# Global Economic Growth Continues at Expense of Ecological Systems

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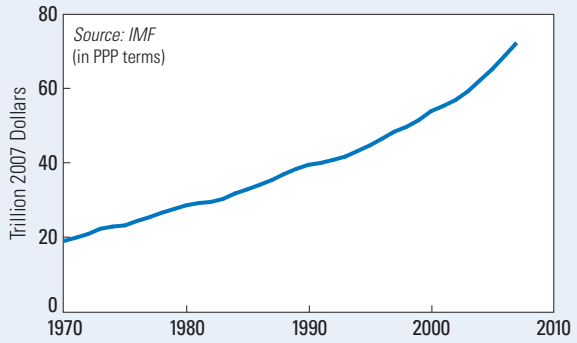
In 2007, gross world product (GWP)—the aggregated total of all finished goods and services produced worldwide—was expected to grow 5.4 percent to $72.3 trillion (in 2007 dollars).[1] (See Figure 1.) This estimate reflects actual purchasing power in countries (that is, in purchasing power parity or PPP terms). The market exchange rate GWP, which is based on straightforward monetary terms, was expected to reach $53.4 trillion, an increase of 8 percent since 2006.[2] The projected growth of GWP (PPP) in 2007 was revised downward from earlier estimates due particularly to economic disruptions in the U.S. housing market, which also had ripple effects in other countries, particularly within Europe and in Japan.[3] Even with this late-term contraction, growth in 2007 was still expected to be higher than the average since 1970.[4] (See Figure 2.)

**Figure 1. Gross World Product, 1970–2007**




The U.S. economy was projected to grow 2.1 percent in 2007, nearly 1 percent slower than the previous year.[5] This significant contraction came in large part from the turmoil felt in the subprime mortgage sector, with foreclosures, reductions in residential investments, and declining housing values reducing growth as well as consumer confidence.[6] Rising gasoline prices also had a significant impact.[7] U.S. economic growth is expected to slow further in 2008.[8]

Although the U.S. economy still accounts for 19 percent of the world total, China is closing the gap—now accounting for 16 percent of GWP, up from 15 percent in 2006.[9] China's gross domestic product (GDP) grew dramatically in 2007, jumping an estimated 11.7 percent and making up one third of the projected $3.7 trillion in GWP growth in 2007.[10] Increases in exports and investments drove this expansion.[11]

Growth in China's GDP, however, has not come without cost. China is increasingly suffering from the externalities of economic growth: politically destabilizing inequality and pollution. Today, only 1 percent of China's 560 million urban residents breathe air that is considered safe by European Union (EU) standards.[12] Air and water pollution have led to numerous occurrences of social unrest.[13] And China is now the leading producer of sulfur dioxide emissions and has nearly surpassed the United States in total carbon dioxide emissions (though not in per capita emissions).[14]

The European Union now accounts for 21 percent of GWP, which as an aggregate makes it the largest economy in the world.[15] The EU economy was expected to grow 3.2 percent in 2007, having slowed in some countries due to investments in troubled U.S. financial markets.[16]

India's economy was expected to grow 9.1 percent in 2007, accounting for 11 percent of total GWP growth—more than the U.S. contribution.[17] Growth in the world's second most populous nation was mainly driven by domestic demand.[18]

Sub-Saharan Africa was projected to grow

6.1 percent—with this growth coming mostly from oil exports and from the dominant South African economy, which makes up one third of the region's gross product.[19] Although it is now growing more quickly than in the past, sub-Saharan Africa still accounts for just 2.6 percent of the global economy.[20]

Per capita GWP was expected to reach $10,956 in 2007.[21] (See Figure 3.) This was a growth of 4.1 percent—less than total GWP growth because world population increased by nearly 77 million people.[22] Yet GWP per capita does not reflect the vast disparity in GDP per person—even when these figures are expressed in purchasing power parity terms. In the United States, GDP per person is $44,974, for example, while in China the figure is $8,780 and in India it is just $4,183.[23]

Economic growth is having a direct impact on the ecological systems on which the human economy depends. As the U.N. Environmental Programme's recently published *Global Environmental Outlook–4* notes, human society is using the world's renewable resources unsustainably, thus degrading farmland and fisheries, rivers and forests.[24] And society is risking a significant weakening of the global economy if unsustainable resource use is not addressed. In particular, climate change could reduce economic growth by anywhere from 5 to 20 percent by 2100 if left unchecked.[25]

These warnings are not new. In 2005 the Millennium Ecosystem Assessment made it clear that nearly two thirds of ecosystem services have been degraded or are being used unsustainably, and indicators like the Ecological Footprint have demonstrated that human society has been living beyond its means since 1987.[26] According to this measure, humans are now using the equivalent of 1.25 planets' worth of resources.[27] (See Figure 4.) In short, without dramatic redesign of the global economy to reduce the ecological impacts, growth will most likely plummet—for instance, as extreme weather events disrupt agricultural production, flood coastal cities, and cause devastating wildfires.

