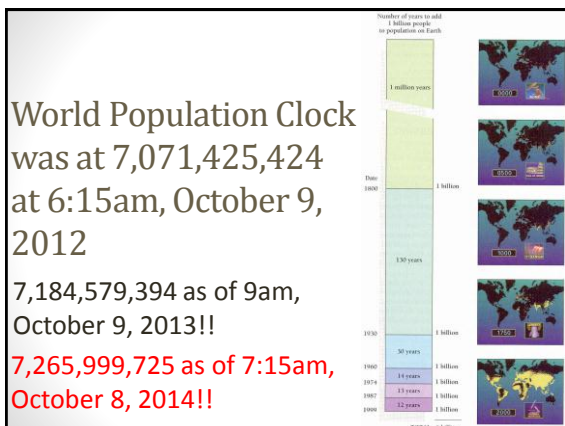
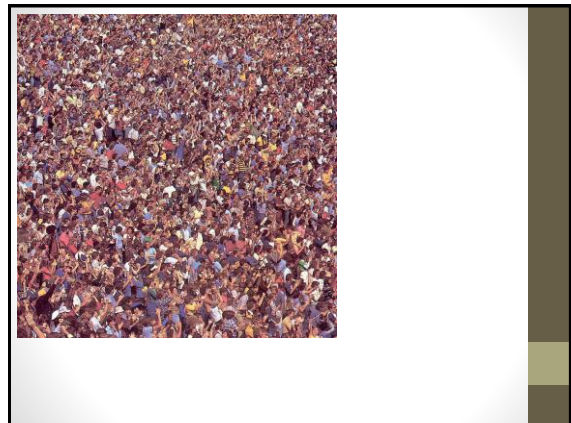


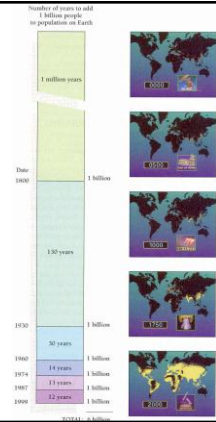
- Human population growth is often considered the number one environmental issue because...
 - Dictates resources use
 - Causes all types of pollution
 - Often leads to most other environmental issues
- Human population is growing at an increasingly faster rate



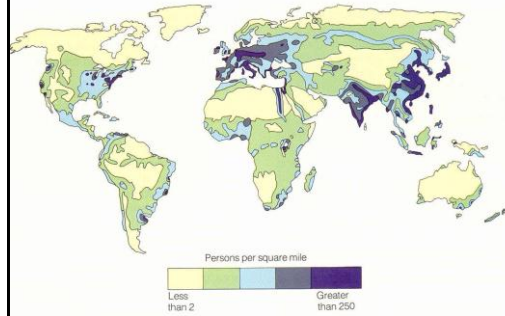
158 new humans per minute.....

World Population Clock currently stands at...

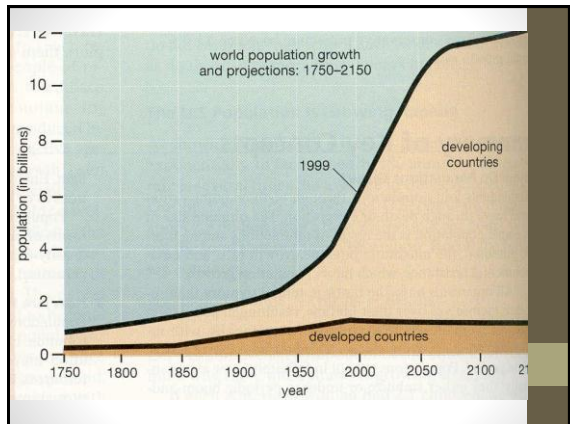
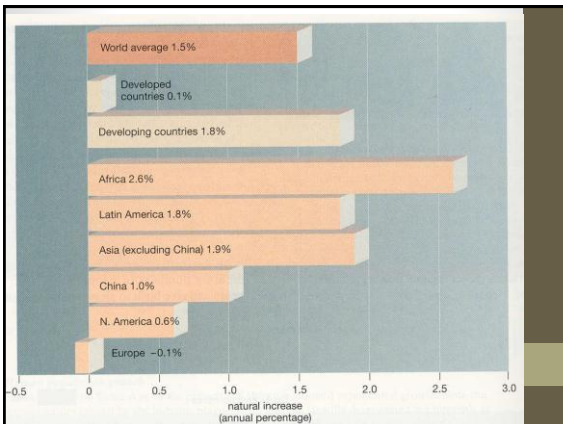
<http://www.worldometers.info/world-population/>



Human population density is not uniform



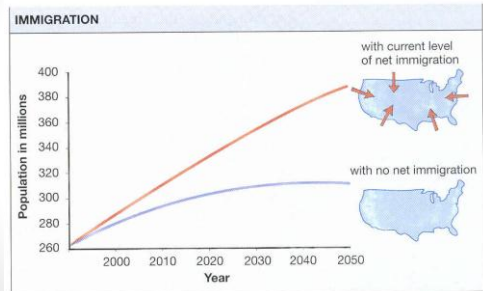
Growth is also not uniform: centered in developing areas



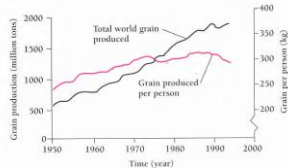
Why?

