



KIM LUDBROOK/EPA/Newscom

# Overview of Chapter 8

- The Science of Demography
- Demographics of Countries
  - ▣ Demographic Stages
  - ▣ Age Structure
- Population and Quality of Life
- Reducing the Total Fertility Rate
- Government Policies and Fertility

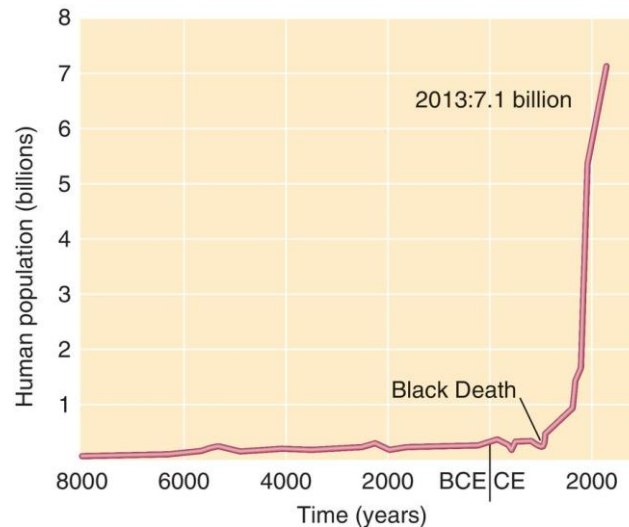
# Africa and population growth

- Population of Africa growing rapidly
- Population estimates decreased due to HIV/AIDS infection rates/deaths
  - ▣ 70% new infections within sub-Saharan Africa
  - ▣ Many children orphaned from death of parent(s)
- Average life expectancy dropped by 10 years
- As health of citizens decline, labor shortages occur



# The Science of Demography

- Demography
  - ▣ Branch of sociology that studies population statistics, structure and growth
- Human Population since 1980 is J-shaped curve (7.1 billion in 2014)



# Human Population Growth

- Human population reached:
  - ▣ 1 billion around 1800
  - ▣ 2 billion in 1930
  - ▣ 3 billion in 1960
  - ▣ 4 billion in 1975
  - ▣ 5 billion in 1987
  - ▣ 6 billion in 1999
  - ▣ 7 billion in 2011

# Human Population Growth

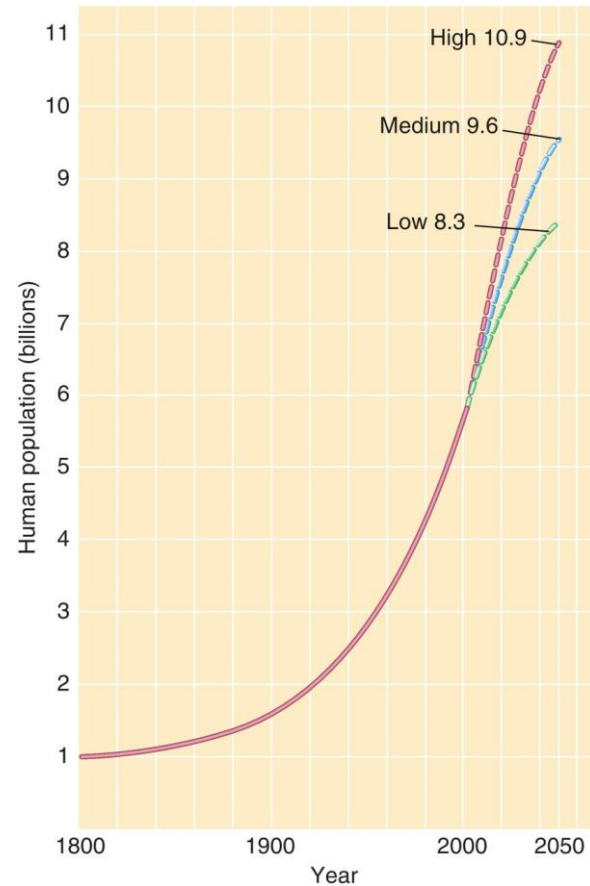
- Population is increasing due to decrease in death rate, not increase in birth rate
  - ▣ Greater food production
  - ▣ Better medical care
  - ▣ Improvements in water quality and sanitation
- Growth rate ( $r$ ) has started to decline
  - ▣ Will continue to decline until “zero population growth”
  - ▣ S-curve may replace J-curve

