



**September 23 2008  
Earth Overshoot Day  
MEDIA BACKGROUNDER**

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**1. Terms Defined**

- Ecological overshoot means exceeding the regenerative capacity of the ecosystem that is being exploited. Global overshoot occurs when humanity's demand on nature exceeds the biosphere's available supply (or more precisely the biosphere's regenerative capacity).
- The Ecological Footprint measures how much productive area it takes to produce what a population (an individual, a city, a country, or the world) consumes and absorb its waste, using prevailing technology.
- Earth Overshoot Day marks the day when humanity begins using more ecological resources and services in a given year than Earth can regenerate in that year. This is the day we (on average) go into global overshoot for a given year. This overuse adds to our global ecological debt.
- Ecological debt is the accumulation of annual ecological overshoot. Globally, we have been in overshoot and running deficits since the mid 1980s, which have since accumulated an ecological debt. Examples of the effects of accumulating an ecological debt are depleted fisheries, deforestation, and build-up of CO<sub>2</sub> in the atmosphere. (see sections 4 & 5 for facts on the effects of ecological debt)

**2. Key Facts**

- According to current calculations, humanity's first Earth Overshoot Day was December 31, 1986. By 1995 it was more than a month earlier, arriving on November 21. Ten years later it was six weeks earlier than in 1995, occurring on October 2, 2005.
- Humanity's use of nature (in terms of natural resources and services) went from using slightly more than half of planet Earth's biocapacity in 1961 to the equivalent of 1.4 planet Earths in 2008.

- United Nations business-as-usual projections show humanity requiring the equivalent of two planets by 2050. (for details see Global Footprint Network and WWF's [Living Planet Report 2006](#)). This would put Ecological Debt Day on July 1, and means it would take two years for the planet to regenerate what we use in one year. Humanity would be living as if we had 2 planets to sustain us. Reaching this level of ecological deficit spending may be physically impossible.
- Currently, humanity consumes 40% more resources per year than Earth can regenerate. In other words, between January 1 and September 23, humanity has used as many resources and ecological services as Earth can regenerate in the entire year. Or inversely, it takes almost one year and four months to regenerate what humanity uses within one year.
- As of 2003, the most recent year for which data are available, the biologically productive area available on this planet was slightly less than 1.8 hectares/person (4.4 acres), with no area set aside for wild species. Meanwhile, the average per capita Ecological Footprint was 2.2 global hectares/person (5.5 acres).
- The average per person Ecological Footprint for the United States (as of 2003 data) is 9.6 global hectares (24 acres). If everyone in the world lived like an American, it would take more than five planets to support humanity.
- The carbon Footprint, which accounts for the use of fossil fuels, is almost half of humanity's total Ecological Footprint, and is its fastest growing component, increasing more than seven fold from 1961 to today.

### 3. How Various Nations Compare

Globally, we are using 1.4 Earths' worth of biocapacity every year. Some nations, however, use a lot less than this, and some use a lot more. Here is how many Earths we would need if everyone lived like a resident of the following countries, according to Global Footprint Network data analysis – National Footprint Accounts 2006 Edition.

- |                  |            |
|------------------|------------|
| • United States  | 5.4 Earths |
| • Canada         | 4.2 Earths |
| • United Kingdom | 3.1 Earths |
| • Germany        | 2.5 Earths |
| • Italy          | 2.2 Earths |
| • South Africa   | 1.4 Earths |
| • Argentina      | 1.2 Earths |
| • Costa Rica     | 1.1 Earths |
| • India          | 0.4 Earths |

### 4. The Climate Connection

Carbon is the primary culprit of our ecological overspending. Humanity is emitting carbon faster than the planet can reabsorb it. Our carbon Footprint (the amount of land and sea it would take to absorb all the carbon we emit) has increased 700% since 1961. Now over 50% of our Ecological Footprint comes from carbon emissions. We are now emitting so much carbon, the planet can't absorb it all, so it is building up in the atmosphere, contributing to climate change.

While climate change may represent the most alarming symptom of overshoot, it also offers the greatest opportunity for change; virtually every action we take to reduce climate change also reduces overshoot, and vice versa. If we conquer climate change without depleting other natural assets, we can rebalance

our Earth budget. However, some strategies for addressing climate change, like certain biofuels, simply shift the pressure to agricultural land and therefore don't contribute to ending overshoot overall.

## 5. Other Global Effects of Overshoot

### FORESTS

- Deforestation, mainly the conversion of forests to agricultural land, continues at a rate of about 13 million hectares per year.
  - Global Forest Resources Assessment 2005, Progress towards sustainable forest management, FAO, Forestry Paper 14.
- About 6 million hectares of primary forest have been lost or modified each year since 1990.
  - Global Forest Resources Assessment 2005, Progress towards sustainable forest management, FAO, Forestry Paper 43.
- This current rate of loss does not appear to be slowing down.
  - Global Forest Resources Assessment 2005, Progress towards sustainable forest management, FAO, Forestry Paper 43.

