unit for exclusive use or shared; no kitchen or other space for cooking available

11. Fuel used for cooking

Fuel used for cooking" refers to the fuel used predominantly for preparation of principal meals. The classification of fuels used for cooking depends on national circumstances and may include electricity, gas, oil, coal, wood and animal waste.

12. Lighting and/or electricity

Collect information on the type of lighting in the housing unit, such as that provided by electricity, gas or oil lamp or by some other source.

13. Solid waste disposal

Gather information on collection and disposal of solid waste generated by occupants of the housing unit as follows:

- Solid waste collected on a regular basis by authorized collectors
- Solid waste collected on an irregular basis by authorized collectors
- Solid waste collected by self-appointed collectors
- Occupants dispose of solid waste in a local dump supervised by authorities
- Occupants dispose of solid waste in a local dump not supervised by authorities
- Occupants burn solid waste
- Occupants bury solid waste
- Occupants dispose of solid waste in a river/sea/creek/pond

Solid waste is independent of the other

- Occupants compost solid waste

14. Type and Energy used for Heating

Energy used for heating is closely related to the type of heating and refers to the predominant source of energy, such as solid fuels (coal, lignite and products of coal and lignite, wood), oils, gaseous fuels (natural or liquefied gas) and electricity. The type of heating and the energy used for heating are related to each other, as well as to the availability of hot water and to other utilities used in the housing unit, such as electricity and piped gas. This is not relevant in countries that do not require heating of the houses.

15. Availability of Hot water

Hot water denotes water heated to a certain temperature and conducted through pipes and tap to occupants. Information collected may indicate whether hot water is available within the living quarters or outside the living quarters, for exclusive or shared use, or not at all. The availability of hot water may be related to the means for heating the water, although the use of solar energy for heating water may not be related to other housing items.

16. Availability of Piped gas

Piped gas is usually defined as natural or manufactured gas that is distributed by pipeline and whose consumption is recorded. Piped gas is not related to other housing items except for type of lighting and cooking fuel.

17. Use of housing unit

"Use of a housing unit" refers to whether a housing unit is being used wholly for habitation (residential) purposes or not. The housing unit can be used for habitation and for commercial, manufacturing or other purposes (United Nations, 2008). "Use of housing unit" is independent of the other housing variables.

18. Number of occupants (core topic)

Each person usually resident in a housing unit or set of collective living quarters should be counted as an occupant. Therefore, the units of enumeration are the living quarters. Number of occupants" is related to the number of population records and the two should be identical.

19. Type of Building

United Nations (2008) recommends classification of buildings in which some space is used for residential purposes as follows:-

a) Buildings containing a single housing unit
   i) Detached
   ii) Attached
b) Buildings containing more than one housing unit - up to 2 floors, from 3 to 4 floors, from 5 to 10 floors and eleven floors or more
c) Buildings for persons living in institutions

20. Construction material of outer walls

Refers to the material of external (outer) walls of the building in which the sets of living

quarters are located. If the walls are constructed of more than one type of material, the predominant type of material should be reported. The types distinguished (e.g., brick, concrete, wood, adobe) will depend upon the materials most frequently used in the country concerned and on their significance from the point of view of permanency of construction.

21. Construction material of floor and roof

Materials used for the construction of roofs and floors may be of special interest and can be used to further assess the quality of dwellings in the building.

22. State of repair

This indicates whether the building is in need of repair and identifies the kind of repair needed. Classification of buildings according to the state of repair may include “repair not needed”, “in need of minor repair”, “in need of moderate repair” or “in need of serious repair” and “irreparable”.

23. Characteristics of head or other reference member of household

The characteristics of the head of household are usually obtained from the population records to assist in developing cross-tabular information for planning and analysis. These items, including sex, age, ethnic origin, religion or income, assist in determining differential social status or need.

24. Tenure

Tenure refers to the arrangements under which the household occupies all or part of a housing unit (United Nations, 2007). Classification of households by tenure is as follows:

- Member of household owns housing unit
- Member of household rents all or a part of housing unit
  - Member of household rents all or a part of housing unit as a main tenant
  - Member of household rents a part of housing unit as a subtenant
- Occupied free of rent

25. Availability of Information and communications technology devices

The importance of the availability of information and communications technology (ICT) devices is increasing significantly in contemporary society. These devices provide a set of services that are changing the structure and pattern of major social and economic phenomena. The recommended classification is:

i) Household having radio
ii) Household having television set
iii) Household having fixed-line telephone
iv) Household having mobile cellular telephone(s)
v) Household having personal computer(s)
vi) Household accessing the Internet from home
vii) Household accessing the Internet from elsewhere than home
viii) Household without access to the Internet

26. Availability of Durable household appliances

Information is collected on the availability of such durable appliances as laundry washing machines, dishwashing machines, refrigerators, deep freezes and so forth, depending on

national circumstances.

27. Availability of Outdoor space

This refers to the availability of outdoor space intended for recreational activities of the members of a household occupying a housing unit. May refer to the outdoor space available as part of a housing unit (for example, the backyard in the case of a detached house), the outdoor space available adjacent to a building (for example, backyards and playgrounds placed next to an apartment building), the outdoor space available as part of common recreational areas within a 10-minute walk from the housing unit (for example, parks, sports

Assignment:
Explain how the variables in housing census affect demographic measures and indicators as well as health status of individuals, families and communities.

centres and similar sites), or if outdoor space is not available within a 10-minute walk (United Nations, 2007).

Lesson 3: POPULATION PYRAMIDS

Objectives

At the end of the lesson the learner will be able to: -

1) Define various terms
2) Describe the process of population transition
3) Describe various population pyramids

1.0 INTRODUCTION

Demography is the study of the characteristics of population (from Greek root **demos** meaning people and ***graphos*** to make a line) can be complex. The population structure of a country is how it is made up of people of different ages, and of males and females. The common method to show the structure is by a ***population pyramid***. Population pyramids are a useful tool for understanding the structure and composition of populations because they graphically portray many aspects of a population, such as sex ratios and age structure. Pyramids can give insight into trends in population over time by their portrayal of the relative number of people in a particular cohort. For example, the swell of population in the "baby boom" cohort, now in its forties and fifties, is apparent in many of the county population pyramids, as is the "echo" baby boom, now five to fifteen years of age.

The population pyramid is drawn as two histograms, one for each sex with age on horizontal axis while percentage on vertical one. Then the two histograms rotated to settle on their side and back to back forming a pyramid with the percentage on horizontal line and age on vertical one, with males on the left side and females on right one. Shape of the pyramid varies for different countries according to age distribution of the population.

From the shape of the pyramid are concludes: - sex ratio (percentage of males and percentage of females), age structure (percentage of each stratum), mortality and emigration (slope of the sides), life span(height of the pyramid and shape of the apex), median age and dependency ratio.

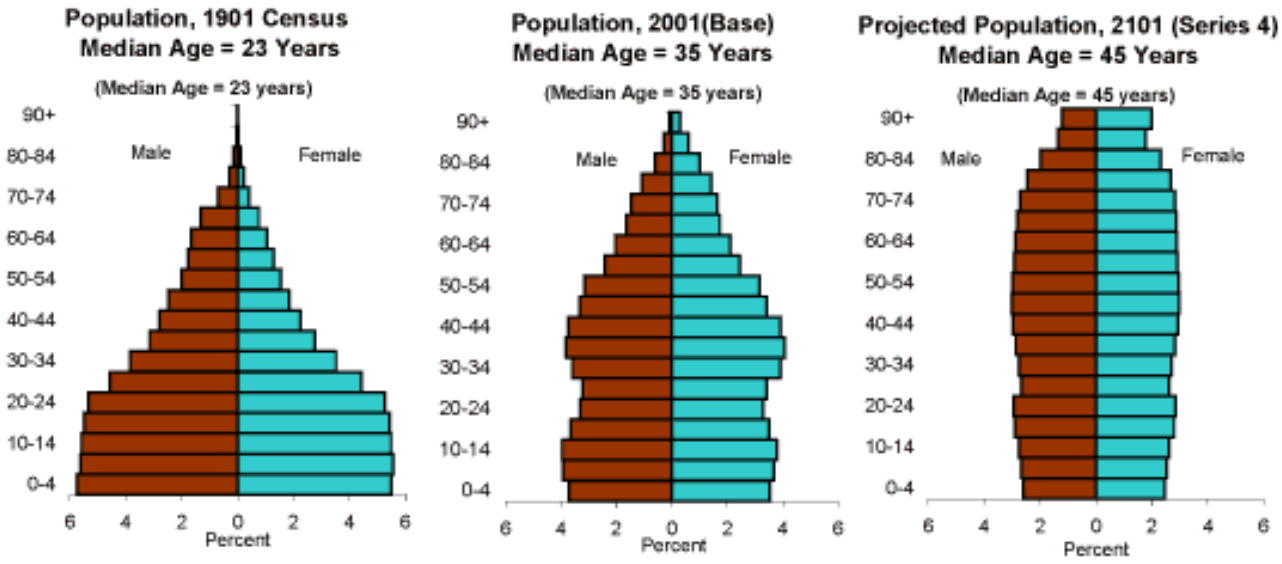
2.0 TERMINOLOGY

- Crude Birth Rate (CBR) - The total number of live births in a year for every 1,000 people alive in a society
- Crude Death Rate (CDR) - total number of deaths in a year for every 1,000 people in a society.
- Natural Increase Rate (NIR)/rate of natural increase (RNI) - Percent growth of a population in a year, computed as CBR minus CDR.
- Total Fertility Rate (TFR) - the average number of children a woman will have in her child bearing years, highlighted as being higher in stage 2 countries of the demographic transition model.
- Zero population growth (ZPG) - decline of the total fertility rate (TFR) to the point where the natural increase rate equals zero.
- Replacement Rate- The degree to which a population is replacing itself, based on the ratio of the number of female babies to the number of women of childbearing age. (a TFR of 2.1)
- Infant mortality rate (IMR) - death before age 1 per 1,000 of a population
- First Agricultural revolution- The time when humans first domesticate plants and animals and no longer relied on hunting and gathering techniques. This allows people to settle down into societies.

- Second Agricultural Revolution – Using technological advancements from the industrial revolution to increase agriculture techniques. Results in much more yield of food and thus fewer deaths due to famines/droughts.
- Industrial revolution- A series of improvements in industrial technologies that transformed the process of manufacturing goods. 1750. Sparked the Second agricultural revolution.
- Medical revolution- Improvements and diffusion of medical technology from Europe and North America to less developed countries of Africa, Asia, and Latin America.
- Life expectancy – The predicted age that a normal person lives up to

3.0 POPULATION PYRAMIDS PROTOTYPES

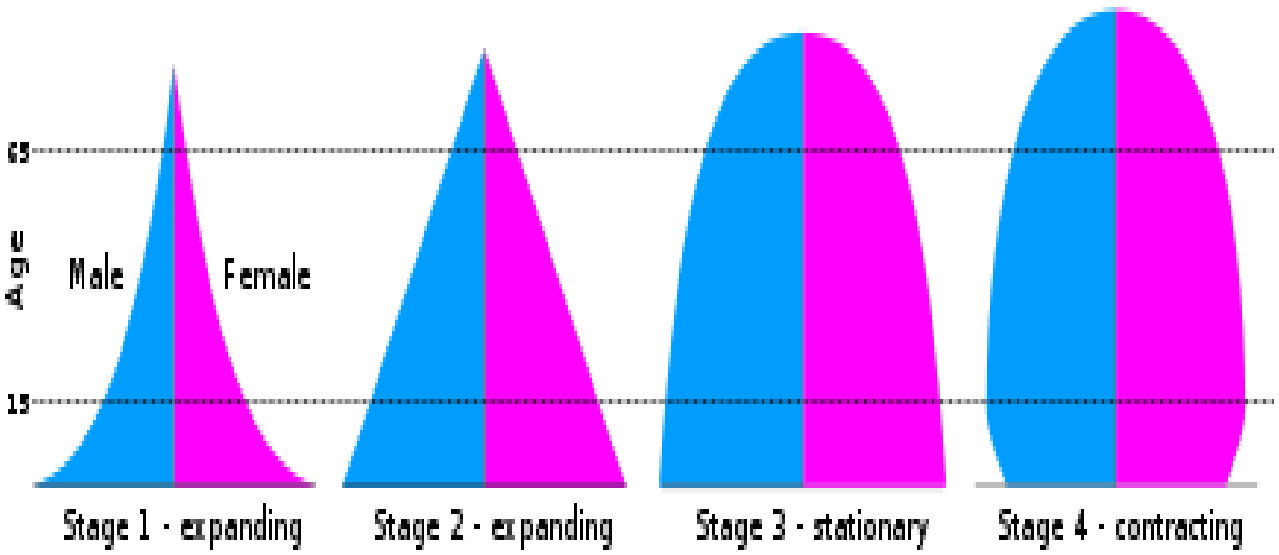
Demographers have divided population pyramids into three **prototypical types.** These prototypes are useful for general interpretation of conditions, knowledge of specific characteristics of particular populations is also important as they may significantly contribute to differences between counties.



4.0 POPULATION PYRAMIDS – POPULATION TRANSITION

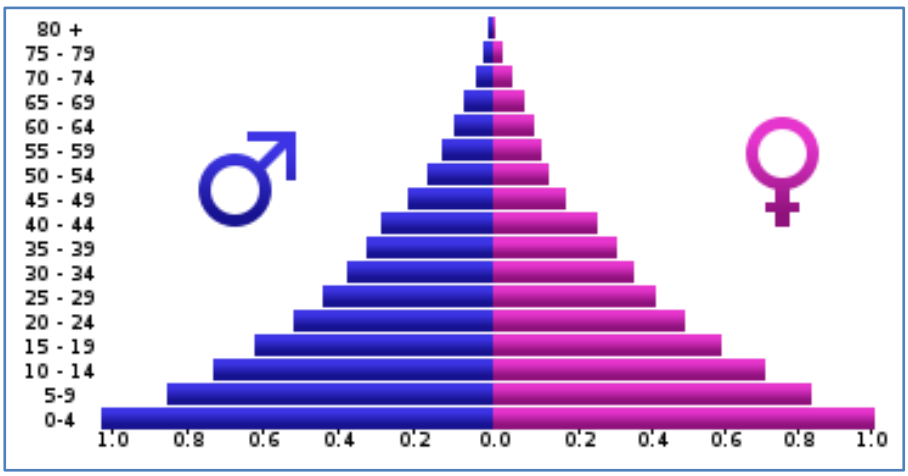
Population pyramids for 4 or 5 stages of the demographic transition model. While all countries' population pyramids differ, four general types have been identified by the fertility and mortality rates of a country.

