

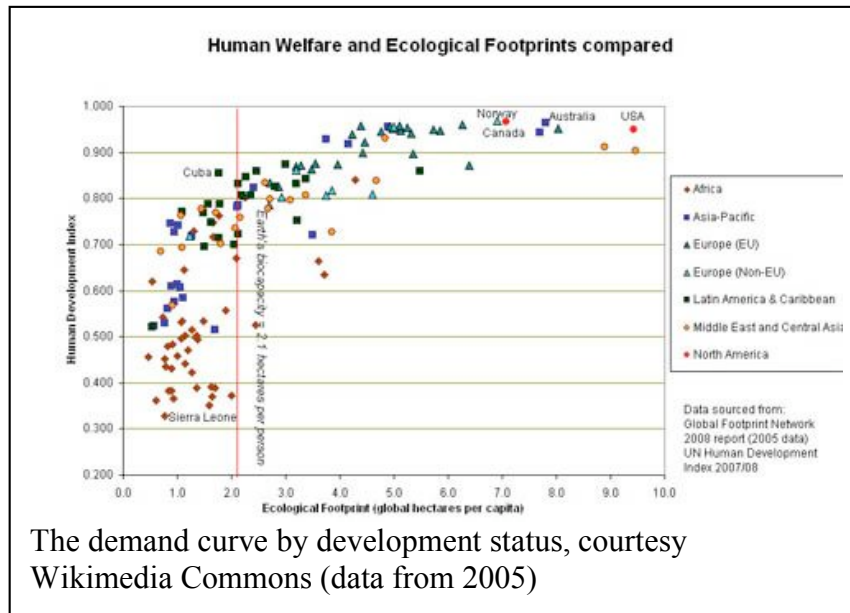
THE HUMAN POPULATION

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The human population is nearing 7 billion in 2010, and may reach 10 billion by 2050. Our unique planet and its magnificent biodiversity are paying a punishing price as a result. There is much rhetoric for halting this destruction, but too little action to make a difference. The country doing the greatest damage to Earth is the United States, whose flawed two-party political system and process, thus far, seems incapable of doing anything other than helping Wall Street and the Military Industrial Complex, while tossing a few bones to the poor to avoid marches on the Capitol.

Humans place a huge [ecological footprint](#) on Earth with their demands for food, water, shelter, clean air, energy, material goods, services, etc. This burden can be measured by the number of Earths needed to meet this demand in a “sustainable” manner, where Nature is able to replace these resources as they are used – rather than running out for future human generations.

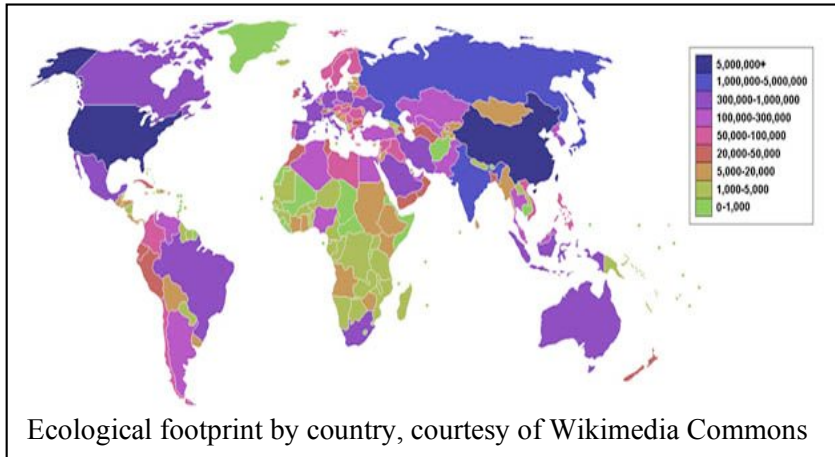
The process is revealed in two plots.