# Carrying Capacity

- Carrying Capacity ( $K$ )
  - The maximum number of individuals of a given species that a particular environment can support for an indefinite period, assuming no changes in the environment (Ch 5)
- Both environmental constraints and human values have an impact on  $K$
- Uncertain what the carrying capacity of the earth is for humans

# Current and Future Population Numbers

- Projections for 2050
  - ▣ Low = 8.3 billion
  - ▣ High = 10.9 billion
  - ▣ Most likely = 9.6 billion
- Projections have increased since 2012 by ~ 0.5 billion





# Demographics of Countries

**Table 8.1** The World's 10 Most Populous Countries

<i>Country</i>	<i>2013 Population (in millions)</i>	<i>Population Density (per square kilometer)</i>
China	1357	142
India	1277	388
United States	316	33
Indonesia	249	130
Brazil	196	23
Pakistan	191	230
Nigeria	174	1
Bangladesh	157	1087
Russia	143	8
Japan	127	337

*Source:* Population Reference Bureau.

# Population Growth in Developing versus Developed Nations

- Population growth and population characteristics are not the same in all countries

**Table 8.2** Comparison of 2013 Population Data in Developed and Developing Countries

	<i>Developed</i>	<i>Developing</i>	
	<i>(Highly Developed)</i> <i>United States</i>	<i>(Moderately Developed)</i> <i>Venezuela</i>	<i>(Less Developed)</i> <i>Ethiopia</i>
Fertility rate	1.9	2.4	4.8
Projected population change, 2013–2050*	1.3	1.4	2.0
Infant mortality rate	5.9 per 1000	11.6 per 1000	52 per 1000
Life expectancy at birth	79 years	75 years	62 years
Per capita GNI PPP (2012; U.S. \$)**	\$50,610	\$13,120	\$1,140
Women using modern contraception	73%	62%	27%

\*Includes fertility, mortality, and migration estimates; 2050 population is presented as a multiple of the 2013 population.

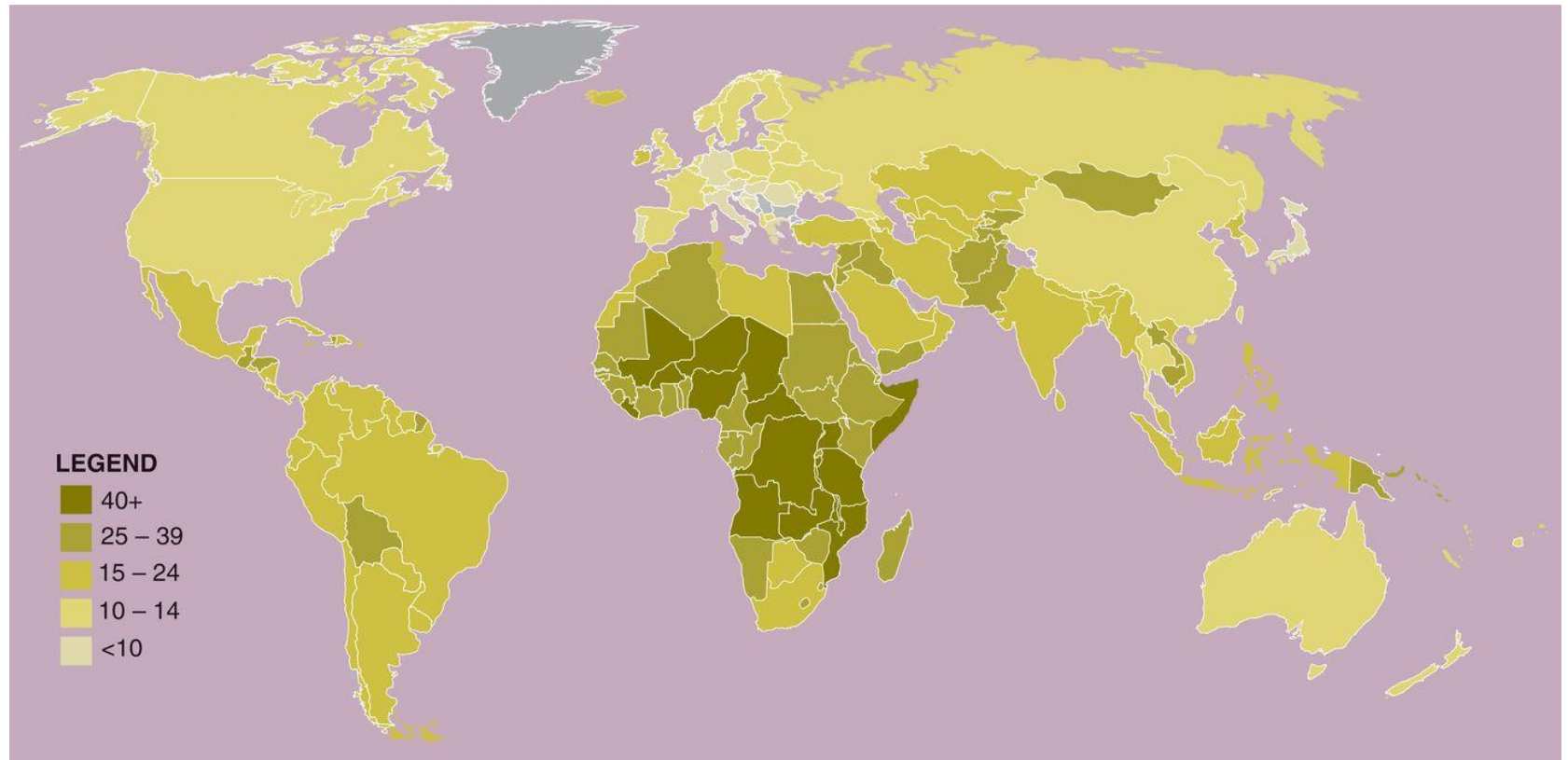
\*\*GNI PPP = gross national income in purchasing power parity.