Diagram – Population Transition



Stage 1 (Expanding)

- The pyramid shows a broad base, indicating a high proportion of children, a rapid rate of population growth, and a low proportion of older people. This wide base indicates a large number of children. Steady upwards narrowing shows that more people die at each higher age band. This type of pyramid indicates a population in which there is a high birth rate, a high death rate and a short life expectancy. This is the typical pattern for less economically developed countries, due to little access to and incentive to use birth control, negative environmental factors (for example, lack of clean water) and poor access to health care.

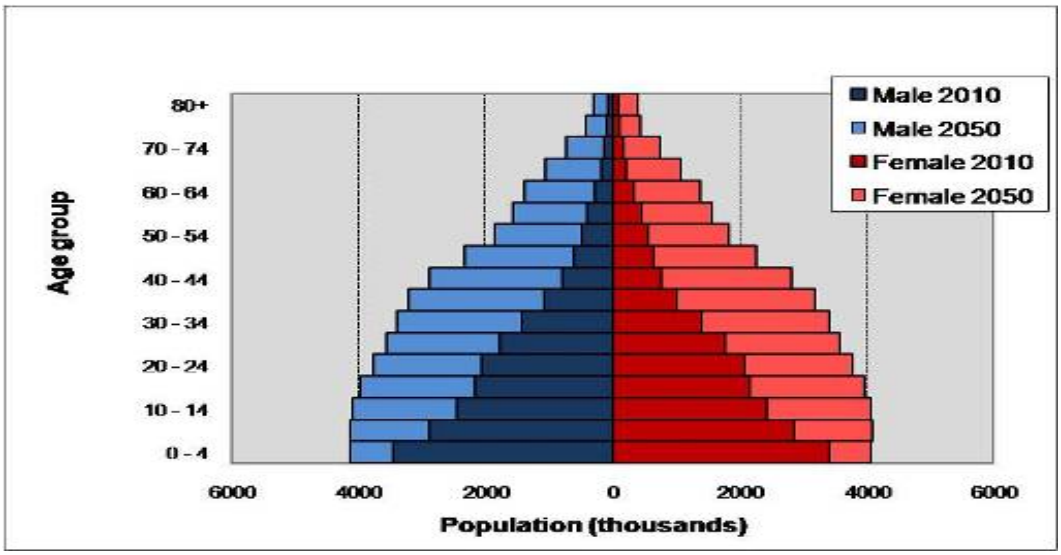


- Features
  - i) Has high CBR and CDR (mainly caused by food shortages/famines/droughts)
  - ii) CBR is roughly the same as CDR (so their society does not die out)
  - iii) High birth rates cause the the pyramid base to be huge
  - iv) High death rate causes the pyramid to look like a J-Curve
  - v) Low life expectancy
  - vi) Usually has a low or zero NIR
  - vii) High IMR

Stage 2 (Expanding/Stable)

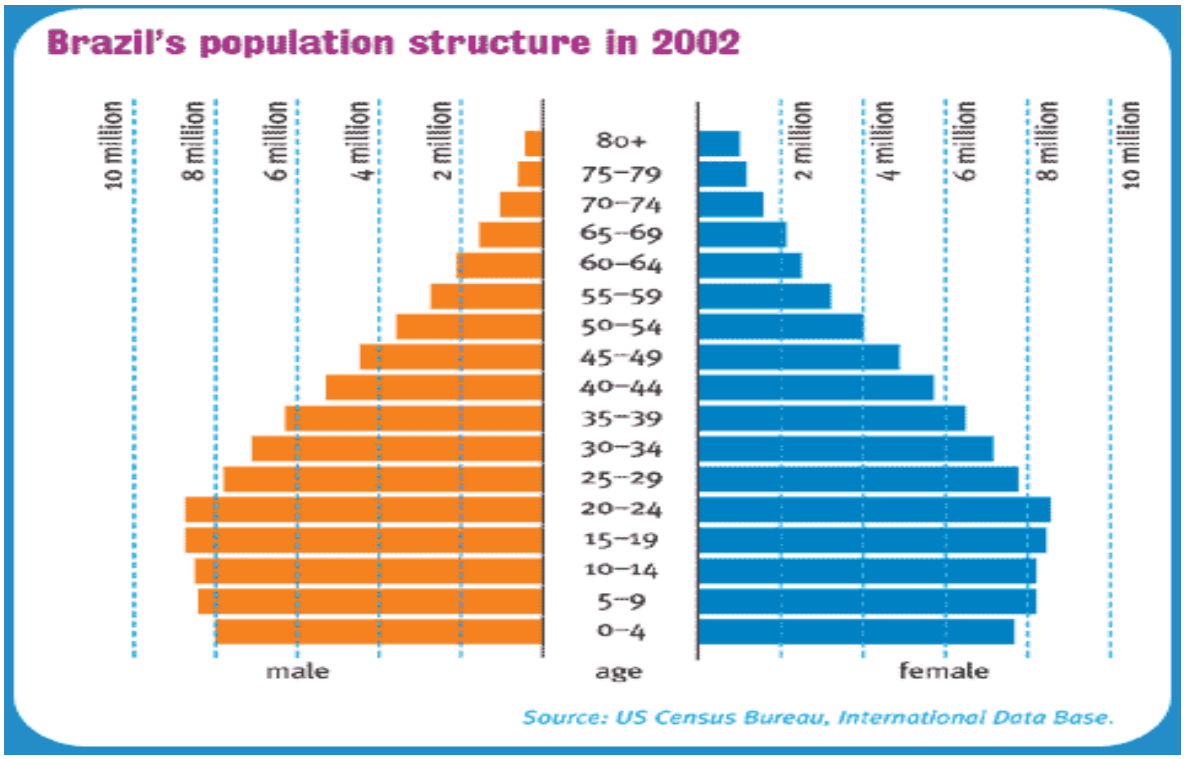
- A population pyramid showing an unchanging pattern of fertility and mortality.

- Features
  i) Death rate drops rapidly (because of the medical revolution and industrial revolution/second agricultural revolution)
  ii) Birth rate is still high (little or no change) - little or no change in birth rate results in the pyramid still looking huge (wide bottom) lowering of the death rate removes the J -Curve? And make the pyramid triangular
  iii) Little change in life expectancy
  iv) High NIR (due to the death rate dropping rapidly while the birth rate is still high)



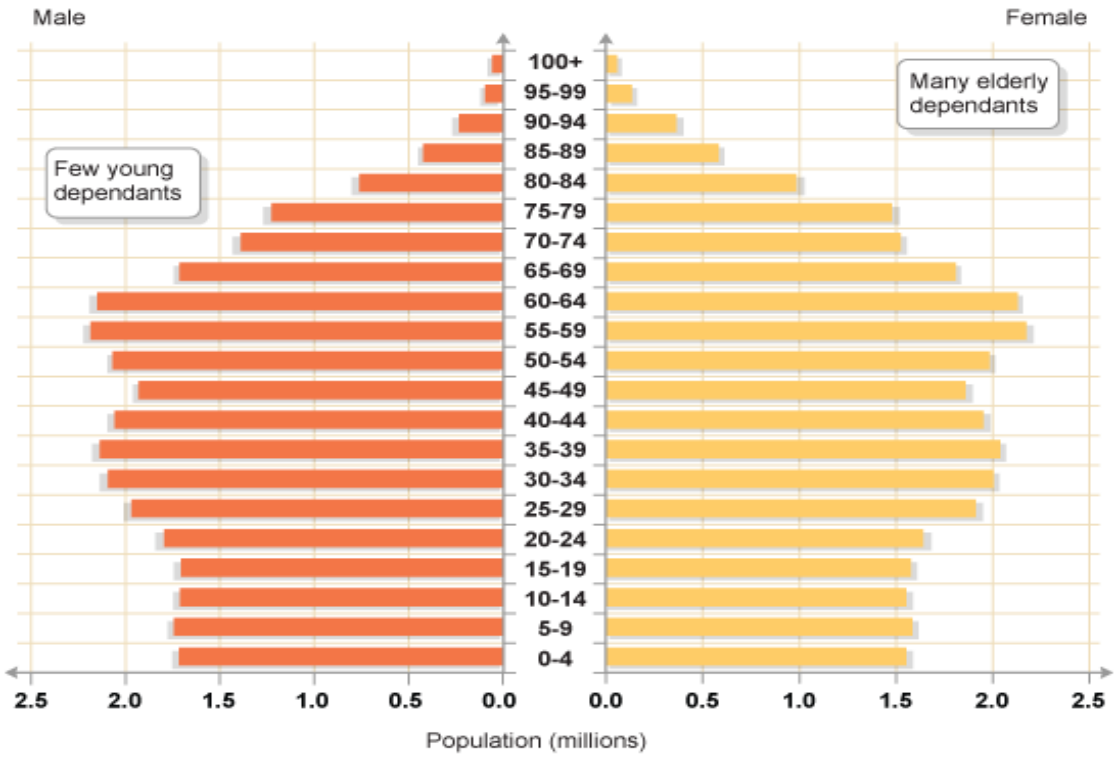
Stage 3 (Stationary)

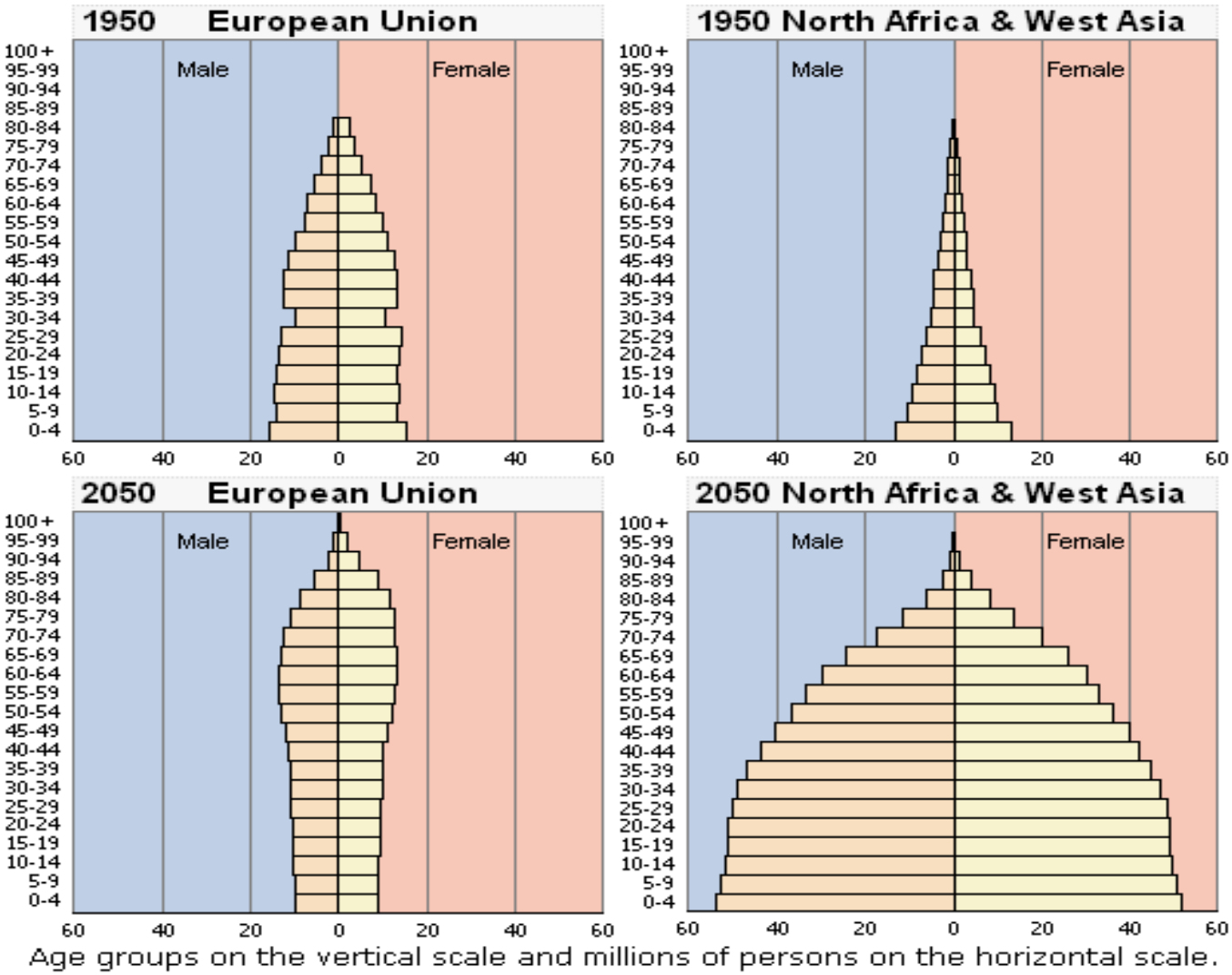
- A population pyramid typical of countries with low fertility and low mortality, very similar to a constrictive pyramid.
- Population continues to increase as a result of higher CBR than CDR.
  NIR lowers a bit, promoting population growth, but there is much less significant growth than in stage two.
- Features
  i) Death rate drops a little bit more and then stabilize
  ii) Birth rate drops rapidly (so their society would not be over populated)
  iii) Pyramid begins to stabilize (base is much smaller)
  iv) High life expectancy (noticeable difference) - due to more medical advancements
  v) Moderate growth due to a lowering of the Total Fertility Rate, a result of increased education levels, and opportunities for women.