Several analyses reveal that if ecological

**Figure 2. Growth of Gross World Product, 1971–2007**

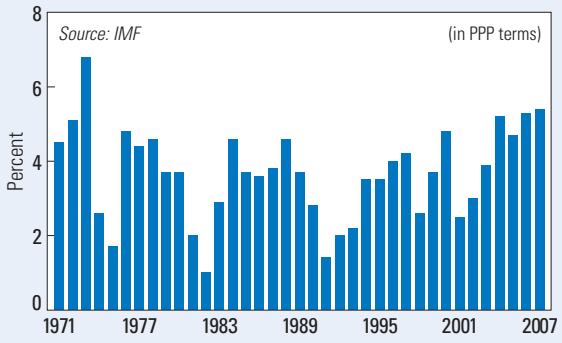



**Figure 3. Gross World Product Per Person, 1970–2007**

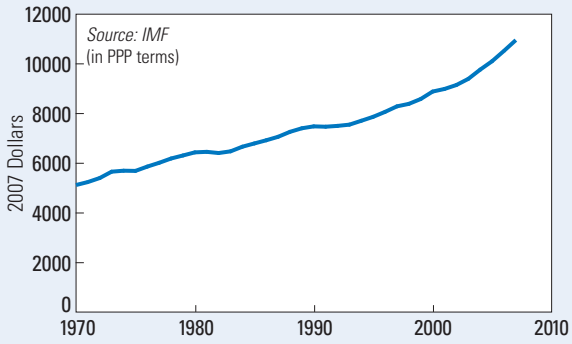



**Figure 4. Humanity's Ecological Footprint, 1961–2003**

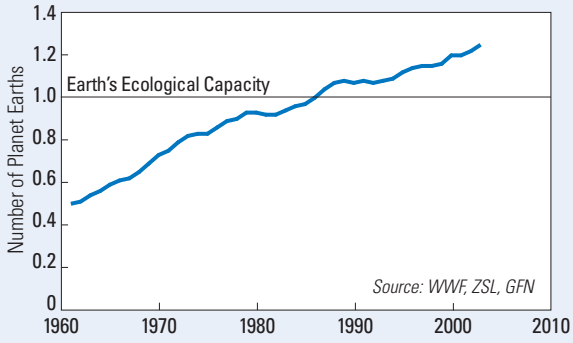
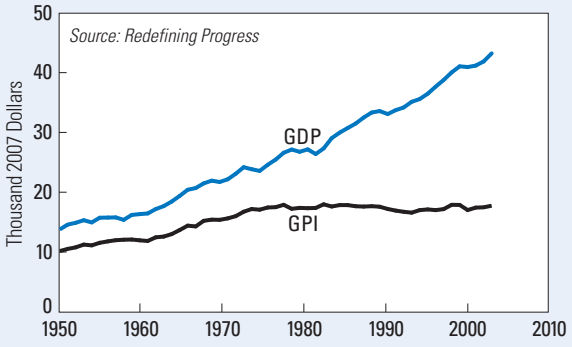


**Figure 5. GDP and GPI Per Person, United States, 1950–2004**




degradation is factored into economic calculations, true growth is much lower. In 2004, the Chinese government designed a Green GDP measure to subtract pollution costs from traditional GDP calculations.[28] The estimate for that year found that growth would have been 3.1 percent lower if these costs had been deducted.[29] Then in 2007, before releasing its 2005 analysis, the Chinese government shelved this indicator when it discovered that factoring in environmental costs would have reduced growth in some provinces to zero.[30]

GDP is a poor measure of actual economic progress, as it counts all monetary expenditures as positive—whether the money is spent on useful goods, such as food or durables, or on mitigating social ills that could have been prevented. In the United States, the nongovernmental organization Redefining Progress continues to track its Genuine Progress Indicator (GPI), a measure that provides a better analysis of economic progress by subtracting out pollution and resource degradation, crime, and other economic ills while adding in unmeasured benefits like volunteer work and parenting.[31] According to the most recent analysis, while U.S. GDP per capita nearly doubled since 1970, the GPI grew just 13 percent.[32] (See Figure 5.)