Source: Population Reference Bureau.

# Replacement Level Fertility

- Number of children a couple must have to “replace themselves”
  - ▣ 2.1 children
- Total fertility rate worldwide is 2.5 children
  - ▣ More than replacement level fertility

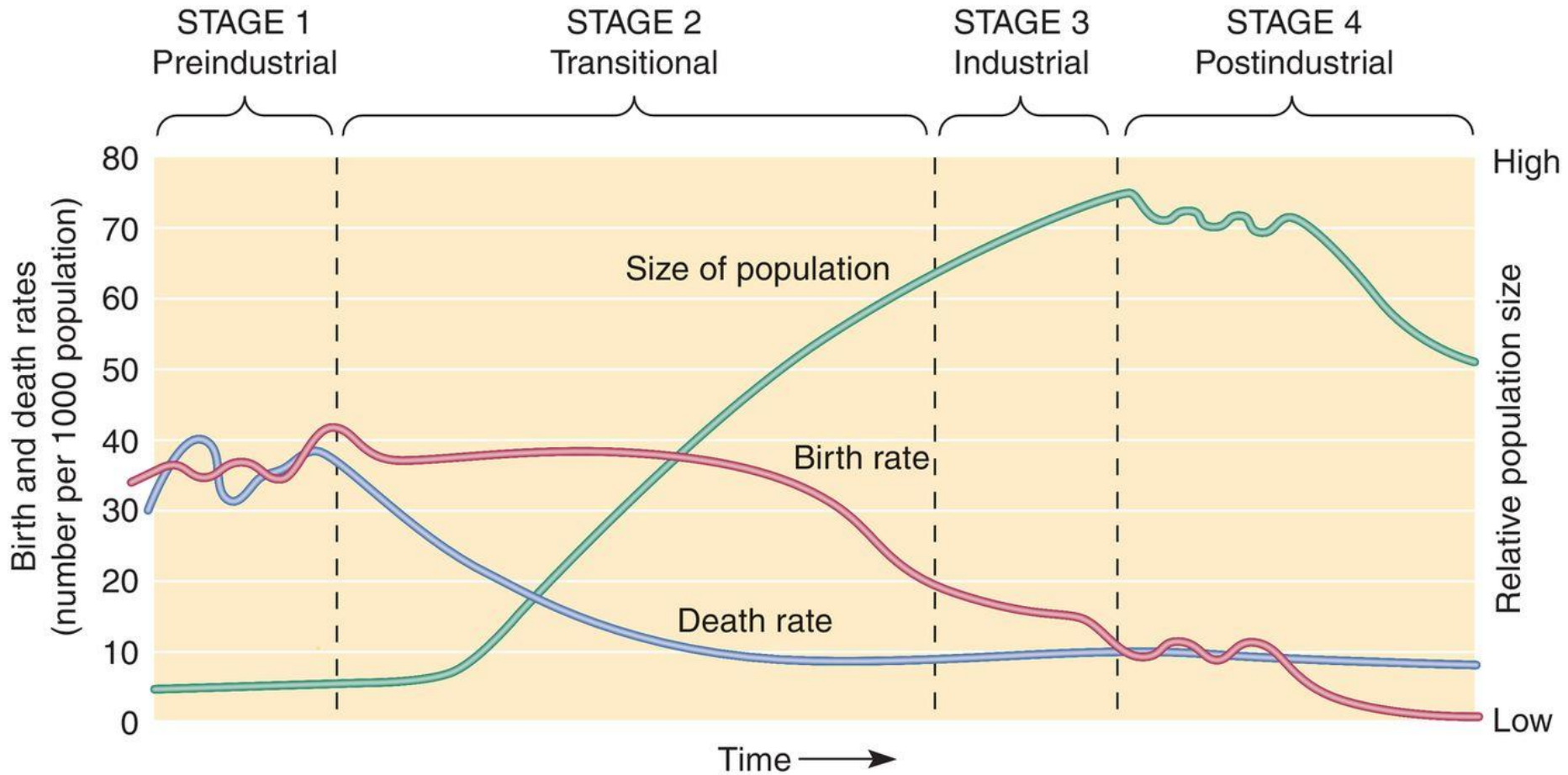
# Birth rates around the world



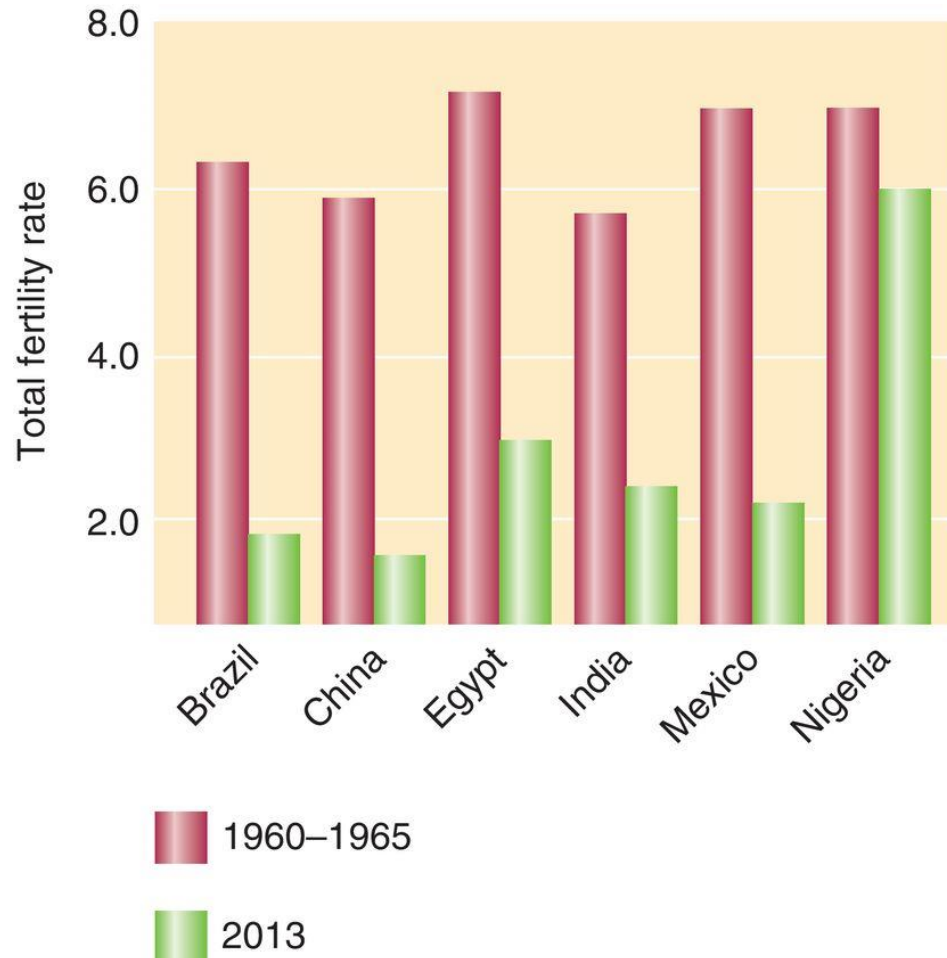
# Demographic Stages

- Pre-industrial Stage
  - Birth and death rates high, modest population growth
- Transitional Stage
  - Lowered death rate, rapid population growth
- Industrial Stage
  - Birth rate decline, population growth slow
- Postindustrial Stage
  - Low birth and death rates, population growth very slow