Stage 4 (Constrictive)

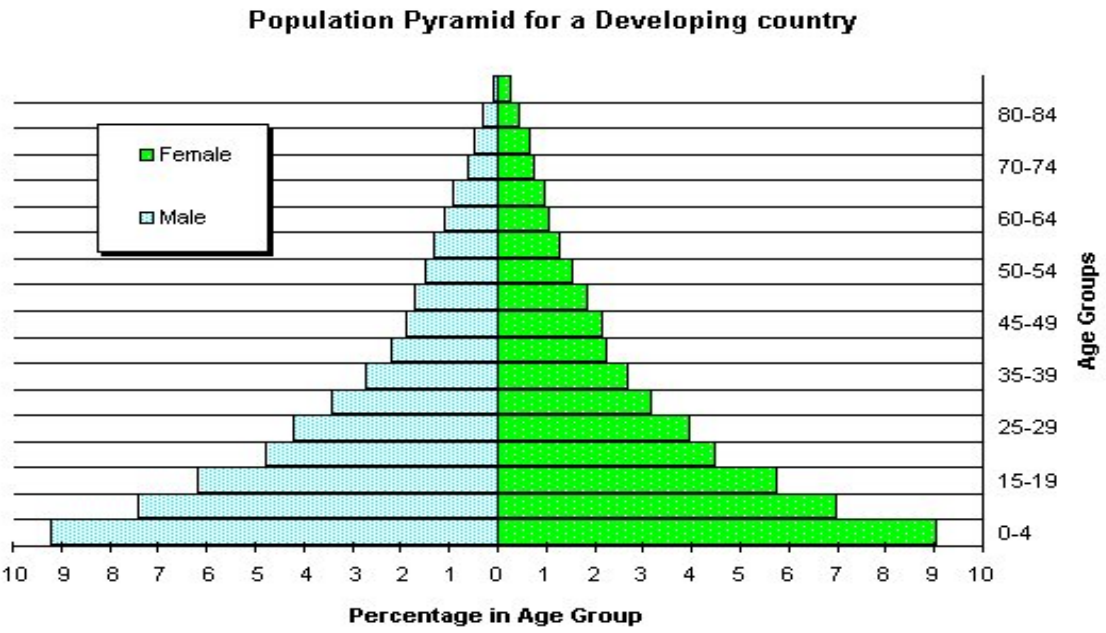
- A population pyramid showing lower numbers or percentages of younger people
- Country will have a greying population which means that people are generally older, as the country has long life expectancy, a low death rate, but also a low birth rate.
- Typical pattern for a very developed country, a high over-all education and easy access and incentive to use birth control, good health care and few or no negative environmental factors.
- Features
  i) Death rate remains low. little or no change
  ii) Birth rate is low.



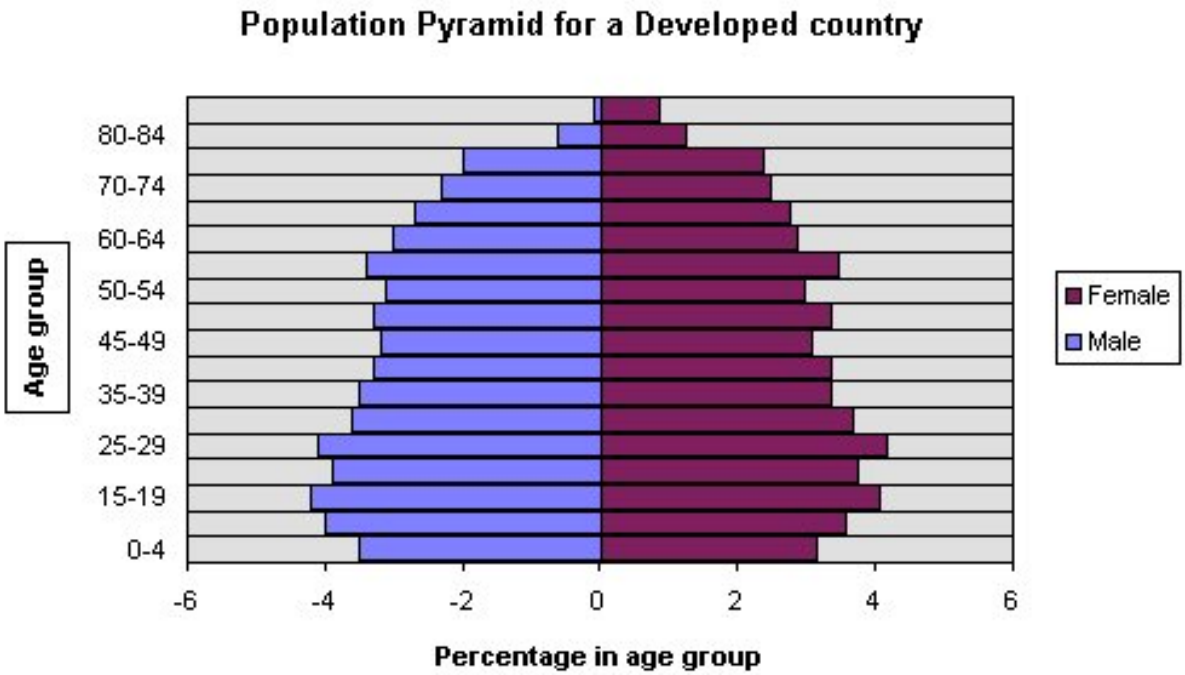


Age groups on the vertical scale and millions of persons on the horizontal scale.

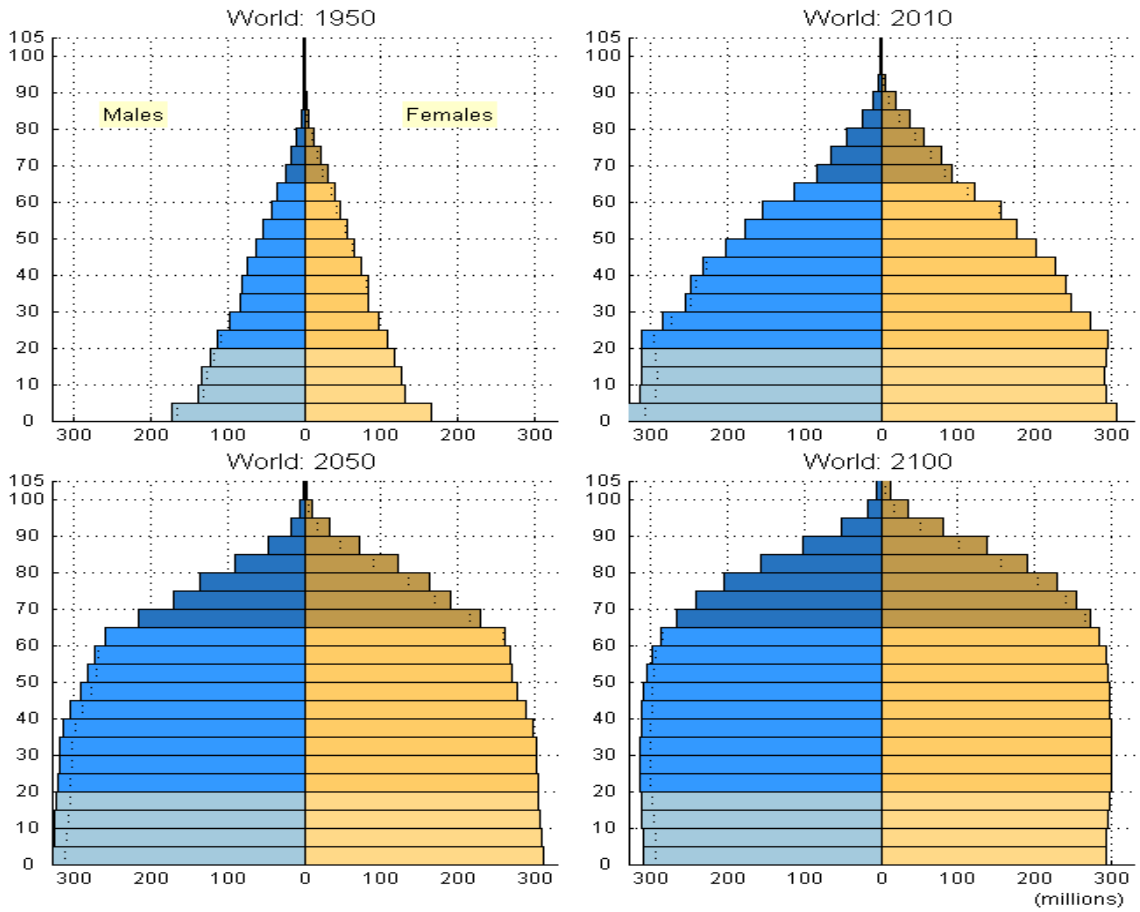
PYRAMIDS FOR VARIOUS COUNTRIES



This population pyramid is wide at the base, which means there are a large proportion of young people in the country. It tapers very quickly as you go up into the older age groups, and is narrow at the top. This shows that a very small proportion of people are elderly.



This shape is typical of a **developed** country. It is narrow at the base, wider in the middle, and stays quite wide until the very top, as there is a sizable percentage of older people. Note that there are more old women than men. Italy and Japan have population structures that are of this shape.



Lesson 4: MIGRATION

Objectives

At the end of the lesson the learner will be able to: -

1) Define various terms
2) State the theories of migration
3) Describe causes of migration
4) Discuss the types and effects of migration

1.0 INTRODUCTION

Historical migration of human populations began with the movement of humans out of Africa across Eurasia approximately a million years ago. Homo sapiens appear to have occupied all of Africa about 150,000 years ago, moved out of Africa 70,000 years ago, and had spread across Australia, Asia and Europe by 40000 BC. Migration to the Americas took place 20,000 to 15,000 years ago, and by 2,000 years ago, most of the Pacific Islands were colonized. Later population movements notably include the Neolithic Revolution, Indo-European expansion, and the Early Medieval Great Migrations including Turkic expansion.

Migration (human) is the movement of people from one place in the world to another for the purpose of taking up permanent or semi-permanent residence, usually across a political boundary. An example of "semi-permanent residence" would be the seasonal movements of migrant farm labourers. People can either choose to move ("voluntary migration") or be forced to move ("involuntary migration").

Human migration (derived from Latin: *migratio*) *is physical movement by humans from one area to another, sometimes over long distances or in large groups*. Historically this movement was nomadic, often causing significant conflict with the indigenous population and their displacement or cultural assimilation. Migration has continued under the form of both voluntary migration within one's region, country, or beyond and involuntary migration (which includes the slave trade, trafficking in human beings and ethnic cleansing).

Migration is a form of geographic or spacial mobility involving a change of usual residents through two clearly defined geographic units (administration units). Short movements include: change of domicile (within the same compound/ sub location /neighbourhood)

People who migrate into a territory are called **immigrants**, while at the departure point they are called **emigrants**. Small populations migrating to develop a territory considered void of settlement depending on historical setting, circumstances and perspective are referred to as settlers or colonists, while populations displaced by immigration and colonization are called refugees.

Migrations have occurred throughout human history, beginning with the movements of the first human groups from their origins in East Africa to their current location in the world. Migration occurs at a variety of scales:

1. Intercontinental (between continents)
2. Intracontinental (between countries on a given continent)
3. Interregional (within countries) with one of the most significant migration patterns has been rural to urban migration—the movement of people from the countryside to cities in search of opportunities.

2.0 THEORIES OF MIGRATION

1. **E.G. Ravestein (1885)**

Stated that migration has definite laws and migration is not always permanent. This was illustrated via many theories namely

i) Migration and distance - the longer the distance, the fewer the migration people mostly move to centres of commercial.
ii) Stream and counter stream - movement in one direction creates movement in the opposite direction.
iii) Urban rural differences in propensity to migrate - migration of rural dwellers to urban areas is more than vice versa.
iv) Technology and migration - migration increases with technological breakthrough.
v) Dominance of the economic motive - this surpasses many other motives i.e. climate, bad governance, taxation, apartheid.

Geographer E.G. Ravenstein developed a series of migration 'laws' in the 1880s that form the basis for modern migration theory. In simple language, these principles state:-

1) Most migrants travel only a short distance.
2) Migrants traveling long distances usually settle in urban areas.
3) Most migration occurs in steps.
4) Most migration is rural to urban.
5) Each migration flow produces a movement in the opposite direction ("counterflow").
6) Most migrants are adults.
7) Most international migrants are young males, while more internal migrants are female.

2. Micro theories of migration

- Movement of people at a family level or individual level
- More interested in explaining the migrating behaviour (way) - education, marriage rite of passage (initiation), economic disputes, networking.
- Must also study the non-movers. These are mainly young singe 19-25 years mainly move males above high school, University graduates.
- There is also rural-rural migration in Kenya. This is mainly due to landlessness.

3. Macro theories of migration

- The focus is on identifying patterns and trends in migration.
- Superior in describing broad as migration and provide an aspect of demographic change.
- Data sources include census an surveys like KDHS (1989,93,98)

4. Mesotheories of migration

- Tries to intergrate micro and macro theory factors.
- Awareness of these broad factors is important in decision making at any level.

5. Classical Immigration Theory

Each migrant rational human being chooses optimum combination of wage rates, job security, and costs of travel (human capital approach series of investments in education, skills, material cost of traveling, maintenance while looking for work, learning new language/culture, difficulty in experiencing new labor market, psychological costs cutting old ties, marginal analysis, weighing costs and rewards).

6. New Economic of Migration

Migration decisions are not made by isolated individuals but by larger units of related people -typically families or households, people act collectively to maximize expected income, and minimize risks and loosen constraints associated with variety of market failures, apart from those in the labor market. New economic theorists argue that households send workers abroad not to improve income in absolute terms, but also to increase income relative to other households, and reduce deprivation compared with some reference group. Market failures that constrain local income opportunities for poor households may also increase the attractiveness of migration as an avenue for effecting gains in relative income.

7. World system theory

Migration follows from the dynamics of market creation and the structure of the global economy. International migration is linked to the structure of the world market that has developed since the [long] sixteenth century.