Recognizing that not all growth is good, some governments are starting to question whether economic growth should be a priority at all. Thailand, for example, has been investigating a transition to a "sufficiency economy," where the focus is on poverty alleviation (that is, targeted growth), economic self-reliance, and resource conservation.[33] While still in the theoretical stage, if some pioneering countries move toward this model, perhaps there will be a shift away from the unsustainable idea that infinite growth on a finite planet is a measure of economic success.

28. Pew Center on Global Climate Change, "Greenhouse Gas Emissions Targets," at www.pewclimate.org/what_s_being_done/in_the_states/emissionstargets_map.cfm.
29. California Air Resource Board, "Climate Change Draft Scoping Plan: A Framework for Change," discussion draft (Sacramento, CA: June 2008).
30. Asia Pacific Energy Research Centre, *APEC Energy Overview 2007* (Tokyo: January 2008).
31. Ibid.
32. U.N. Environment Programme (UNEP), "UNEP Unveils the Climate Neutral Network to Catalyze a Transition to a Low Carbon World," press release (Nairobi: 21 February 2008).
33. UNEP Finance Initiative, *CEO Briefing: Carbon Crunch, Meeting the Cost* (Nairobi: December 2007).
34. IPCC, op. cit. note 8.
35. J. Jowit and P. Wintour, "Cost of Tackling Global Climate Change Has Doubled, Warns Stern," (London) *The Guardian*, 26 June 2008.
36. Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, U.K.: Cambridge University Press, 2007).

## WEATHER-RELATED DISASTERS DOMINATE (pages 62–64)

1. Munich Re, *Topics Geo: Natural Catastrophes 2007—Analyses, Assessments, Positions* (Munich: 2008), p. 45.
2. Munich Re calculation, based on NatCatSERVICE database, 2008.
3. Centre for Research on the Epidemiology of Disasters (CRED), "Disaster Category Classification for Operational Purposes," consultation meeting, Geneva, 8 June 2007.
4. *CRED, Annual Disaster Statistical Review: Number and Trends 2007* (Brussels: 2008), pp. 40–41.
5. Ibid.
6. Munich Re, op. cit. note 1, p. 45.
7. Ibid., p. 50.
8. Munich Re, op. cit. note 2.
9. Ibid.
10. Ibid.
11. Ibid.
12. Ibid.
13. Munich Re, "Natural Catastrophe Figures for 2007," press release (Munich: 27 December 2007).
14. Joint Typhoon Warning Center, "Northern Indian Ocean Tropical Cyclone Best Track Data: Cyclone Gonu," Naval Maritime Forecast Center, U.S. Navy, 2007.
15. Munich Re, op. cit. note 1, p. 12.
16. Ibid.
17. National Climatic Data Center (NCDC), *Climate of 2007—In Historical Perspective, Preliminary Annual Report* (Washington, DC: National Oceanic and Atmospheric Administration, December 2007).
18. Munich Re, op. cit. note 2.
19. NCDC, op. cit. note 17.
20. Ibid.
21. Munich Re, op. cit. note 2.
22. Ibid.
23. Ibid.
24. P. Höppe and R. A. Pielke, Jr., eds., *Climate Change and Disaster Losses: Understanding and Attributing Trends and Projections*, Report of a workshop, Hohenkammer, Germany, 25–26 May 2006 (Boulder and Munich: University of Colorado and Munich Re, 2006).
25. Ibid.
26. U.N. Population Fund, *State of World Population 2007* (New York: 2007), p. 1.
27. Ibid.
28. Intergovernmental Panel on Climate Change, *Climate Change 2007, The Physical Science Basis: Summary for Policymakers* (Geneva: 2007).
29. Ibid.
30. Munich Re calculation, based on World Bank Development Data Center, July 2008.
31. Ibid.
32. Ibid.
33. World Bank, Caribbean Catastrophe Risk Insurance Facility, at www.worldbank.org.

## GLOBAL ECONOMIC GROWTH CONTINUES AT EXPENSE OF ECOLOGICAL SYSTEMS (pages 66–68)

1. International Monetary Fund (IMF), *World Economic Outlook Database* (Washington, DC: October 2007). Note the 2007 figure is a preliminary estimate from October 2007 and is subject to change. These figures represent inflation-adjusted IMF data.
2. Ibid.
3. IMF, *World Economic Outlook 2007:Globalization and Inequality* (Washington, DC: October 2007), p. xi. Unless otherwise specified, all further analysis is based on PPP terms.
4. IMF, op. cit. note 1.
5. Ibid.

