

## Attachment D: Ecological Footprint

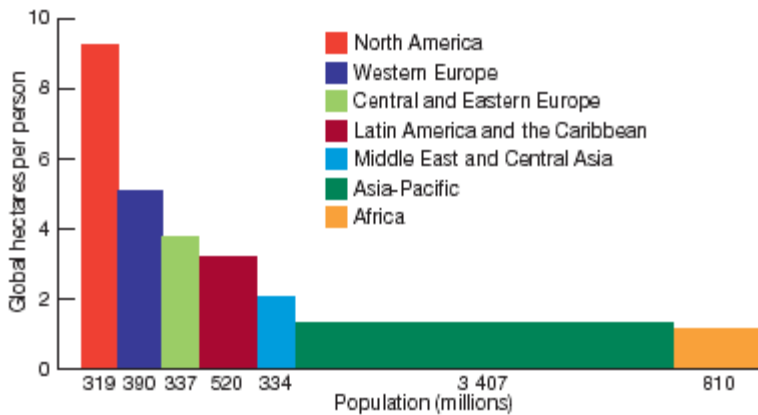
It is widely accepted that the world's economies are using natural resources at a rate that is not sustainable. Sustainability was put on the public policy agenda in 1987 when the World Commission on Environment and Development formulated "sustainable development" as a public policy goal, defining it as development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.

The United Nations began measuring the "ecological footprint" of humanity's natural resource consumption in 1961, which dramatically illustrated the progression of a now widely accepted belief that the world's natural resources are being consumed at a rate that is not sustainable. The global economy's current unsustainable system for materials use can be generally described as 'extract, use, and discard'. It is estimated that for every ton of waste at the end of a product's useful life, there are about 70 tons of waste produced 'upstream' in the process of raw materials extraction/processing, manufacturing, packaging, and shipping.

This strains the planet's natural systems that we rely on for basic ecological services such as clean water, clean air, and safe food affecting developed and developing countries, and populations both rich and poor. For example, according to Rachel's Environment and Health Weekly, even human mother's milk could not be sold in grocery stores because virtually no woman's milk could pass minimum standards for freedom from toxic chemicals established by the U.S. Food and Drug Administration.

United Nations Ecological Footprint measurements estimate how many earths are needed to meet the resource demand of humanity. In Figure 1 below, Ecological Footprint is calculated as the product of population (horizontal axis) times per capita consumption (vertical axis).

**Figure 1:  
Ecological Footprint by Region**

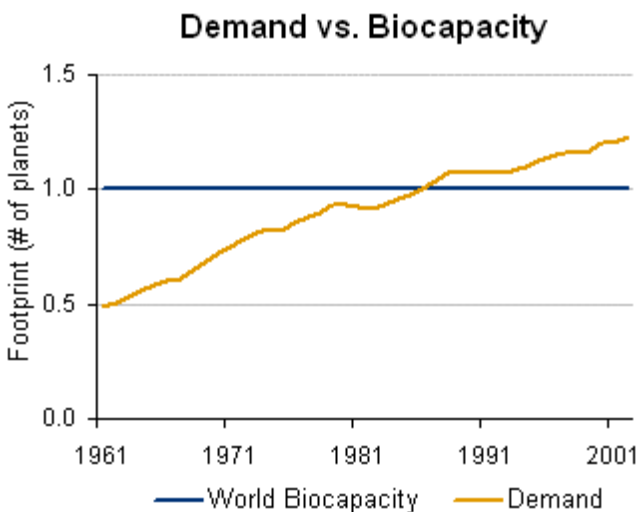


## Attachment D: Ecological Footprint (continued)

Figure 2 below shows changes over time in the world's demand compared with the earth's resources (world biocapacity). Expressed in terms of "number of planets," the biocapacity of the Earth is always one (represented by the horizontal line). However, the actual resource supply (biocapacity) of our one planet changes over time depending on factors such as ecosystem management, agricultural practices, ecosystem degradation, world population demands, and weather. Figure 2 shows how humanity has moved from using about half the planet's biocapacity in 1961 to over 1.2 times the biocapacity of the earth in 2002.

The global ecological deficit of 0.2 earths is equal to the globe's "ecological overshoot" indicating that an additional 1/5 planet is needed to sustain consumption patterns. If the whole world consumed at the level of the Bay Area then an additional 4 1/2 planets would be needed to sustain that consumption level. Overshoot is possible in the short-term because humanity can liquidate its ecological capital rather than living off annual yields. However, as resource demand continues to grow, it becomes increasingly difficult to reduce humanity's Ecological Footprint in order to restore ecological capital that has been previously liquidated.

**Figure 2:**



Ecological Footprint information/data source:

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