Explanations

- Driven by higher profits and greater wealth owners and managers enter poor countries in search of land, raw materials, labour and new consumer markets
- Labour within peripheral regions come under the influence and control of markets, migration flows are inevitably generated, land- the substitution of cash crops for staples undermines traditional social and economic relations based on subsistence and use of modern inputs(e.g. fertilizers, pesticides) produce high crop yields at low unit prices, driving small, non-capitalist farmers out of local markets. These forces help to create a mobile labor force displaced from the land with a weakened attached to local agrarian communities.
- Raw materials- the offer of wages to former peasants undermines traditional forms of social and economic org based on systems of reciprocity and fixed role relations and creates incipient labor markets based on new conceptions of individualism, private gain, and social change, promoting geographic mobility of labor.
- Labour firms from international states establish assembly plants that take advantage of low wage rates, within special export-processing zones created by sympathetic governments. Demand for factory workers strengthens local labour markets while deteriorating traditional productive relations.
- Feminization of workplace limits opportunities for men.
- Women are socialized for industrial work and modern consumption but without being able to generate income capable of meeting those needs. The result is the creation of a population that is socially and economically uprooted and prone to migration. Some migrate to the cities, others are drawn abroad since globalization creates material and ideological links to the place where capital originates.
- Material links- Because investment and globalization are accompanied by the build-up of a transportation and communication infrastructure,

3.0 PEOPLE WHO MIGRATE

1. Emigrant - a person who is leaving a country to reside in another.
2. Immigrant - a person who is entering a country from another to take up new residence.
3. Refugee - a person who is residing outside the country of his or her origin due to fear of persecution for reasons of race, religion, nationality, membership in a particular social group, or political opinion.

4. Internally Displaced Person (IDP) - a person who is forced to leave his or her home region because of unfavourable conditions (political, social, environmental, etc.) but does not cross any boundaries.
5. Migration Stream - a group migration from a particular country, region, or city to a certain destination.

4.0 REASONS FOR MIGRATION

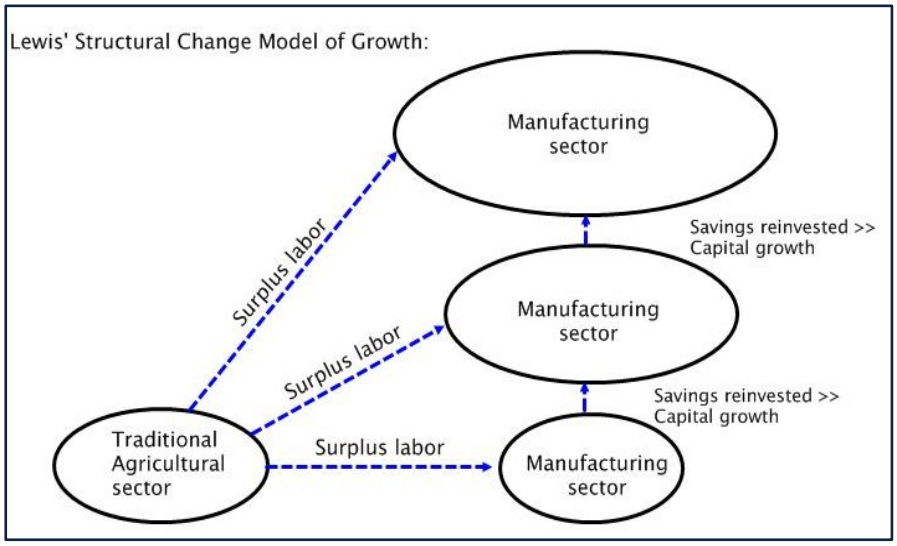
- People move for a variety of reasons considering the advantages and disadvantages of staying versus moving, as well as factors such as distance, travel costs, travel time, modes of transportation, terrain, and cultural barriers.
  a) Push Factors - reasons for emigrating (leaving a place) because of a difficulty (such as food shortage, war, flood, etc.).
  b) Pull Factors - reasons for immigrating (moving into a place) because of something desirable (such as a nicer climate, better food supply, freedom, etc.).
- Several types of push and pull factors may influence people in their movements (sometimes at the same time), including environmental (e.g., climate, natural disasters), political (e.g., war), economic (e.g., work) and cultural (e.g., religious freedom, education)
- Place Utility - the desirability of a place based on its social, economic, or environmental situation, often used to compare the value of living in different locations. An individual's idea of place utility may or may not reflect the actual conditions of that location.
- Intervening Opportunities - opportunities nearby are usually considered more attractive than equal or slightly better opportunities farther away, so migrants tend to settle in a location closer to their point of origin if other factors are equal.
- Distance decay - as distance from a given location increases, understanding of that location decreases. People are more likely to settle in a (closer) place about which they have more knowledge than in a (farther) place about which they know and understand little.

5.0 MODELS OF MIGRATION

1) Lewis Model
2) Harris-Tadoro model.
3) Pull–Push model

Lewis Model

Lewis (1954) – explains transition from a stagnating economy based on traditional rural sector to a growing economy driven by development of modern urban sector. Lewis assumes that there is surplus labour in rural sector, so that marginal productivity is close to zero and workers share output amongst themselves so that their wages are equal to their mean product. Agricultural sector can supply perfectly elastic labour to modern industrial sector (via migration). Migration to urban sector occurs wages are equal to mean product of the agricultural sector



Harris-Tadoro Model

Migration streams result from actual wage differentials across markets or countries for our purposes that emerge from heterogeneous degrees of labour market tightness. Todaro (1968, 1969) and Harris and Todaro (1970) explained that migration is driven by expected rather than actual wage differentials. The model deals with migration between the urban and rural sectors within a developing country by modelling urban unemployment (does not exist in the Lewis model). The HT model explains the response to a government project that took place in Kenya in 1964. Kenyan government's goal: reduce urban unemployment in Nairobi. Trade unionists, capitalists and the government agreed to all raise employment by 15%. The result was higher urban unemployment after the increase in the number of jobs because people migrated from rural areas into Nairobi to try and get urban sector jobs. This experience of directly attempting to lower unemployment by creating jobs has often had the opposite effect of increased unemployment

Pull-Push Model

- Certain factors at the area of origin, push people and certain factors at the area of destination pull people.

	Push factors	Pull factors
Economic and demographic	Poverty; Unemployment standard of living; Low wages; High fertility rates Lack of basic health and education Demographic/population pressure	Prospects of higher wages Potential for improved Personal or professional development Job opportunities
Political	Conflict, insecurity, violence Poor governance; Corruption Human rights abuses	Safety and security Political freedom
Social and cultural	Discrimination based on ethnicity gender, religion, and the like (diaspora Insecurity Social organization: these running away from the extended groups	Family reunification Ethnic migration) homeland Freedom from discrimination Landlessness
Environmental	Metrological disasters floods,	Climate

	droughts Climate	

6.0 TYPES OF MIGRATION

1. Internal migration - moving to a new home within a state or country,
2. External migration/International - moving to a new home in a different state, country, or continent.
3. Emigration - leaving one country to move to another (e.g., the Pilgrims emigrated *from* England).
4. Immigration - moving into a new country (e.g., the Pilgrims immigrated *to* America).
5. Population transfer - when a government forces a large group of people out of a region, usually based on ethnicity or religion. This is also known as an involuntary or forced migration.
6. Impelled migration (also called "reluctant" or "imposed" migration) - individuals are not forced out of their country, but leave because of unfavourable situations such as warfare, political problems, or religious persecution.
7. Step migration - a series of shorter, less extreme migrations from a person's place of origin to final destination—such as moving from a farm, to a village, to a town, and finally to a city.
8. Chain migration - a series of migrations within a family or defined group of people. A chain migration often begins with one family member who sends money to bring other family members to the new location. Chain migration results in migration fields—the clustering of people from a specific region into certain neighbourhoods or small towns.
9. Return migration - voluntary movement of immigrants back to their place of origin (also known as circular migration)
10. Seasonal migration - the process of moving for a period of time in response to labour or climate conditions (e.g., farm workers following crop harvests or working in cities off-season; "snowbirds" moving to the southern and south-western United States during winter, Wild beast migration in Kenya).

7.0 HEALTH CONSEQUENCES OF MIGRATION

1) Immunization
2) Transporting or spreading disease
3) Riots and wars
4) Environmental degradation
5) Interruption of treatment schedules
6) Planning
7) Disease outbreak

With specific examples discuss the health consequences of migration

8.0 IMPACTS OF MIGRATION

Human migration affects population patterns and characteristics, social and cultural patterns and processes, economies, and physical environments. As people move, their cultural traits and ideas diffuse along with them, creating and modifying cultural landscapes.

- Diffusion - process through which certain characteristics (e.g., cultural traits, ideas, disease) spread over space and through time.
- Relocation diffusion - ideas, cultural traits, etc. that move with people from one place to another and do not remain in the point of origin.
- Expansion diffusion - ideas, cultural traits, etc., that move with people from one place to another but are not lost at the point of origin, such as language.

- Cultural markers - structures or artefacts (e.g., buildings, spiritual places, architectural styles, signs, etc.) that reflect the cultures and histories of those who constructed or occupy them.

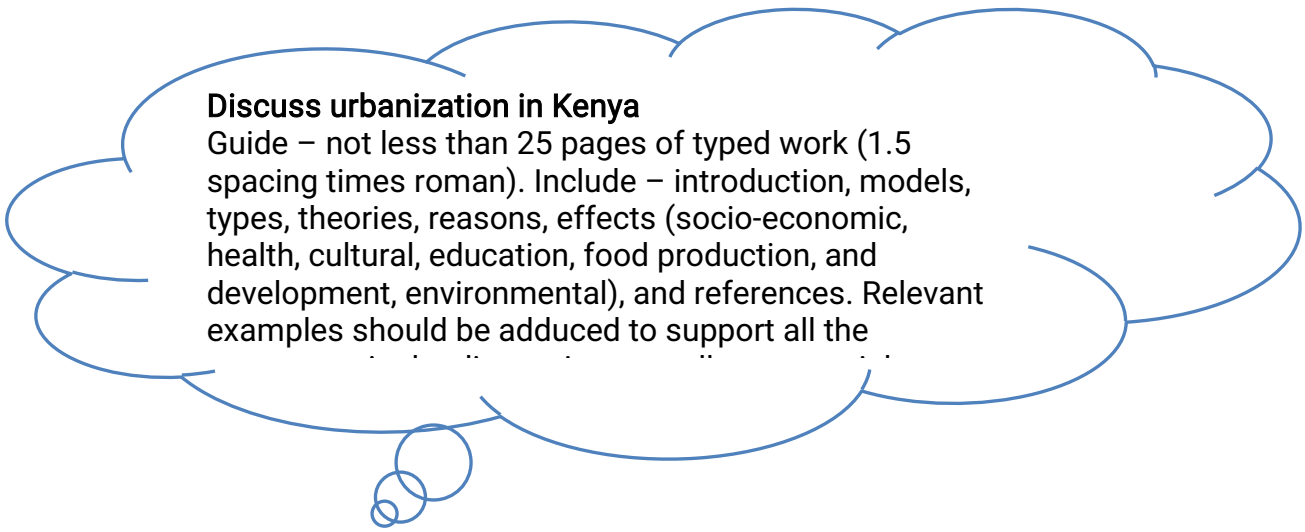
9.0 MEASURING MIGRATION

1. In-migration - people moving into one place from another place within a nation (internal migration)
2. Out-migration - people moving out of one place to another place within a nation (internal migration)
3. Gross migration - total number of in-migrants and out-migrants (internal migration)
4. Net internal migration - the difference between in-migration and out-migration
5. Movers from abroad - people coming into a nation from another country or part of the world
6. Net migration - the difference between net internal migration and movers from abroad

10.0 MIGRATIONS RESOURCES

What are the resources essential in migration processes? Discuss using explicit examples from Kenya.

11.0 URBANIZATION



Lesson 5: FERTILITY AND MEASUREMENTS IN HEALTH

Objectives
1) Define various terms
2) Describe measurements of fertility
3) Outline models and methods of family planning

1.0 INTRODUCTION AND TERMINOLOGY

Fertility
- The ability of females to produce healthy offspring in abundance
- The number of live births a woman has actually had
- Post-partum death is irrelevant therefore what happens after birth isn't important as what is important is whether or not the child was alive at birth. Cultural practices in many African communities dictate what happens soon after birth

Nuptiality
-

Fecundity
- Is the potential reproductive capacity of a female
- The physiological ability to conceive to the potential to conceive
- This potential is measured using indirect methods as it is quite difficult to quantify

Some of the more common demographic measures used in relation to fertility and/or fecundity include:
i) Crude birth rate
ii) General fertility rate
iii) Age-specific fertility rate
iv) Total fertility rate
v) Gross reproduction rate
vi) Net reproduction rate

Replacement level fertility
- Is the number of children that a woman (or monogamous couple) must have in order to replace the existing population
- Generally set at 2.1 children in a woman's lifetime (this number varies by geographic region given different mortality rates)
- The number is set to 2.1 children per woman is because two children are needed to replace the parents and an additional one-tenth of a child is needed to make up for the mortality of children and women who do not reach the end of their reproductive years.

Total fertility rate (TFR)
- Is the average number of children that would be born to a woman over her lifetime if she were to;
  - Experience the exact current age specific fertility rates (ASFRs) through her lifetime, and
  - Survive from birth through the end of her reproductive life. It is obtained by summing the single-year age-specific rates at a given time.

Mortality
- Refers to the finite nature of humanity(people die)

- Mortality in demography is interested in the number of deaths in a given time or place or the proportion of deaths in relation to a population
- Some of the more common demographic measures of mortality include:
  - Crude death rate - the annual number of deaths per 1000 people
  - Infant mortality rate - the annual number of deaths of children less than 1 year old per thousand live births
  - Life expectancy - the number of years which an individual at a given age can expect to live at present mortality rates

Calculating population change

Birth (b), Death (d), Immigration (i) and Emigration (e) are calculated per 1000 people

Growth rate = (Birth rate - Death rate) + (Immigration rate + Emigration rate)

$r = (b - d) + (i - e)$

2.1 INDICATORS OF FERTILITY

1) Age specific fertility rate
2) Total fertility rate
3) Crude birth rate
4) Life expectancy
5) Dependency ratio
6) Net migration
7) Population growth rate
8) Age-sex structure

3.1 MEASUREMENT OF FERTILITY

1) Child: woman ratio
2) Crude birth rate
3) General fertility rate
4) Age specific fertility rate
5) Total fertility rate

Period fertility
- Fertility is measured in reference to a particular period usually one year

Cohort fertility
- Measurement of fertility in a life time i.e. over a long period of time

1) **Child: Woman ratio**

<u>Advantages</u>
i) It is easy and feasible to calculate because it only requires information on age-sex structure
ii) In developing countries with inadequate birth registration system, this measure provides a rough estimate of fertility performance.