6. IMF, op. cit. note 3, p. 69.
7. Ibid.
8. Ibid.
9. IMF, op. cit. note 1. A recent World Bank analysis of the global economy in 2005 provided a downward revision of China's GDP, determining that in PPP terms China's GDP was 40 percent smaller. These data, however, are limited to 2005 and are not compatible with this broader IMF data set, so they have not been incorporated here. For more information on the revision, see World Bank, "2005 International Comparison Program Preliminary Global Report Compares Size of Economies," press release (Washington, DC: 17 December 2007).
10. IMF, op. cit. note 1.
11. IMF, op. cit. note 3, pp. 83–86.
12. Joseph Kahn and Jim Yardley, "As China Roars, Pollution Reaches Deadly Extremes," *New York Times*, 26 August 2007.
13. Ibid.
14. Sulfur dioxide from ibid.; carbon dioxide from Eric Martinot and Li Junfeng, *Powering China's Development: The Role of Renewable Energy* (Washington, DC: Worldwatch Institute, 2007), p. 10.
15. IMF, op. cit. note 1.
16. Ibid.; IMF, op. cit. note 3, pp. 11, 76–77.
17. IMF, op. cit. note 1.
18. IMF, op. cit. note 3, p. 83.
19. IMF, op. cit. note 1; IMF, op. cit. note 3, pp. 95–97.
20. IMF, op. cit. note 1.
21. Ibid.; U.S. Bureau of the Census, *International Data Base*, electronic database (Suitland, MD: updated 16 July 2007).
22. IMF, op. cit. note 1; Census Bureau, op. cit. note 21.
23. IMF, op. cit. note 1; Census Bureau, op. cit. note 21.
24. U.N. Environment Programme, *Global Environmental Outlook–4: Environment for Development* (Nairobi: 2007), p. 234.
25. Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, U.K.: Cambridge University Press, 2007); Frank Ackerman, "Debating Climate Economics: The Stern Review vs. Its Critics," report to Friends of the Earth–UK (Medford, MA: Global Development and Environment Institute at Tufts University, July 2007), p. 2.
26. Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Synthesis* (Washington, DC: Island Press, 2005); Global Footprint Network, *National Footprint and Biocapacity Accounts*, 2006 edition (Oakland, CA: 2006); World Wide Fund for Nature (WWF), Zoological Society of London, and Global Footprint Network, *Living Planet Report 2006* (Gland, Switzerland: WWF, 2006).
27. Global Footprint Network, op. cit. note 26.
28. "China Plans to Set Up Green GDP System in 3–5 Years," *China Daily*, 12 March 2004; "Blind Pursuit of GDP to Be Abandoned," *China Daily*, 5 March 2004.
29. Chris Buckley, "China Silences Green GDP Study, Report Says," *Reuters*, 23 July 2007.
30. Ibid.; Kahn and Yardley, op. cit. note 12.
31. John Talberth, Clifford Cobb, and Noah Slattery, *The Genuine Progress Indicator 2006, A Tool for Sustainable Development* (Oakland, CA: Redefining Progress, 2006).
32. Ibid.
33. Yifat Susskind, "11 Solutions to Halting the Environmental Crisis," *AlterNet*, 31 October 2007; Prem Tinsulanonda, President of The Privy Council, "Sufficiency Economy: His Majesty's Philosophy for Development," presentation at Leadership Forum 2001, Bangkok, Thailand, 15 March 2001.

## CARBON MARKETS GAIN MOMENTUM, DESPITE CHALLENGES (pages 69–71)

1. Point Carbon, "Global Carbon Market Grows 80% in 2007," press release (Oslo: 18 January 2008). Dollar amount converted from euros using exchange rate for 18 January 2008.
2. World Bank, *State and Trends of the Carbon Market 2007* (Washington, DC: May 2007), p. 3.
3. European Communities, "EU Action Against Climate Change," brochure (Brussels: September 2005), p. 8.
4. Ibid. Euros converted to dollars on 18 January 2008.
5. Ibid.
6. World Bank, op. cit. note 2.
7. Ibid.
8. European Communities, op. cit. note 3, p. 9; European Commission, "Climate Change: Commission Proposes Bringing Air Transport into EU Emissions Trading Scheme," press release (Brussels: 20 December 2006).
9. Alex Dewar et al., *Cap and Trade Policy in the United States* (draft) (Washington, DC: Natural Resources Defense Council, August 2007), p. 12.
10. World Bank, op. cit. note 2.
11. Ibid.
12. Ibid.