

## Human Population

*"The Total Environmental Effect of the Human Population is the Impact per Individual times the Total Number of Individuals"...*

Paul Ehrlich, Stanford Biologist

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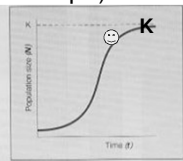
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## Population Size

❖ In nature it is a balance between biotic potential and environmental resistance

❖ An ideal population forms a **logistic growth** curve ( S or sigmoid shape)



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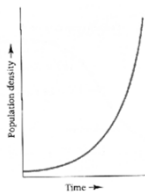
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## A Population out of balance

Exponential growth



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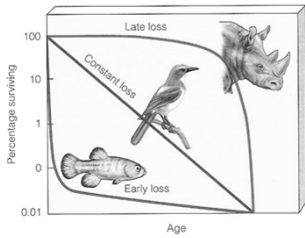
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### Three forms of Population Growth Curves




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**81 million people  
are added to the world  
every year**

**This is equivalent to adding  
One Germany a year  
One New York City a month**

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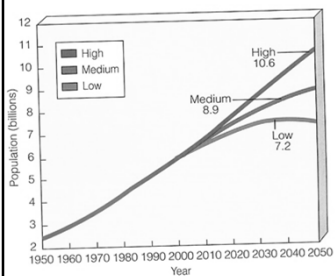
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### World Population Projection



High= children  
Medium = children  
Low = children

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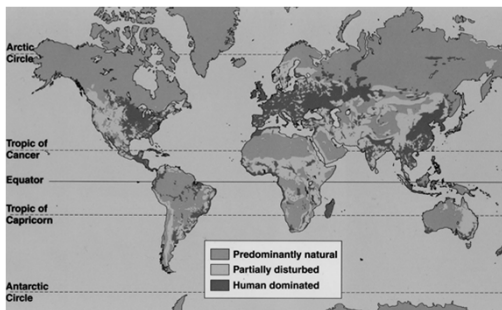
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## Distribution of the Human Population



Where are we the most affected by limiting factors?

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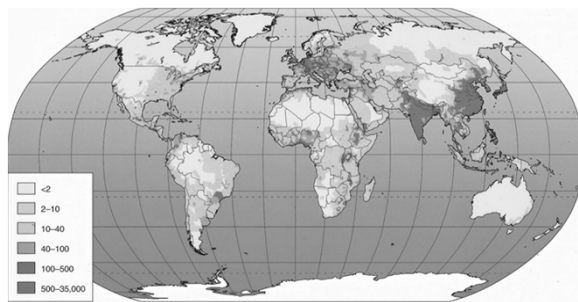
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## WORLD POPULATION DENSITY



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## Population Terminology

- Crude birth rate
- Crude death rate
- Growth rate
- Replacement level fertility
- Total fertility rate
- Doubling time
- Rule of 70
- Demographic transition
- BIDE equation

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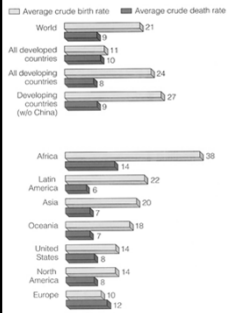
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## How do Demographers study populations?




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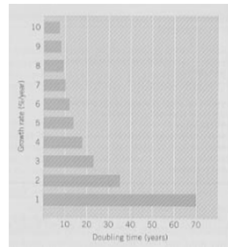
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## DOUBLING TIME- RULE OF 70

**Table 7.1** World population growth and doubling times

Date	Population	Doubling Time
5000 B.C.	50 million	?
800 B.C.	100 million	4200 years
200 B.C.	200 million	600 years
A.D. 1200	400 million	1400 years
A.D. 1700	800 million	500 years
A.D. 1900	1,600 million	200 years
A.D. 1965	3,200 million	65 years
A.D. 1990	5,300 million	38 years
A.D. 2020 (estimate)	8,230 million	55 years

Source: Data from Population Reference Bureau, Inc., Washington, DC.




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## Replacement Level Fertility-

## Total Fertility Rate-

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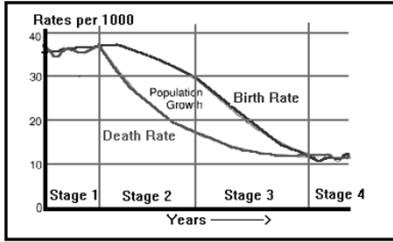
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### The Demographic Transition




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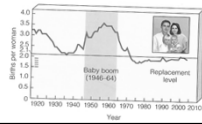
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### How the Human Population has transitioned in the United States

What effect has the baby boom had on our population?

What will happen within the next twenty years?




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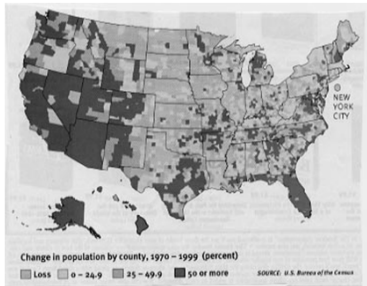
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### Change in Population by county 1970-1999




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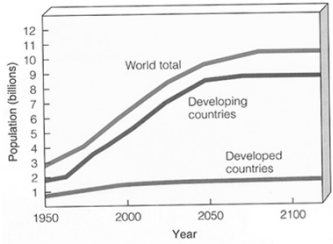
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Developed countries grow slower than developing countries, how will this effect the biosphere?