<u>Disadvantages</u>
i) Greatly affected by fertility and child mortality levels in the country and is sensitive to

reporting error (in birth registrations). It is therefore not used when comparing two or more countries

ii) Because children under five are survivors of the first few years of life, those computed do not represent those who were born live but die within the span of 0-5 years

iii) If infant and child mortality is high, this ratio would under estimate the fertility levels prevalent in the country because some of the children have died. A similar effect is observed in under reporting of young children or misclassification e.g. lives births then death after 5 days labelled as still births.

Information for this ratio is obtained from the population census which gives the age-sex structure of the country. Demographic surveys can also provide information e.g. Kenya Demographic and Health surveys 1993, 1998 by national Counsel for population and development with central Bureau of statistics child: woman ratio. Examples - Bangladesh is 900/1000, USA 250/1000, what of Kenya?

2) **Crude birth rate (CBR)**

- Supposed to be a ratio
- Called rate because it deals with total births and total population
- Indicate the frequency of live births occurring in the entire population
- Kenya 32.5 and 35.2/1000 for urban and rural populations respectively; average 34.8/1000 and most developed countries less than 10/1000
- Sources of data is the census and other surveys
- It is affected by marital pattern.

Advantages

i) An easy concept to understand because it is a single indicator of fertility

ii) Data easy to collect and process to get the rate

iii) It used in the basic demographic equation:

Disadvantages

i) It is a crude measure because it is affected by the composition of population with regard to age and sex. Countries with young people in reproductive age (high fecundity) have a high crude birth rate compared to countries with low fecundity. -It is therefore misleading if used for comparing two or more people unless you standardize the population.

ii) Many developing countries have incomplete registration of vital events CBR for many developing countries is 30-40/ 1000

3) **General Fertility rate (GFR)**

- The general fertility rate (GFR) represents the annual number of births per 1,000 women age 15-44, and the crude birth rate (CBR) represents the annual number of births per 1,000 population
- Kenya - rural (179 per 1000), urban (112 per 1000); average 161 per 1000
- GFR for developing countries 200/1000

Advantages

i) Concepts easy to understand

ii) Easy availability of date from census on age sex group

iii) Easy to calculate

iv) Is a refinement of the previous rate has control by female sex and partially by age (15-49 years) by relating births to those at risk of having them i.e. at specific age and sex

v) Can be computed in situations where registration of births and enumeration of census

are unsatisfactory

Disadvantages

i) Still crude and doesn't control totally for age structure because it lumps all women together. Young, middle and old. Hence variation cannot be told
ii) Doesn't tell the pattern of fertility

4) **Age specific fertility rate (ASFR)**

- Best measurement of fertility, most important and most refined and are used as fertility models
- It involves seven indications and is much more complex
- It is calculated for each five years age group
- The ASFR successfully controls for the effects of age. The variation of fertility by age can be seen.
- ASFR has full control of age-sex structure hence comparison between two or more people is allowed.

NB. Actual number of children born depends on age, duration of marriage etc.

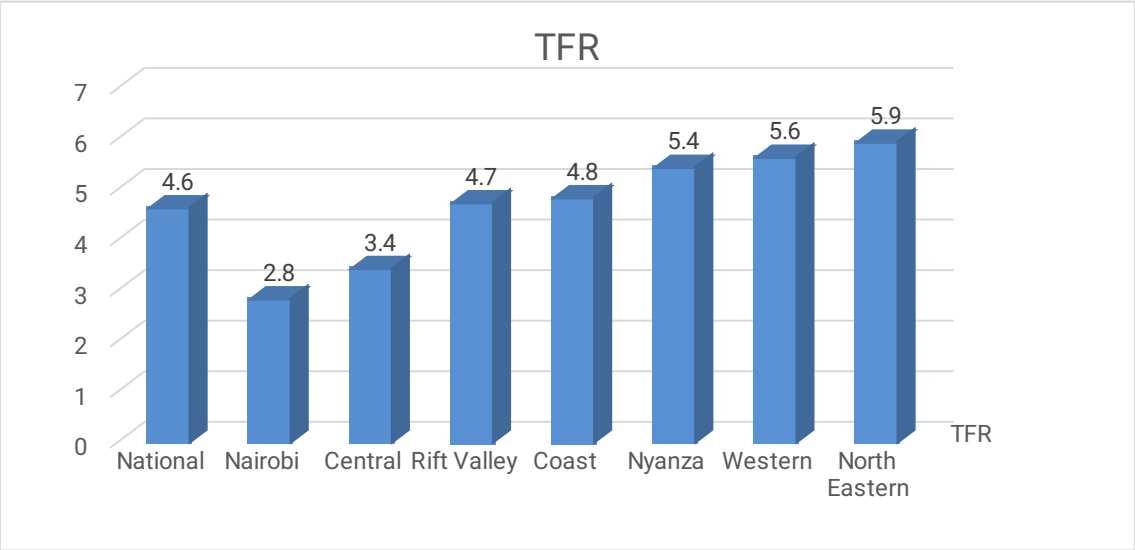
Disadvantage

i) Interpretation is difficult because you are dealing with seven indicates because for each of them, you must establish the determinants with consequences.
ii) Requires very specific data (births classified by age of mother) which are often unavailable or unreliable in developing countries.
iii) Comparison of schedule of ASFR is not easy given each set of ASFR provides at least 7 values of interpretation.

5) **Total fertility rate (TFR)**

- Is the sum of ASFR and most important measure used by demographers
- TFR is 2.9 and 5.2/1000 for urban and rural areas respectively, average 4.6/1000
- The average number of children a Kenyan woman would have if she goes through the ASFR is 4.7; TFR is declining (in 2008 is 4.6; 1993 is 5.4; 1989 is 6.7; 1977 is 8.1)

	Province	TFR
1.	National	4.6
2.	Nairobi	2.8
3.	Central	3.4
4.	Rift Valley	4.7
5.	Coast	4.8
6.	Nyanza	5.4
7.	Western	5.6
8.	North Eastern	5.9



6) **Gross reproduction rate (GRR)**

- Looks at one half of the people. It is a one sex measurement therefore it is artificial and mathematical
- It is special case of TFR
- TFR measures total number of children while GFR measures total number of daughter a cohort of women will have in their life time if no woman died. There is therefore an assumption of no mortality.
- In Kenya GRR is 2.3.
- This suggests the mothers of the next generation and indicates people growth

7) **Net reproduction rate (NRR)**

- Mathematical measure of daughter a cohort of female would have a lifetime if they followed a fixed schedule of age, specific mortality rate and ASFR.
- Life tables are used.
- NRR=1; less than 1 people is replacing itself in the next generation and more than 1 people not replacing itself in the next generation
- Kenya approximately 2.0

8) **Other specific fertility rates**

- General marital fertility rate (GMFR) - Information assumes that children come only from married mothers
- General legitimate fertility rate (GLFR) - Legitimate births only
- General illegitimate fertility rate (GIFR)

Cohort fertility

- It considers the experience of one group of people over time. It include: marriage cohort, age cohort.
- Numbers change due to death, migration

4.1 METHODS OF CONTROLLING FERTILITY

Family planning was introduced in India in 1952 and 1966-67 in Kenya. In the 1950s, private organizations had family planning service mainly for the expatriates in Kenya. The FPAK (Family Planning Association of Kenya was introduced in 1957. A family planning policy was initially introduced by the Ministry Of Economic Planning. The Ministry of Health then realized that a high population growth rate signifies a highly dependent population. In 1978, the M.O.H trained family planning field educators approximately 800. Government support was however lukewarm and the M.O.H could not therefore train individuals effectively. The guiding principle was to reduce Kenya's crude birth rate. Church leaders were also against the FP campaigns. Cultural/traditional leaders were against the concepts of having small families as this was contrary to what they were used to. Financial incentives, abortions and sterilization were excluded from the programme. There was no reduction in the CBR for approximately ten years. In 1977/78 a Kenya fertility surveys (KFS) revealed that only 7% of female were using a form of family planning. The population growth rate was 4.1% p.a. while TFR was 8.1 children per woman. Currently population growth rate is 2.9% p.a. and TFR is 4.9. The CPR has increased from 7% in 1978 to 39% in 1998

Concepts

1) Unmet needs of family planning
   - This refers to sexually active people who would like to space their births or stop but use no method of family planning. - Up to 12% of the population have unmet needs.
2) Desired fertility
   - This refers to the number of children a woman would like to have. Includes both male and female children

5.1 MODELS OF FAMILY PLANNING

There are the vertical and horizontal models

Vertical

- Seen as one programme on its own and don't interact with other programmes
- Use one service, uni-purpose and separate funding and administration.
- Other vertical programmes include: malaria, schistosomiasis, trypanosomiasis, MCH.
- Advantages
  1) Workers in the vertical model become very efficient in dealing with the programme
  2) Duties are repetitious and are therefore easy to remember
- Disadvantages
  1)

Horizontal

- Programmes are interacted, multipurpose, share same funding administration and service components.
- Advantages
  1) Both worker and system are used for many programmes therefore are cost efficient.
  2) Duties are varied therefore the worker does not get bored
  3) Duties are complimentary therefore also easy to remember
- Disadvantages
  1) Competition between programmes for funds, other resources
  2) Internal competition for resources and managerial infrastructure may become overloaded.

6.1 FAMILY PLANNING AND ITS INFLUENCE ON FERTILITY

Family planning has both direct and indirect influence on fertility. There is an inverse relation between family planning and fertility therefore when family planning increase, fertility decrease. There are however intermediates e.g. education, age, marital status, race/ethnicity and sociocultural factors (occupation, residence) that influence the use of family planning. Education particularly influences fertility in inculcating values and advantage of small families, delaying the age of marriage and use of effective methods of family planning.

Family Planning Methods

1) Natural methods
   a) Cervical-mucous methods
   b) Basal-body-temperature (BBT) method
   c) Symptom-thermal method (combines BBT and cervical mucous method)
   d) Rhythm (safe period) method
   e) Withdrawal(coitus interuptus) method
   f) Traditional abstinence after childbirth
   g) Lactational amenorrhea method(LAM)

2) Mechanical methods
   a) Intra-uterine contraceptive device (IUCD)
   b) Condoms – male or female
   c) Diaphragm

3) Chemical (hormonal)
   a) Combined oral contraceptive(COC)
   b) Progesterone only pill (POP)
   c) Injectables
   d) Implants
   e) Emergency contraception
   f) Spermicides

4) Surgical
   a) Female – bilateral tubal ligation (BTL)
   b) Male – vasectomy

Lesson 6: MORTALITY AND MORBIDITY

Objectives
1) Define various terms
2) Describe measurements of mortality and morbidity

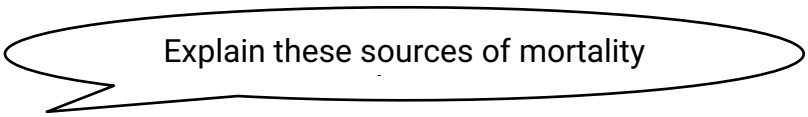
1.0 MORTALITY

1.1 Introduction

Knowledge of mortality is of great significance in health services provision because of various factors such as – measurement of disease severity, identify differences in disease risk between regions as well as identify new cases of diseases.

1.2 Sources of Mortality Data

1) Hospital records
2) Vital statistics
3) Research and surveys
4) Formal institutions
5) Census



1.3 Measurement Of Mortality

- Mortality is easy to measure as it is a onetime exit
- Mortality has a longer history and is more developed than fertility therefore the government is more aware of longevity than fertility.

Crude death rate (CDR)

Advantages

i) Easy to compute with minimal data as it requires on age sex distribution from the census registration of deaths.
ii) It is easy to communicate to lay people
iii) Helps us understand about the growth of the people

Disadvantage

i) Affected by age, sex composition of a country. As most people in a country are young, the CDR is decreased e.g. Mexico 7/1000, USA x/1000; Therefore number two populations can be compared as their age – sex structure is different. Kenya according to 1998 survey CDR=11/1000; CBR=40/1000 thus CGR=29/1000=2.9%. CDR can go as high as 25-30/1000 in countries with civil strife and can be as low as 4/1000 e.g. in Costa Rica.

Age specific mortality rate (ASMR)

-It is necessary for

1. Policy makers
2. Research purposes
3. To know prevalence rates (use epidemiology) and incidence rates and relates it to age.

-Mortality is not uniform in the whole countries it is influenced by this factor;
-Mortality indicators

Infant mortality rate (IMR)

- All deaths in infants less than one year
- It's the only measurement that has total live births as s denominator
- IMR in Kenya - 52/1000 live births and developed countries < 10/1000 live births
- It is the single most important indicator as it tells about the quality of life, quantity of health services and socioeconomic stat
- Infant mortality is associated with:
  i) Mother's age and birth order of child
  ii) Mother's reproductive history
  iii) Marital status of mother
  iv) Socio economic status of mother
- Less 2500 gm children tend to have increased mortality.