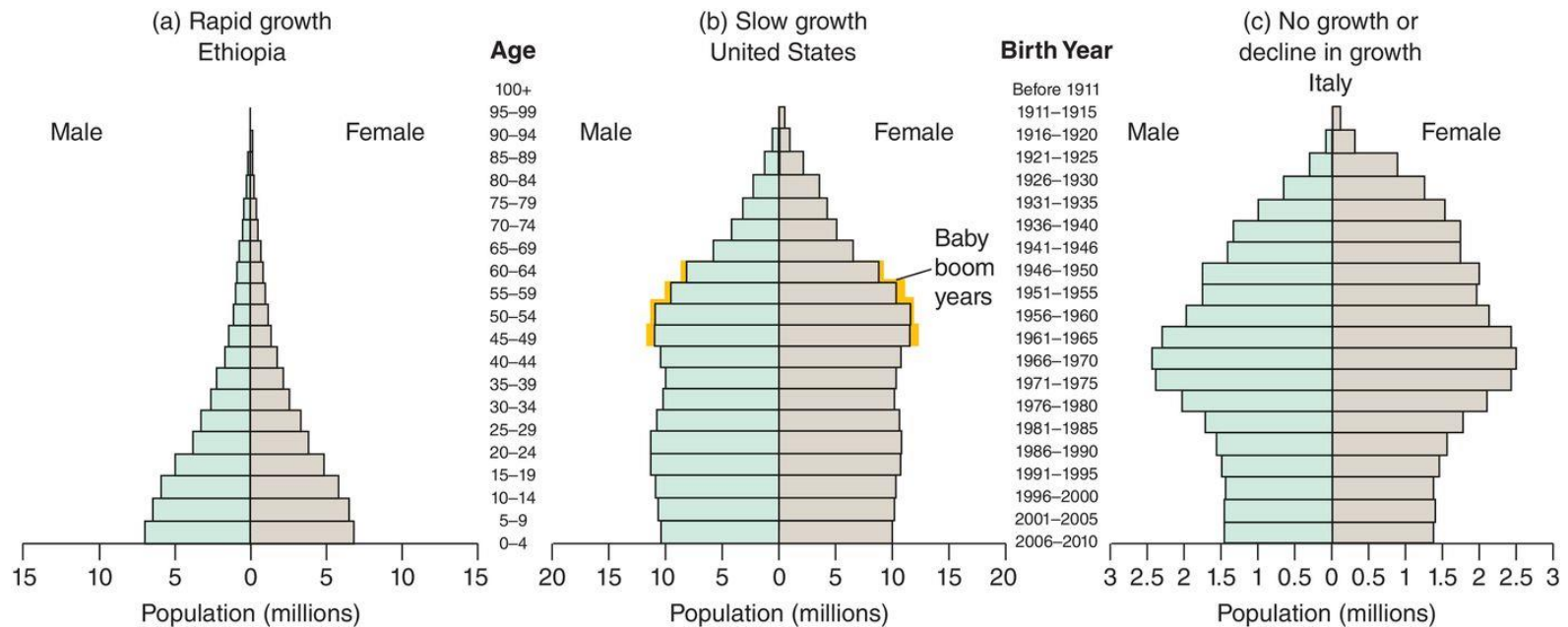
# Demographic Stages



# Fertility Changes in Developing Countries



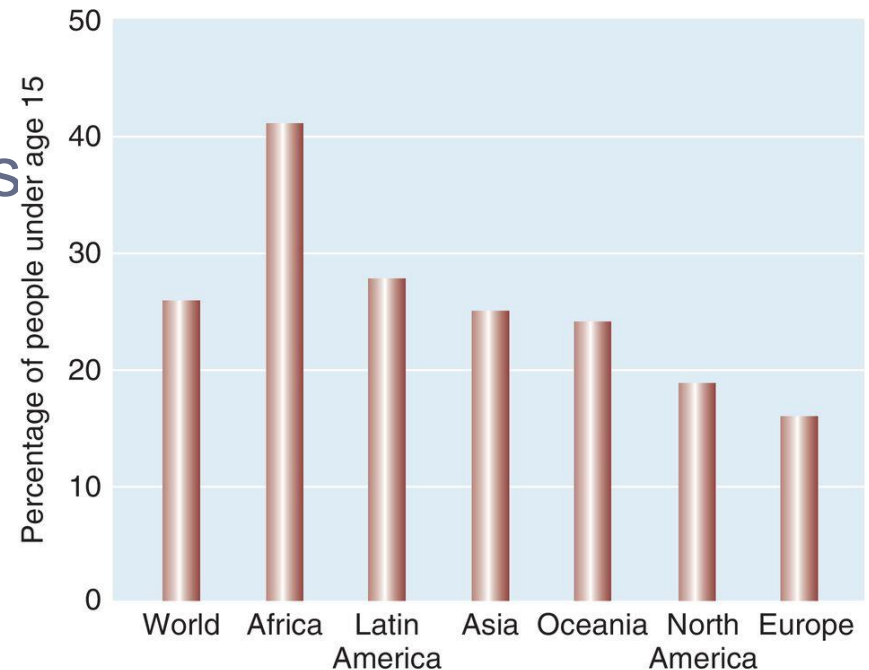
# Age Structure Diagrams





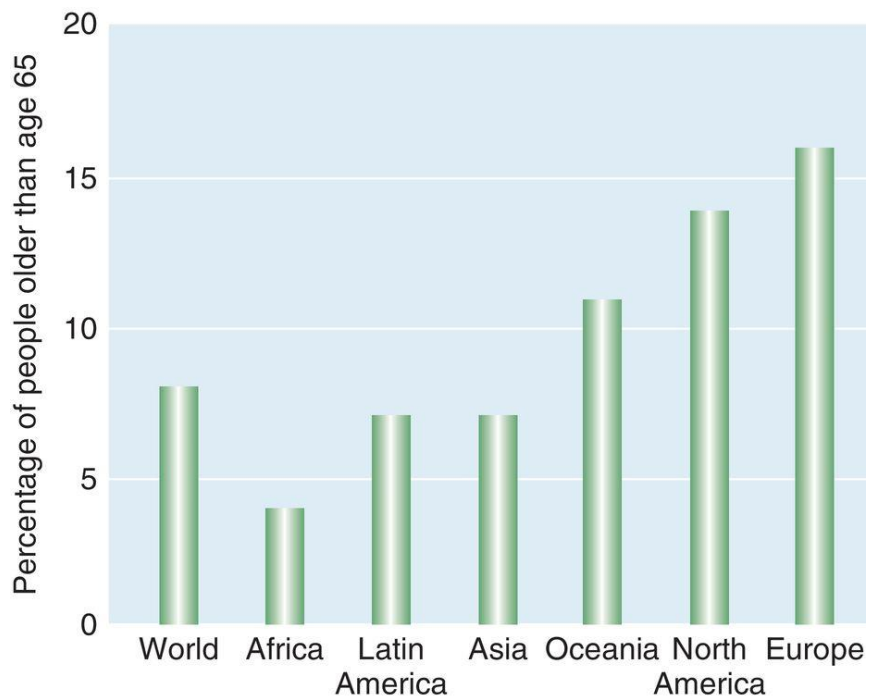
# Age Structure

- Population Growth Momentum
  - ▣ Potential for future increases or decreases in a population based on current age structure
  - ▣ Increase seen when largest population is in pre-reproductive age group (26% of world population)



# Age Structure

- Low fertility rate usually leads to larger elderly population
  - ▣ Most are retired - not a part of workforce
  - ▣ Increase on country's tax burden
  - ▣ High percentage of disabled or chronically ill



# Effects of aging population

- Japan- Longest life expectancy
  - ▣ Men 80; women 86
  - ▣ Low fertility rate and fears that young may not support elderly
  - ▣ Incentives to continue working past retirement
- Russia has fertility rate of 1.7
  - ▣ Declining population
  - ▣ Incentives for young to start families
- A new problem for the world



# Population and Quality of Life

- Difficult to meet basic needs in developing countries
- Problems associated with overpopulation:
  - ▣ Environmental degradation, Hunger, Persistent poverty, Economic stagnation, Urban deterioration, Health issues
- Can Earth sustainably support 9.6 billion people?
  - ▣ Depends on quality of life,
  - ▣ People, businesses, governments changing habits

# Population and Chronic Hunger

- Food security
  - ▣ Condition in which people DO NOT live in hunger or fear of starvation
- Effects of Chronic Hunger
  - ▣ Weakened immune system
  - ▣ Illness and disease
    - Malaria
    - Measles
    - Diarrhea
    - Acute respiratory illness