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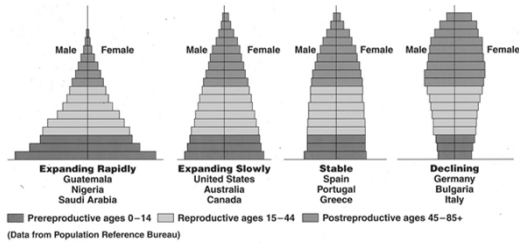
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Population Growth Patterns as described graphically in age structure diagrams




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How do we deal with the rapid growth?

◇ Concentrate on population policies & family planning technologies to bring down birth rate.

◇ Concentrate on development, therefore it will slow down as in developed countries.

◇ Why?

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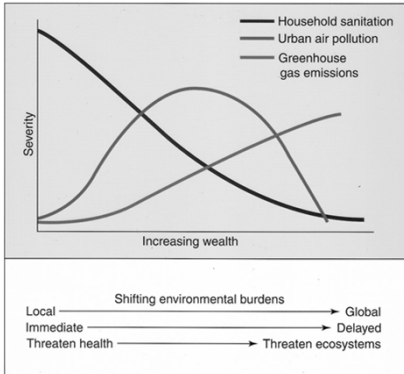
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# How does affluence affect global health?




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Compare	China	vs	U.S.
Area	3,705,820 sq mi		3,717,796 sq mi
Population	1,288,700,000		291,500,000
People/ sq mile	348		78
CO <sub>2</sub> emitted pp	2.5 metric tons		19.8 metric tons
Energy consumed pp	880 kg oil equiv		7,960 kg oil equiv
Tobacco Use	35.6%		23.6%
Meat consumed pp	104 lbs		269 lbs
Paper consumer pp	73 lbs		730lbs
Avg people per room	1.1		0.5
Water use pp	116,000 gal		484,500 gal
TV sets per 1,000	292		844
Vehicles per 1,000	16		774

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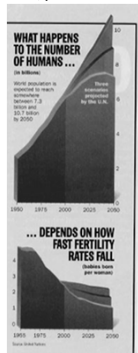
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# What has changed the growth of the population?

- Birth Control pill introduced
- 1969 UN Population Fund-
- 1994 Cairo Conference-
- Global total fertility rate has




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## Social Modernization Focuses on Women

■ Status of women-

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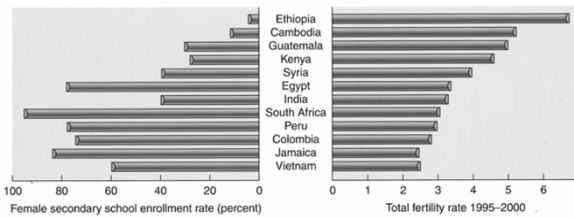
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## Education vs. Fertility in Women



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## Social Modernization

■ Enhance income through  
employment opportunities

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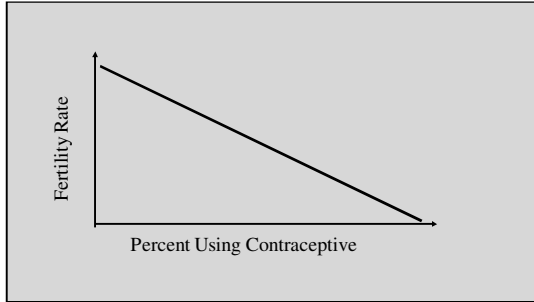
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## Contraceptive Prevalence and Fertility Rates




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## Factors Influencing Family Size

- Security in old age.

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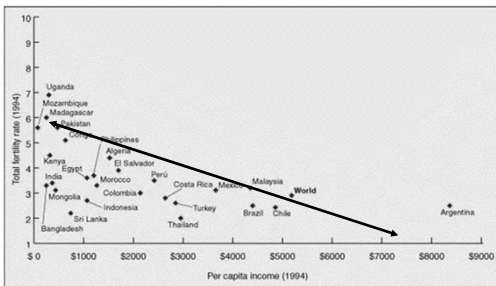
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## Fertility Rate and Income




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## Global Poverty




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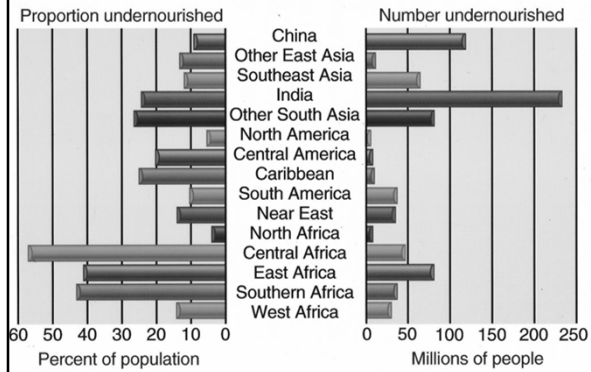
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## POPULATION MALNOURISHED BY REGION




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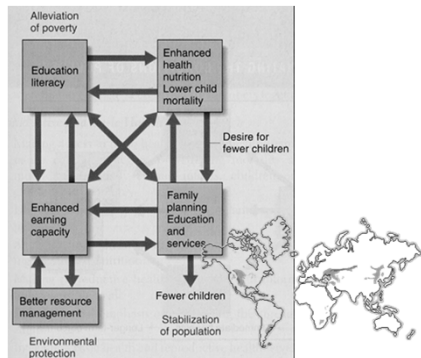
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## Social Development Feedback Mechanisms




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