Identify the factors leading to

Neonatal mortality rate

- Neonatal mortality (NN): the probability of dying within the first month of life
- Occur within the first 28 days of birth
- Are usually due to biological or clinical factors e.g. congenital malformations, suffocations etc. occurring during birth process.
- Kenya – 31/1000 live births

Post neonatal mortality

- Post-neonatal mortality (PNN)- the difference between infant and neonatal mortality
- Between the age of one month to one year
- Causes:- environnemental e.g. diarrhoea diseases, infections, malaria etc.; most children are immunized against diseases; Lack of immunization on time.
- Kenya – 21/1000 live births from 44/1000 in 2003

Perinatal mortality rate (PNMR)

- Deaths between 28 weeks to 1 week after birth

Infant mortality rate

- Infant mortality - the probability of dying before the first birthday
- Kenya – 52/1000 live births from 77/1000 in 2003

Under 5 mortality rate (U5MR)

- Under-five mortality - the probability of dying between birth and the fifth birthday
- Under 5's are one people at risk of dying from common cold. Non-communicable diseases
- U5MR in Kenya = 74/1000 from 115/1000 in 2003

Child Mortality rate

- Child mortality - the probability of dying between the first and fifth birthday

All rates are expressed per 1,000 live births, except for child mortality, which is expressed per
100,000 children surviving to 12 months of age

Adult mortality rate

- Increase of mortality as one grows old
- Many die due to diseases e.g. malaria, HIV/AIDS, accidents (occupational related accidents, RTA, homicides etc.), cancers, CVS problems, diabetes etc.
- To decrease this mortality rate, control causes
- 5.8 and 6.0/1000 for women and men respectively

Adolescent mortality rate

- Many are dying from HIV/AIDS

Maternal mortality ratio (MMR)

- Deaths of mother's up to 42 days after delivery are included. Kenya 488/100,000 live births.

Maternal mortality rate

- 80/100000 births

2.0 MORBIDITY

Measures of morbidity include incidence, prevalence, surveillance and

2.1 Prevalence

Prevalence is the number of affected persons present in the population at a specific time divided by the number of persons in the population at that time multiplied by 1000

$$\text{Prevalence} = \frac{\text{No of cases of a disease present in the population at a specified time}}{\text{No of persons in the population at that specified time}} \times 1000$$

2.2 Incidence

Incidence is the of new cases of a disease occurring in the population during a specified period of time in a population at risk for developing the disease

$$\text{Incidence} = \frac{\text{No of new cases of a disease occurring in the pop during a specified period of time}}{\text{No of persons at risk of developing the disease during that period of time}} \times 1000$$

2.3 Surveillance

Surveillance may be carried out to monitor changes in disease frequency or changes in prevalence of risk factors.

2.4 Sources of Morbidity data

1) Disease reporting
2) Insurance and medical care plan records
3) Tax-financed public assistance and medical care plans
4) Formal institutions
5) Hospitals and clinics

6) Absenteeism records at work places
7) Pre-employment and periodic physical examinations
8) Case finding programmes
9) Records of military personnel
10) Morbidity surveys
11) Research surveys
12) Census

3.0 LIFE TABLES

- These are statistical tables used to measure primarily mortality but can also measure fertility, widowhood and other aspects of public health importance
- The mortality measured is of a **hypothetical group** from birth until death. The group of people is also known as **cohort** i.e. people sharing the same characteristics and of a particular age. This cohort is diminished gradually by deaths and it begins from birth and ends when all the members die.
- The number of people who will die at each age are predetermined in the table thus the tables present an artificial situation, however they are constructed using census data and are therefore a near mirror image of reality
- These tables are mainly used by insurance companies in order to estimate premiums

History of life tables

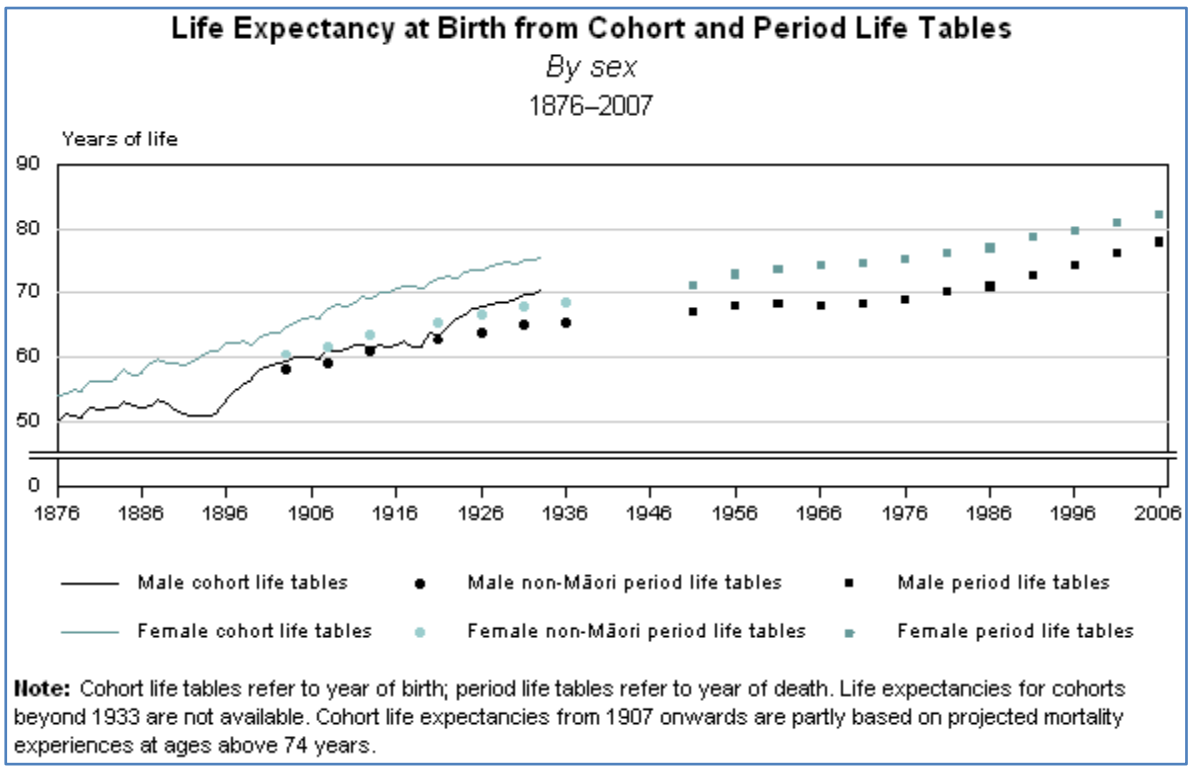
- Began approximately 300 years ago and were generally used for cities. Most are published by the U.N.

Types of life tables

1. Generation life tables or cohort life tables
    - Look at the generation of the cohort i.e. measure the mortality of a cohort
    - They use series date i.e. data collected over a long period of time's
    - Can include people born in a decade a marriage cohort

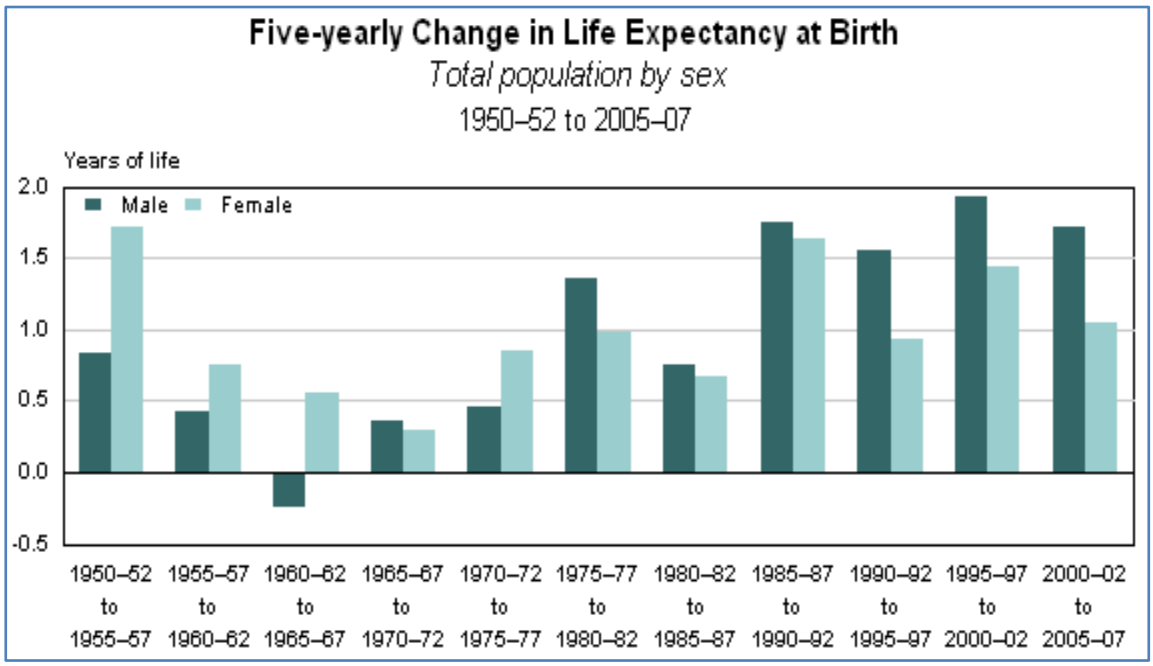
Age interval (days) $x-x'$	Number surviving to day x a_x	Proportion of original cohort surviving to day x l_x	Proportion of original cohort dying during interval d_x	Mortality rate per day q_x	$\log_{10} l_x$	Daily killing power k_x	F_x	m_x	$l_x m_x$
0–63	996	1.000	0.329	0.005		0.003	–	–	–
63–124	668	0.671	0.375	0.009	−0.17	0.006	–	–	–
124–184	295	0.296	0.105	0.006	−0.53	0.003	–	–	–
184–215	190	0.191	0.014	0.002	−0.72	0.001	–	–	–
215–264	176	0.177	0.004	0.001	−0.75	<0.001	–	–	–
264–278	172	0.173	0.005	0.002	−0.76	0.001	–	–	–
278–292	167	0.168	0.008	0.003	−0.78	0.002	–	–	–
292–306	159	0.160	0.005	0.002	−0.80	0.001	53.0	0.33	0.05
306–320	154	0.155	0.007	0.003	−0.81	0.001	485.0	3.13	0.49
320–334	147	0.148	0.043	0.021	−0.83	0.011	802.7	5.42	0.80
334–348	105	0.105	0.083	0.057	−0.98	0.049	972.7	9.26	0.97
348–362	22	0.022	0.022	1.000	−1.66	–	94.8	4.31	0.10
362–	0	0	–			–	–	–	
							2408.2		2.41

$$R_0 = \sum l_x m_x = \frac{\sum F_x}{a_0} = 2.41.$$



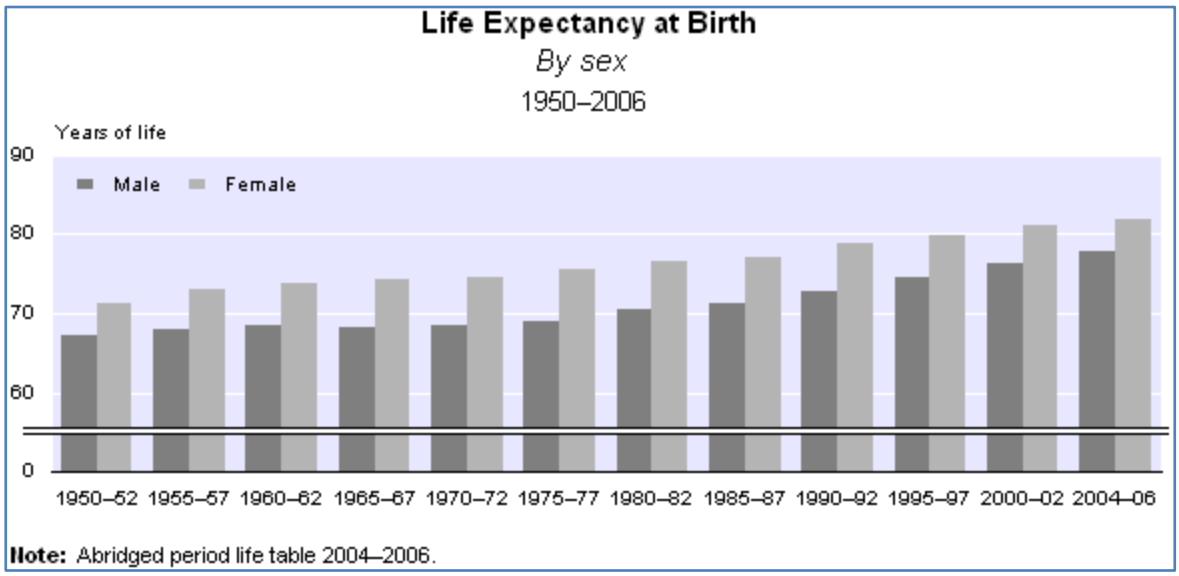
Note: Cohort life tables refer to year of birth; period life tables refer to year of death. Life expectancies for cohorts beyond 1933 are not available. Cohort life expectancies from 1907 onwards are partly based on projected mortality experiences at ages above 74 years.