Antony Njuguna/Reuters/Landov

# Population and Chronic Hunger

- Food insecurity
  - ▣ Conditions under which people live with chronic hunger and malnutrition
- Solving the Food Problem
  - ▣ Control population growth
  - ▣ Promote economic development of developing countries without adequate food supplies
  - ▣ Provide access to food and land resources to those who live in areas without them

# Economic Effects of Population Growth

- Two viewpoints from economists:
  - ▣ Population growth stimulates economic development and technological innovation
  - ▣ Rapid population expansion hampers developmental efforts
- Most observations support the second viewpoint
- In order for country to increase its standard of living, its economic growth must exceed its population growth

# Reducing the Total Fertility Rate

Three major influences on total fertility rate

1. Cultural traditions
2. Social & economic status of women
3. Family planning



# Cultural and Fertility

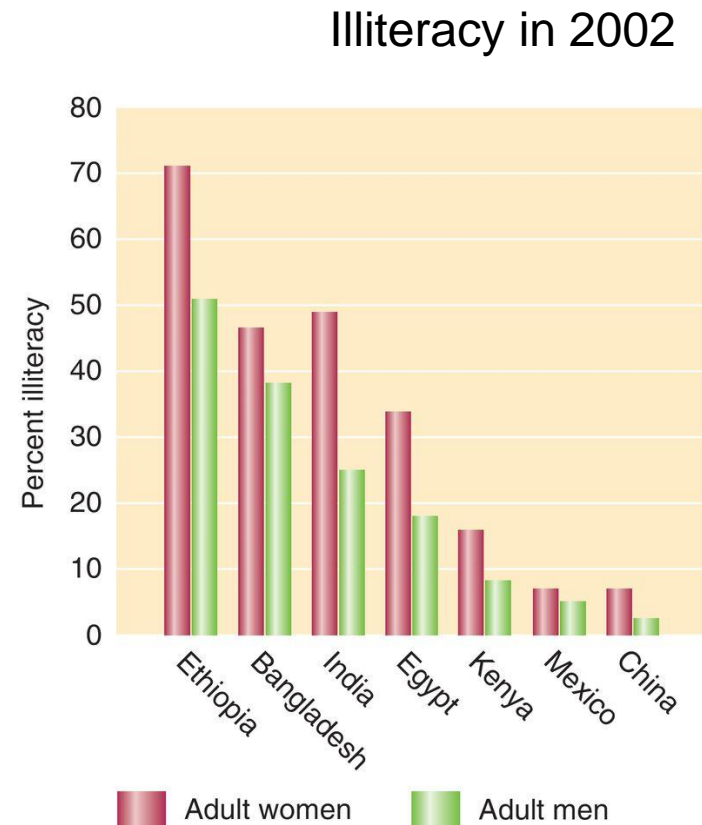


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- Culture influences and controls individuals' behaviors
  - ▣ Marriage age
  - ▣ Due to high infant and child mortality rates, couple is expected to have large number of children
  - ▣ Children often work in family business (pictured left)
  - ▣ Religious values