- Population growth in developing areas is often higher because of lower education rates and an un-empowered female population.
- These areas typically have much lower qualities of life due to dense populations competing for limited resources.
- Density-dependent limiting factors?
 - Disease, sanitation issues, competition, food scarcity, etc.

US growth primarily due to immigration

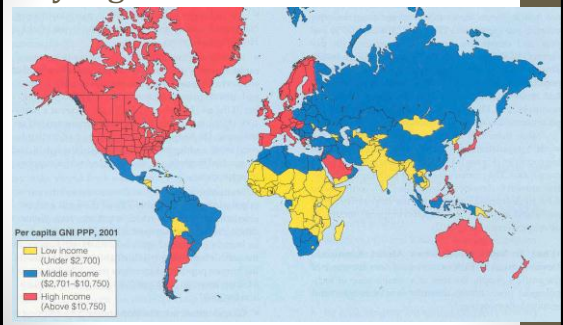


Increasing populations cannot be matched by current food production levels.



Potential mitigating factors: GMO's, world aid, etc.

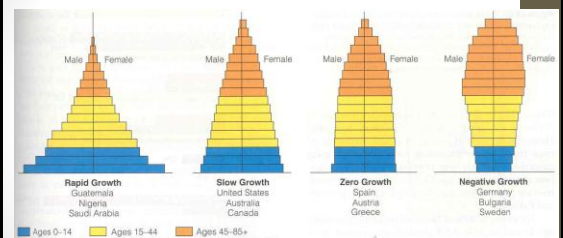
Relative "wealth" breaks down by region



Population growth driven by...

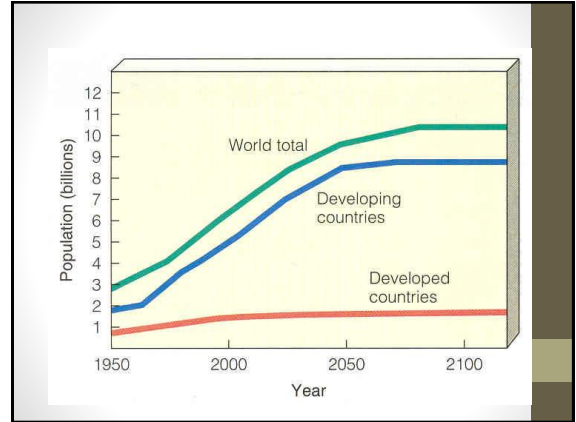
- Fertility rate: more births = higher pop.
- Life expectancy: longer lives = people contribute to population longer
- Age structure: higher percentage at reproductive age typically means quicker growth
- Migration: people entering and leaving a country

Demographics dictate growth rates.

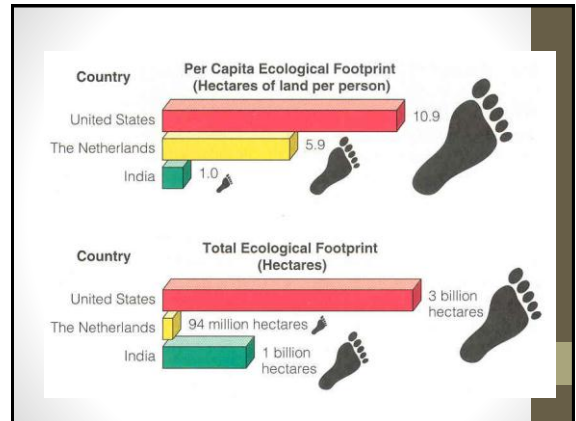
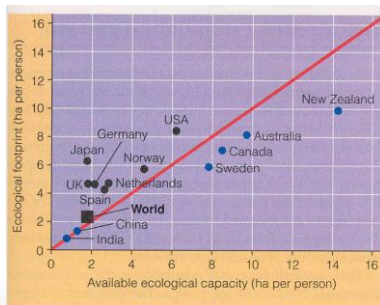


Theory of demographic transition

- Countries undergo the same general shifts in population growth as they develop
- First—Slow population growth: low life expectancies, difficult lives, high birth rates
- Second—Rapid population growth: high BRs, but death rates decline due to modernization
- Third—Stable population growth: economy and education improve, birth and deaths fairly stable
 - Where the USA is now
- Fourth—Declining population growth: high affluence, more elderly than young



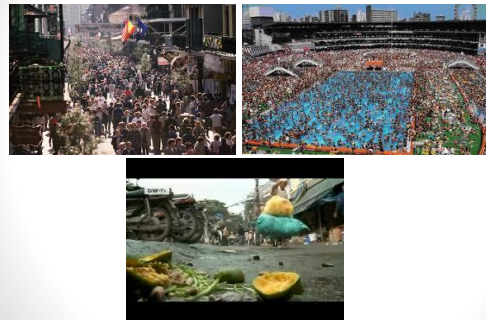
Problem: ecological capacity is greatest in developed areas—more used by smaller populations



IPAT equation

- Human influence on Earth measured using IPAT:
 - Impact = Population x Affluence x Technology
- Increasing technology and wealth have effects on environment as well as population!
- GDP: gross domestic product= total value of all goods and services produced in a year.
 - Measure of affluence
 - Often pollution increases with GDP

Higher population...



Higher affluence...



More Technology...



How to control population growth?

- Education
- Family planning
- Government support
- Economic development
 - Micro-loans: small amounts of money lent to individuals in developing countries in order to start small businesses.



TED Talk:
http://www.ted.com/talks/mechai_viravaidya_how_modern_made_thailand_a_better_place?language=en