2. Current or period life tables
   - These tables are based on the mortality rates over a short period of time 1,2,3 years where the values are almost the same.
   - Can observe the pattern of death by the age groups thus the age specific death rate is observed



3. Complete life tables or unabridged
   - These have data presented in one year intervals and has a lot of information

4. Abridged life tables
   - Have summarized data with 5 years intervals
   - It is the most common of the two complete life tables and more comprehension therefore less accessible for poor countries



5. Standard life tables
   - Only measure mortality

- Are the commonest type of life table

Means and Standard Deviations for Satisfaction With Self, Finances, Family, Friends, and Life for Women

	Self		Finances		Family		Friends		Life	
Nation	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Austria	4.8	1.2	4.3	1.2	5.1	1.3	5.2	1.1	5.0	0.9
Bahrain	5.6	1.3	5.1	1.3	5.8	1.4	5.7	1.2	4.9	1.2
Bangladesh	5.1	1.2	4.4	1.0	5.7	1.2	5.5	1.2	4.5	1.3
Brazil	5.8	1.0	3.9	1.3	5.6	1.3	5.3	1.2	5.0	1.0
Cameroon	5.6	1.0	3.6	1.2	5.1	1.0	5.0	1.0	4.4	0.6
Canada	5.1	1.1	4.0	1.4	5.4	1.2	5.5	1.1	5.1	0.9
Chile	5.0	1.1	4.3	1.1	5.3	1.1	5.3	1.0	4.9	0.8
Egypt	5.1	1.5	4.9	1.0	5.3	1.5	5.5	1.3	4.5	1.1
Finland	5.2	1.1	4.8	1.3	5.9	1.1	5.5	1.2	5.5	1.1
Germany	4.7	1.1	4.1	1.2	5.1	1.3	5.1	1.2	4.7	0.9
Greece	5.0	1.0	4.6	0.8	5.4	1.0	5.2	1.1	4.8	1.0
India	5.1	1.0	4.6	1.1	5.5	1.2	5.2	1.2	4.8	1.0
Israel	5.5	0.9	3.6	1.3	5.7	1.1	5.3	1.1	4.9	0.9
Japan	4.3	1.3	4.0	1.1	5.2	1.3	5.2	1.1	4.3	1.1
Jordan	5.7	1.4	4.7	1.2	5.8	1.3	5.3	1.5	4.5	1.0
Kenya	4.9	1.4	3.7	1.2	5.0	1.4	4.8	1.3	4.4	1.0
Korea	3.9	1.5	4.0	1.4	4.6	1.4	4.6	1.3	4.0	1.4
Mexico	5.4	0.9	4.6	0.9	5.4	1.2	5.2	1.0	5.1	0.8
Netherlands	4.8	1.2	4.7	1.2	5.3	1.4	5.5	1.2	5.2	1.0
New Zealand	4.9	1.0	4.0	1.2	5.2	1.3	5.6	0.9	5.1	1.0
Norway	4.9	1.2	3.9	1.3	5.2	1.1	5.4	1.1	5.1	0.9
Philippines	5.3	0.9	4.6	1.0	5.3	1.2	5.7	1.0	5.0	0.9
Puerto Rico	5.2	1.1	4.7	1.1	5.4	1.1	5.4	1.0	5.0	1.0
Singapore	4.8	0.9	4.3	1.2	4.9	1.0	5.3	1.0	4.8	0.9
South Africa	5.4	1.1	3.3	1.4	5.5	1.0	5.3	1.1	4.6	1.2
Spain	4.3	1.1	4.0	1.1	5.0	1.0	5.2	0.9	4.6	0.9
Tanzania	5.4	1.2	3.8	1.4	5.3	0.8	5.2	0.8	5.0	1.1
Thailand	5.3	1.1	4.2	1.1	5.6	1.3	5.1	1.1	4.6	0.9
Turkey	5.1	1.1	4.2	1.0	5.1	1.3	4.7	1.2	4.2	1.0
United States	5.1	1.2	4.2	1.4	5.5	1.3	5.6	1.1	5.3	1.0
Yugoslavia	4.9	1.3	4.2	1.1	5.3	1.3	5.1	1.2	4.7	1.1

6. Multiple decrement life tables
   - Measure more than one variable it multiple and two variable
   - They describe the separate and combined effects of two factor e.g. marriage mortality, widowhood and mortality

Lesson 7: KENYA – POPULATION POLICY AND POPULATION TRENDS

Objectives

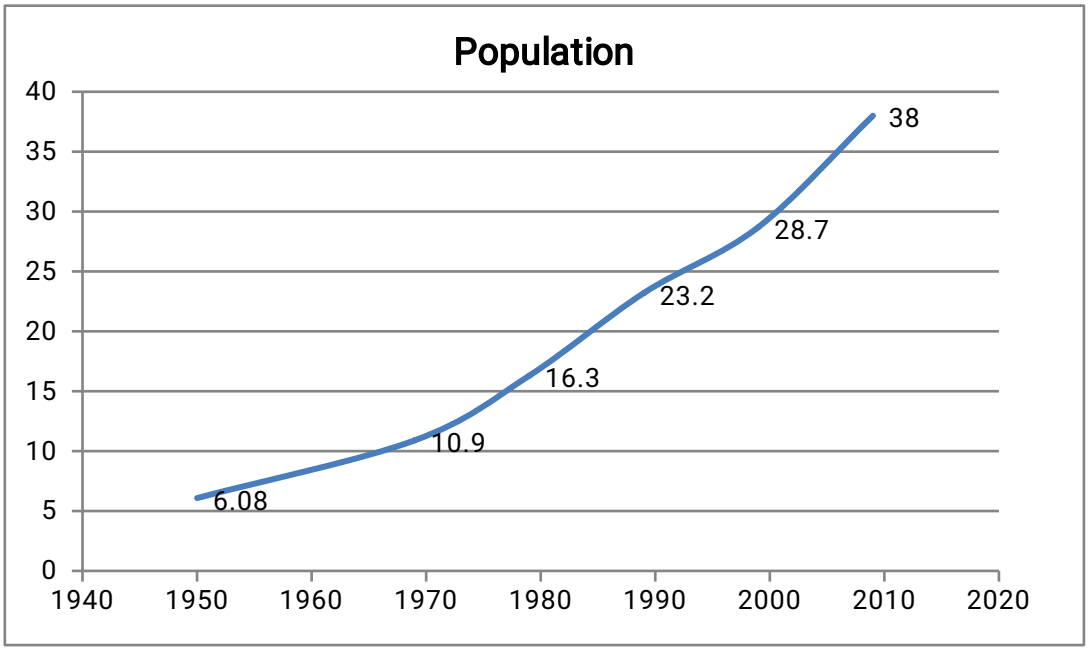
At the end of the lesson the learner will be able to: -

1) Explain the population trends in Kenya
2) State the GoK policies on population
3) Discuss the role of service providers in implementing policies on populations
4) Outline national and international organizations and institutions involved in population issues

1.0 POPULATION TRENDS IN KENYA

1.1 Population Trends

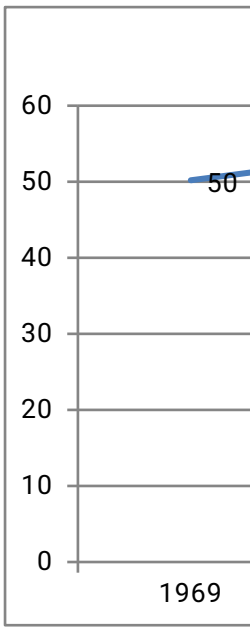
Year	1950	1969	1979	1989	1999	2009
Population (millions)	6.08	10.9	16.3	23.2	28.7	39.4



1.2 Fertility Trends

	Measurement	1978	1989	1993	1998	2003	2008-2009
1.	Total fertility rate (TFR)	8.1	6.7	5.4	4.7	4.9	4.6
2.	General fertility rate (GFR)						
3.	Age specific fertility rate (ASFR)						
4.	General birth rate (GBR)						
5.	Crude birth rate (CBR)						
6.	Gross reproduction rate (GRP)						
7.	Net reproduction rate (GRR)						

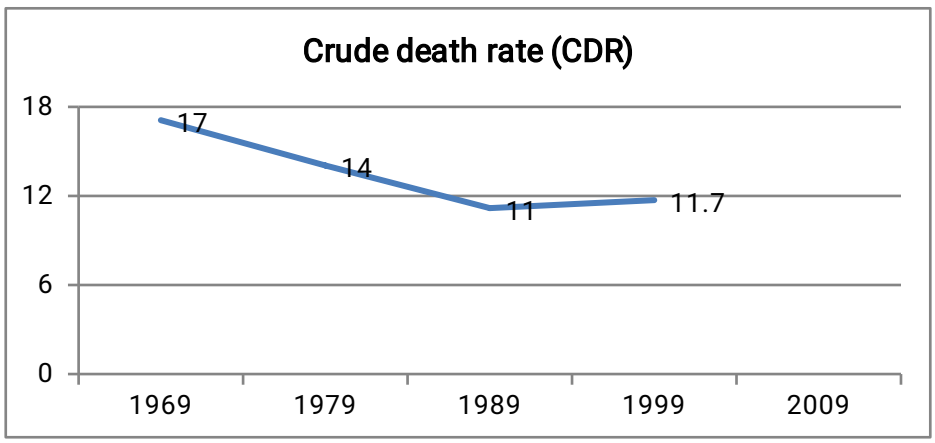
	Measurement	1969	1979	1989	1999	2009
1.	Total fertility rate (TFR)					
2.	General fertility rate (GFR)					
3.	Age specific fertility rate (ASFR)					
4.	General birth rate (GBR)					
5.	Crude birth rate (CBR)	50.0	54.0	48.0	41.3	34.8
6.	Gross reproduction rate (GRP)					
7.	Net reproduction rate (GRR)					



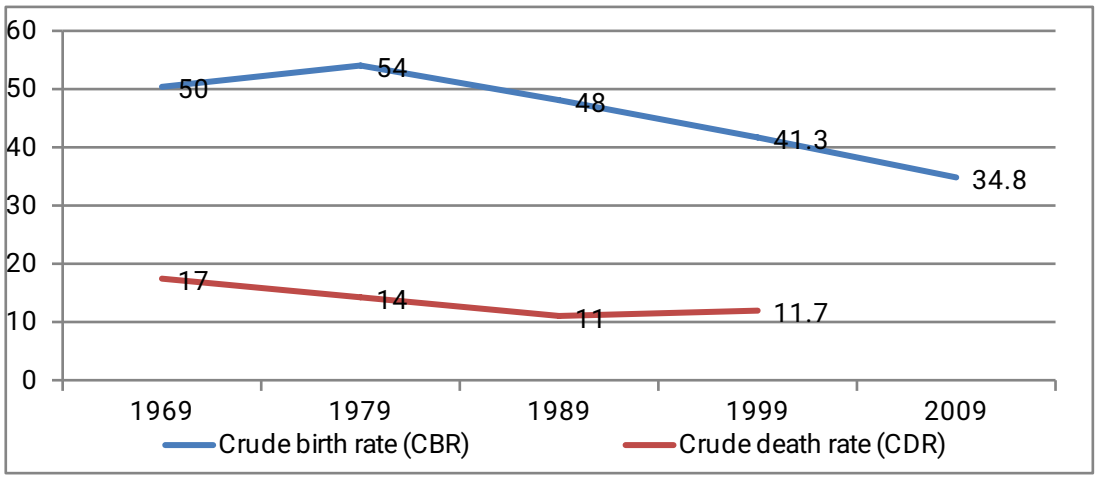
1.3 Mortality Trends

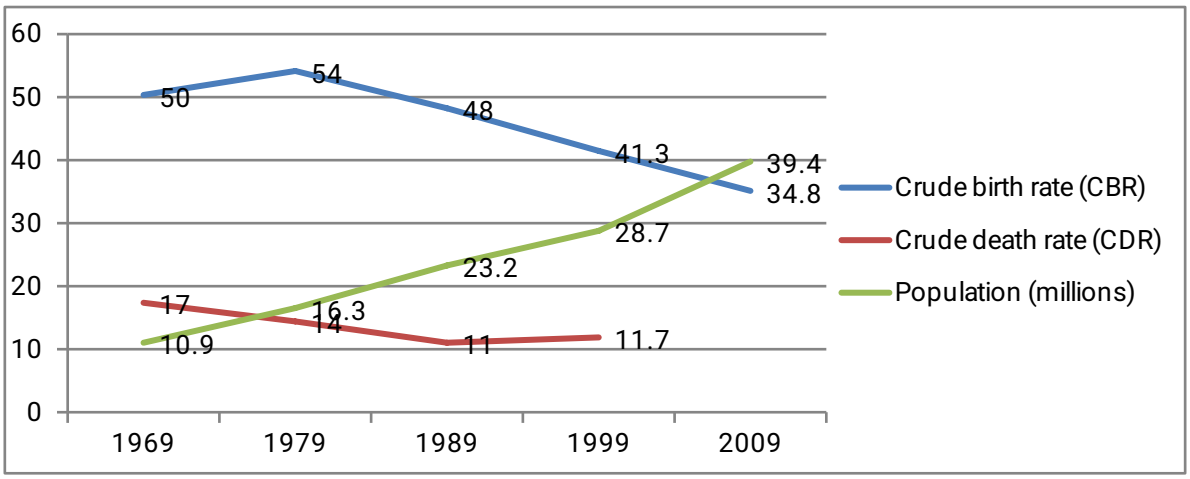
	Measurement	1993	1998	2003	2008-2009

1.	Crude death rate (CDR)	17.0	14.0	11.0	11.7
2.	Age specific death rate (ASDR)				
3.	Infant mortality rate (IMR)		73	77	52
4.	Neonatal mortality rate (NMR)				31
5.	Post neonatal mortality (PNM)			44	21
6.	Perinanatal mortality rate (PMR)				
7.	Child mortality rate (CMR)				
8.	Under 5 mortality rate (U5MR)		110	115	74
9.	Adult mortality rate				Male – 6.0 Female – 5.8
10.	Adolescent mortality rate				
11.	Maternal mortality rate (MMR)		590	414	488
12.	Maternal mortality ratio				



TASK:
Discuss with the aid of appropriate examples and statistics the factors influencing the above population trends in Kenya