# Social & Economic Status of Women

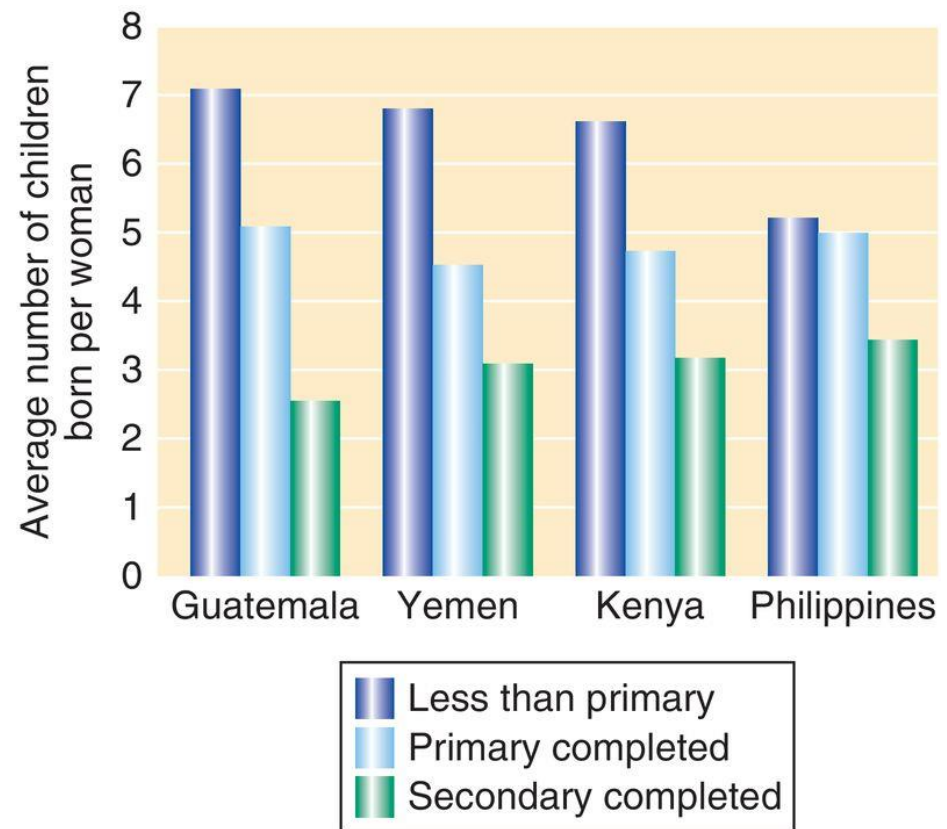
- Gender inequality is common worldwide
- Disparities
  - ▣ Political participation
  - ▣ Social status
  - ▣ Economic status
  - ▣ Health status
  - ▣ Legal rights
  - ▣ Education
  - ▣ Employment and earnings



Single most important factor affecting high total fertility rates is low status of women

# Educational Opportunities and Fertility

- Women with more education
  - ▣ Marry later
  - ▣ Have fewer children



# Family Planning Services

- Family planning services
  - Services that enable both men and women to limit family size, safeguard individual health rights, and improve the quality of life for themselves and their children



# Government Policy and Fertility- China

- Largest population in the world
- Controversial Family Planning Policy
  - 1971 - Chinese Government actively pursued birth control
  - 1979 - Incentives to promote later marriages and one-child families
    - Medical care, schooling for child, preferential housing, retirement funds
  - Brought about rapid and drastic decrease in fertility

# Government Policy and Fertility- China

- 1979- plan put in place with incentives to promote later marriages and one-child families
  - ▣ Incentives were medical care, schooling for child, cash bonuses, preferential housing, retirement funds
  - ▣ If second child was born, all incentives must be revoked or returned
  - ▣ Decrease in fertility from 5.8 births per woman to 2.1 birth per woman in 1981

# Government Policy and Fertility- China

- Plan was controversial and unpopular
  - ▣ Social pressure to abort a second child
  - ▣ Pressure to abort/kill female first child
    - 120 boys to 100 girls as of 2000
  - ▣ Plan much more relaxed in rural China
- 2011 TFR = 1.5



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# Government Policy and Fertility-Mexico

- Young age structure
  - Huge potential for population growth: 30% of population is under age 15
    - High Population Growth Momentum
- 1974 - government imparted educational reform, family planning, health care
  - Very successful
  - TFR dropped from 6.7 (1970) to 2.2 (2013)



# Millennium Development Goals

- 189 heads of state met at U.N. Millennium Summit – address needs of impoverished
- Action plan –Millennium Development Goals
  - ▣ 1- Eradicate extreme hunger and poverty
  - ▣ 2- Achieve universal primary education
  - ▣ 3- Promote gender equality and empower women
  - ▣ 4- Reduce child mortality
  - ▣ 5- Improve maternal health
  - ▣ 6- Combat HIV/AIDS, malaria, and other diseases
  - ▣ 7- Ensure environmental sustainability
  - ▣ 8- Develop a global partnership for economic development

# Achieving Population Stabilization

- How can developing country governments help?
  - ▣ Increase \$\$ allotted to public health and family planning services
  - ▣ Education on methods of birth control
  - ▣ Increase average level of education
- How can developed country governments help?
  - ▣ Provide financial support
  - ▣ Supporting research and development of new birth control methods

# Achieving Population Stabilization

- Highly developed nations can have problems of unsustainable consumption by affluent people
- Policies to support sustainable choices?
- Voluntary simplicity
  - ▣ Way of life that involves wanting and spending less
- Downshifting
  - ▣ Voluntarily moving from lifestyle based on accumulation of wealth and goods
  - ▣ Ex: Tiny houses