### FISHERIES

- In 2001 the FAO estimated that about 75% of oceanic fisheries were fished at or beyond capacity.
  - Meadows, Randers and Meadows, Limits to Growth – 30 year update. 2006: page 231.
- 25% of marine fish stocks are overexploited or significantly depleted.
  - Hassan R, Scholes R and Ash N, Ecosystems and Human well being: Current State and Trends, Vol 1. Island Press, 2005: 7.
- Some stocks have collapsed entirely: for example, Atlantic cod stocks off the coast of Newfoundland collapsed in 1992 forcing closure of the fishery after hundreds of years of exploitation.
  - World Resources Institute. Ecosystems and Human well-being-Synthesis Millennium Ecosystem Assessment 2005: 12.
- Human use of capture fisheries has declined because of reduced supply - not due to reduced demand.
  - Hassan R, Scholes R and Ash N, Ecosystems and Human well being: Current State and Trends, Vol 1. Island Press, 2005: 7.

### SPECIES

- Over the last 30 years, the Living Planet Index, “the Dow Jones index of wild vertebrate populations” has decreased 30 percent.
  - WWF, Global Footprint Network, Zoological Society of London, 2006 [Living Planet Report 2006](#). WWF, Gland.
- There are currently 41,415 species on the IUCN Red List of Threatened Species, and 16, 306 of these are threatened with extinction.
  - IUCN, *Extinction crisis escalates: Red List shows apes, corals, vultures, dolphins all in danger* [http://www.iucn.org/en/news/archive/2007/09/12\\_pr\\_redlist.htm](http://www.iucn.org/en/news/archive/2007/09/12_pr_redlist.htm), September 12 2007, Accessed September 28, 2007.
- The current extinction rate of plant and animal species is around 1,000 times faster than it was in pre-human times – and this will increase to 10,000 times faster by 2050.
  - Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Biodiversity Synthesis. World Resources Institute, Washington, DC.

### SOIL

- Salinization affects 20-30 million hectares of the world's current 260 million hectares of irrigated land.
  - Tilman, D, Cassman K et al, 2002, Nature, 418: 617-677.
- Soil erosion affects more than 1.1 billion hectares of land worldwide, re-distributing 75 billion tons of topsoil.
  - World Resources Institute, Ecosystems and Human well-being: Synthesis, Millennium Ecosystem Assessment, 2005.
- Current USA agriculture practices are destroying topsoil 18 times faster than it can be replenished.
  - Pimental, David and Pimental, Marcis. Land Energy and Water: The constraints governing ideal U.S Population size, 1991.

## DROUGHT

- Climate change affects the global environment and droughts, flooding and changes in seasonal weather patterns will increase as global temperature increases.
  - European Environment Agency, IPCC Report- Climate change impacts a fact of life, April 06 2007. <http://www.eea.europa.eu/highlights/ipcc-report-climate-change-impacts-are-a-fact-of-life>. Accessed September 27, 2007.
- The percentage of Earth's land that has been affected by drought has more than doubled from the 1970s to early 2000s.
- Dry conditions rose from 10-15% in early 1970 to 30% in 2002 due to increase in average mean temperature.
  - Above 2 statistics from National Science Foundation, Scientists find Climate Change a major factor in drought's growing reach, January 11 2005. [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=100710](http://www.nsf.gov/news/news_summ.jsp?cntn_id=100710)

## 6. How Earth Overshoot Day is calculated

$[\text{world biocapacity} / \text{world Ecological Footprint}] \times 365 = \text{Earth Overshoot Day}$

Earth Overshoot Day is calculated by determining the amount of biocapacity the planet produces in a year, and comparing that to humanity's Ecological Footprint, the amount of biocapacity it requires in that time frame to produce what we consume and absorb our waste.

By calculating the ratio of global available biocapacity to global Ecological Footprint and multiplying by 365, we find the number of days of demand that the biosphere could supply, and the number of days we operate in overshoot this year.

This ratio shows that in just 267 days, we demand the biosphere's entire capacity for the year 2008. The 267th day of the year is September 23.

*Note: 2008 Ecological Debt Day is projected from the 2008 Edition of the National Footprint Accounts, where the most recent data are for 2005.* Earth Overshoot Day is calculated based on Global Footprint Network's projections of overshoot. Based on United Nations Food and Agriculture Organization (FAO) and Intergovernmental Panel on Climate Change (IPCC) projections, we estimate global overshoot will have reached 40% in 2008. For reference, overshoot was 25% in 2003, the last year of data available without projections.

## 7. Contact and Global Footprint Network Information

For any inquiries about Earth Overshoot Day, please contact:

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Global Footprint Network is committed to a world where all people have the opportunity to live satisfying lives within the means of one planet. The organization is working make ecological limits a central factor in policy and decision-making by advancing use of the Ecological Footprint, a measure of how much nature we have, how much we use and who uses what. See [www.footprintnetwork.org](http://www.footprintnetwork.org) for more information about overshoot, Global Footprint Network, and the Ecological Footprint.

For more information about Earth Overshoot Day, visit [www.footprintnetwork.org/overshoot](http://www.footprintnetwork.org/overshoot).