The demand curve by development status, courtesy Wikimedia Commons (data from 2005)

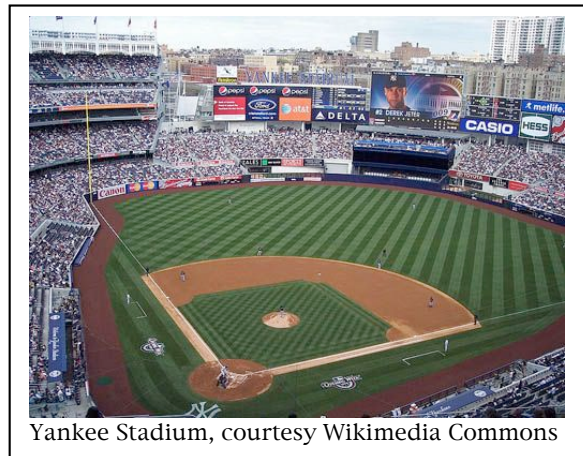
Undeveloped countries have a relatively weak footprint, but moving up the needed resources curve as they seek to live like the developed countries. As Earth can only provide about 2 hectares of biocapacity per person, we would need 5 Earths if everyone lived the live styles of North Americans. With the huge populations of China and India rapidly ascending the developing curve, the situation must be remedied ASAP – a pretty much useless hope.

Also of interest is the second chart which actually shows a world map which has been color coded to identify those countries having the largest ecological footprints. Matters have of course grown worse during the five years since the chart's data were collected. It is known, however, that many people just glaze over

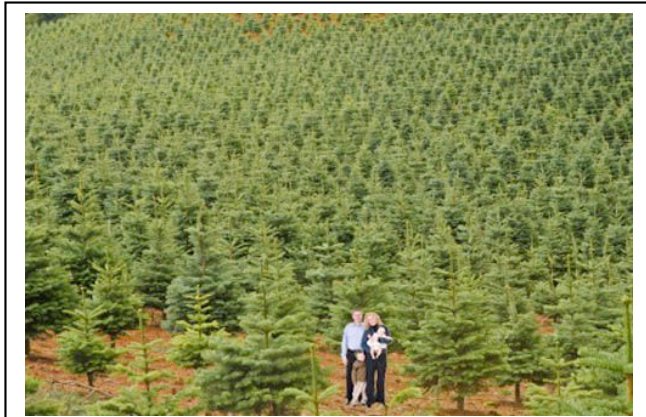


when exposed to all but the very simplest of charts, so it would be more important to make two special calculations to get the reader's attention.

First, suppose that we wished to know the volume of resources needed by one North American over a lifetime of 75 years – so that as each baby is born, one could visualize a nearby “demand warehouse” that contains all of the resources required to support that human for its lifetime. Naturally, many assumptions and uncertainties play into this estimate, with Google being essential in collecting and certifying the data. The answer can vary by a factor of two, but we would need a volume of about 45 million cubic feet – or roughly twice the size of Yankee Stadium! Admittedly, about 2/3 of this volume would be needed to hold the air one person would breathe over 75 years, but the remainder would still be needed for water, goods, and all energy-related sources. [Octomom](#) and others having many children have done Earth a great disservice.



For the second calculation, suppose that we wished to know how many mature trees would be needed to sequester the carbon we are expelling in the form of carbon dioxide from all sources, i.e., breathing and burning of fossil fuels. For a North American resident, the annual CO₂ output per person is an unbelievable 20 metric tons



Each human needs 1,000 trees, courtesy the author

- or nearly 45,000 lbs! As a **mature** leafy tree can only absorb about 50 lbs/yr of CO₂, we would need nearly 1,000 trees to offset the carbon footprint from one human in a developed country such as the United States or Canada! The full cycle is complex, as trees release CO₂ back into the environment when losing

leaves or dying. We also have not considered the value of marine algae in seawater to absorb CO₂, but people can easily visualize the planting of many trees to help sequester our carbon output and slow global warming. Needless to say, the continuing rapid rate of deforestation (at 1-2 football fields per second), to make room for more people, is one of the worst possible things we could be doing to our only planet. It is nothing short of an unfolding tragedy. When social crises and conflicts arrive, the world will have been pre-warned many times.