

The Earth's Carrying Capacity

Prior to 1950, the death rate was high, which kept the numbers of humans from increasing rapidly. In the 19th Century, the agricultural revolution increased food production. The industrial revolution improved methods of transporting food and other goods. In the 20th Century, advances in medicine, sanitation and nutrition have decreased the death rates further. These factors combined to produce the rapid growth of the human population in the 20th century.

As with any population, humans are also limited by factors such as space, amount of food and disease. The carrying capacity is the number of individuals that a stable environment can support. Authorities disagree on the maximum number of people that the earth can support, though the numbers generally range for 8 to 10 billion. As the population approaches its limit, starvation will increase. Some countries have a much higher growth rate than others. Growth rate is the number of people born minus the number of people that die. Compare the growth rates of the following countries

Most countries are trying to reduce their growth rate. Zero population growth means that as many people are being born as there are dying - to achieve zero population growth, each couple would need to have no more than two children (to replace the parents). Even if this number is achieved, the population will continue to grow because the parents will still live on for decades, as their children have children and their children have children...and so forth. The United States reached zero population growth in the 1980's, and yet the overall population of the US still increases.

Analysis

1. What factors contributed to the world's overall population growth in the last 150 years?
2. Why does a population not level off during the same year it reaches zero population growth?
3. If the carrying capacity of the earth was 9 billion people, when would this number be reached (according to your graph)?
4. What will happen when the human population exceeds the earth's carrying capacity?