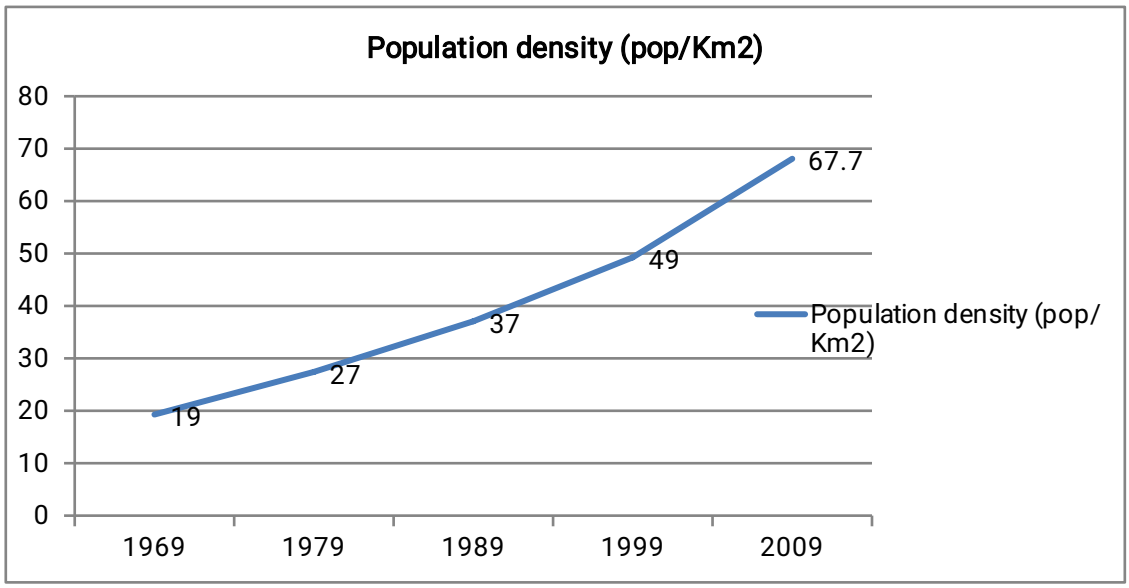


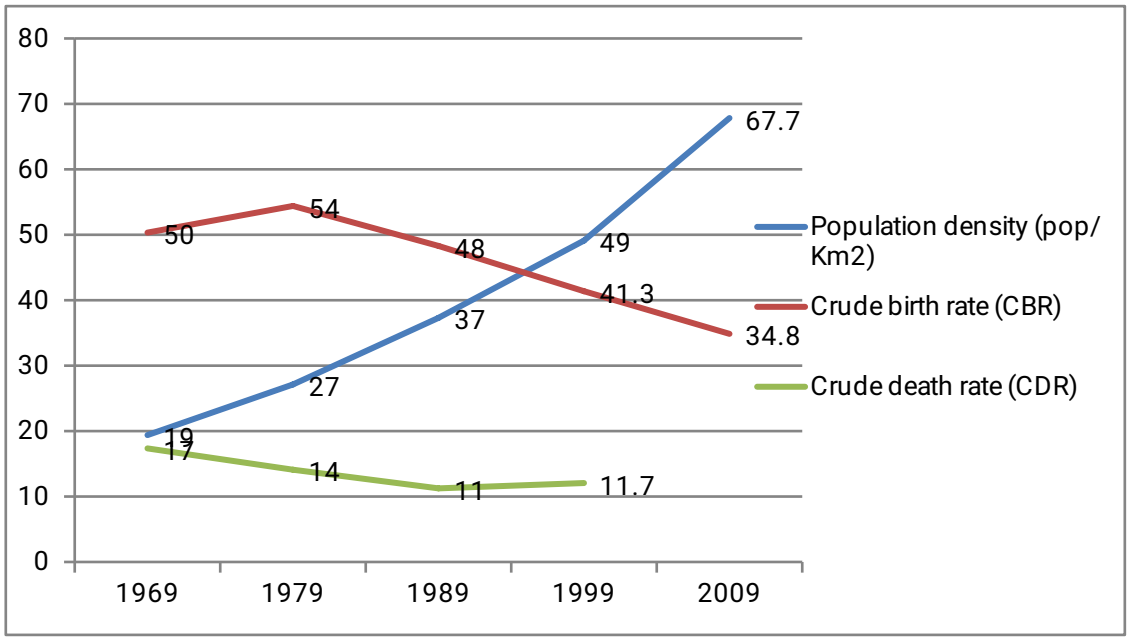
1.4 Urbanization and Migration trends

Discuss the urbanization and migration trends in Kenya justifying their occurrence with appropriate statistics and examples

1.5 Population

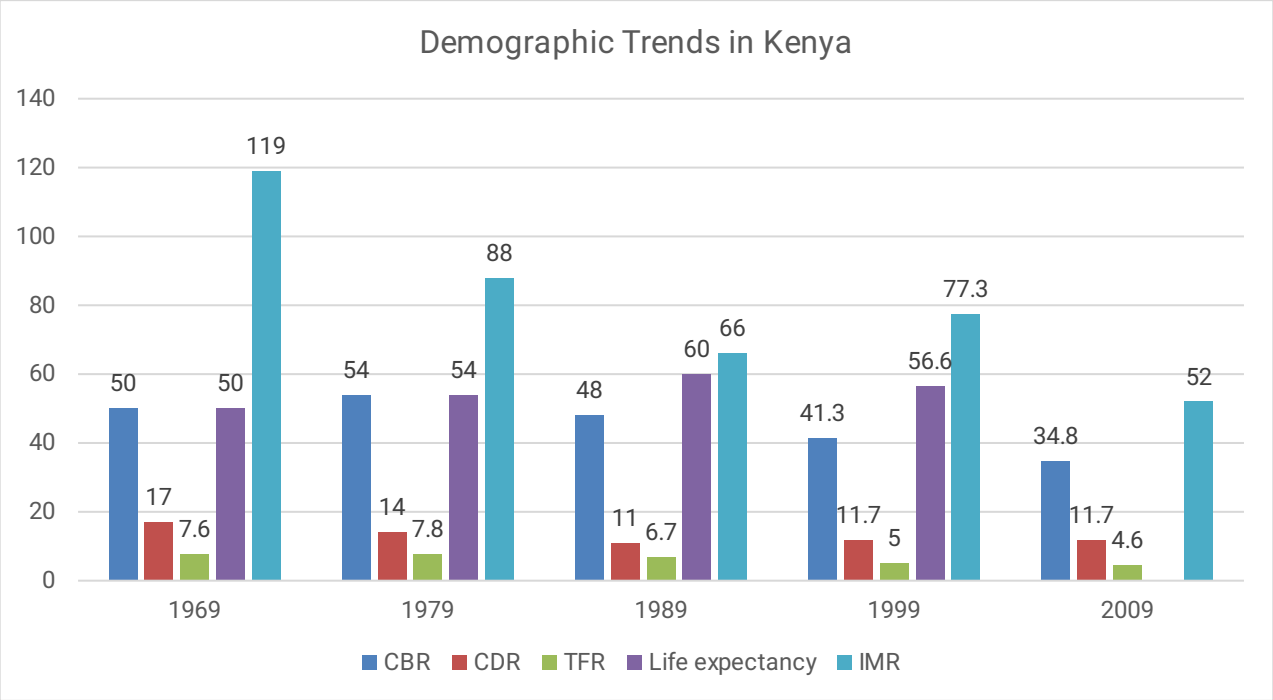
	Measurement	1969	1979	1989	1999	2009
1.	Population density (pop/Km^2)	19.0	27.0	37.0	49.0	67.7

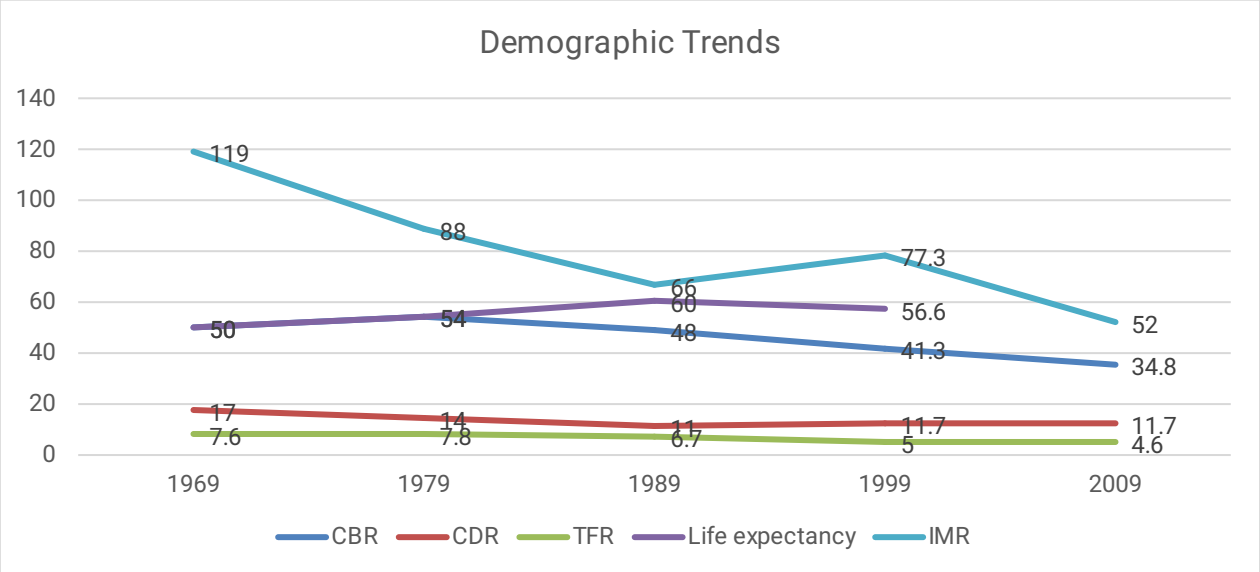




1.6 Demographic Trends

	Measurement	1969	1979	1989	1999	2009
1.	CBR	50	54	48	41.3	34.8
2.	CDR	17	14	11	11.7	11.7
3.	TFR	7.6	7.8	6.7	5.0	4.6
4.	Life expectancy	50	54	60	56.6	
5.	IMR	119	88	66	77.3	52





2.0 GOK POLICIES ON POPULATION

- To reduced population growth rate from 3.8% (1999 census) to 2.5% by the year 2000
- To encourage Kenyans to have small families
- To motivate Kenyan males to adopt and practice family planning
- To reduce rural-urban and rural-rural migration which lead to the creation of unplanned settlement in marginal land; to help ease the pressure on basic services in both rural and urban areas
- To reduce fertility levels and at the same time assist individuals who desire but are unable to have children.

2.1 National Reproductive Health Policy

National Reproductive Health Policy with the theme: 'Enhancing the Reproductive Health Status for all Kenyans'. The policy provides a framework for equitable, efficient, and effective delivery of quality reproductive health services throughout the country and emphasises reaching those in greatest need who are most vulnerable. Its aim is to guide planning, standardisation, implementation, and monitoring and evaluation of reproductive health care provided by various stakeholders. The new policy will allow the government to incorporate and address key issues such as security of reproductive health commodities, prevention of mother-to-child transmission of HIV, emergency obstetric care, adolescent reproductive health issues, gender-based violence, and reproductive health needs of persons with disabilities, and integration of reproductive and HIV health care (Health Policy Initiative, 2009). The policy emphasises priority actions for the achievement of the ICPD goals and the Millennium Development Goals (MDGs) of improving maternal health, reducing neonatal and child mortality, reducing the spread of HIV/AIDS, and achieving women's empowerment and gender equality. Attainment of sexual and reproductive health and rights will have positive effects on poverty reduction and reduction of infant mortality, maternal mortality, and new cases of HIV/AIDS

2.2 National Population Policy for Sustainable Development

National Population Policy for Sustainable Development (NCPD, 2000). This policy builds on the strength of Kenya's first national population policy outlined in Sessional Paper No. 4 of 1984 on Population Policy Guidelines. The current policy—whose implementation period ended in 2010 outlined ways to implement the programme of action developed at the 1994 International Conference on Population and Development in Cairo, Egypt. The implementation of this policy is being guided by national and district plans of action. The policy also addressed issues of environment, gender, and poverty, as well as the problems facing certain segments of the Kenyan population, such as its youth.

Goals of the population policy included the following:-

1) Improvement of the standard of living and quality of life
2) Improvement of the health and welfare of the people through provision of information and education on how to prevent illness and premature deaths among risk groups, especially among mothers and children
3) Sustenance of the on-going demographic transition to further reduce fertility and mortality, especially infant and child mortality
4) Continuing motivation and encouragement of Kenyans to adhere to responsible parenthood
5) Promotion of stability of the family, taking into account equality of opportunity for family members, especially the rights of women and children
6) Empowerment of women and the improvement of their status in all spheres of life and
7) elimination of all forms of discrimination, especially against the girl child
8) Sustainability of the population programme
9) Elimination of retrogressive sociocultural practices through education

The policy had the following targets, some of which have been achieved according to the current KDHS results:

1) Reduction of the infant mortality rate (deaths per 1,000 live births) from 71 in 1998 to 67 by 2005 and to 63 by 2010
2) Reduction of the under-five mortality rate (deaths per 1,000 live births) from 112 in 1998 to 104 by 2005 and to 98 by 2010
3) Reduction of the maternal mortality rate (deaths per 100,000 live births) from 590 in

1998 to 230 by 2005 and to 170 by 2010
4) Maintenance of the crude death rate at 12 per 1,000 population up to the year 2000 and reduction to 10 by 2005 and to 9 by 2010
5) Minimisation of the decline in life expectancy at birth for both sexes, from age 58 in 1995 to age 53 in 2010;
6) Stabilisation of the population growth rate at 2.1 per cent per year by 2010.

2.3 Policies of Family Planning

Find out the policies on Family planning in Kenya

2.4 Policies of Reproductive Health

Find out the policies on Reproductive health in Kenya

2.5 Policies of Child and Maternal Health

Find out the policies on Child and Maternal Health in Kenya

3.0 ROLE OF SERVICE PROVIDERS IN IMPLEMENTING POPULATION POLICIES

This includes: -
1) Provision of services
2) Maintain service standards as outlined in policy guidelines
3) Identify high risk groups for family planning and STIs
4) Promote the use of highly effective and long-term contraceptive method
5) Advocacy and Behaviour Change Communication (BCC)
6) Encourage male involvement in family planning
7) Give ante-natal, delivery and post-natal care for reproductive health and promote breastfeeding
8) Health promotion, education and IEC concepts
9) Give family life education to adolescent
10) Counsel clients on informed choice
11) Collaboration with other agencies
12) Supervision of Health workers
13) Participation in community based health care activities

TASK:
Briefly explain the above roles and how the service providers are able to undertake them.

4.0 ORGANIZATIONS AND INSTITUTIONS

National

	Organization/Institution	Ministry
1.	Kenya National Bureau of Statistics	
2.	Population Council of Kenya	
3.	Family Planning Association of Kenya	
4.	National Coordinating Agency for	

	Population and Development (NCAPD)	
5.	National Council for Population and Development (NCPD)	

International Organizations and Agencies

	Organization/Institution	
1.	UNFPA	
2.		
3.		
4.		
5.		
6.		