

Full Planet, Empty Plates

Supporting Data for Chapter 11: Can We Prevent a Food Breakdown?

[Extent of No-Till Agriculture in Top Countries, 2011](#)

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GRAPH: Plan B Carbon Dioxide Emissions Reduction Goals for 2020

[Military Budgets by Country and for the World in 2011 and Plan B Budget](#)

A full listing of data for the entire book is on-line at:

http://www.earth-policy.org/books/fpep/fpep_data

This is part of a supporting dataset for Lester R. Brown, **Full Planet, Empty Plates: The New Geopolitics of Food Scarcity** (New York: W.W. Norton & Company, 2012). For more information, see Earth Policy Institute on-line at www.earth-policy.org.

Extent of No-Till Agriculture in Top Countries, 2011

Country	Area Under No-till Thousand Hectares ¹
United States	26,500
Argentina	25,553
Brazil	25,502
Australia	17,000
Canada	13,481
Indo-Gangetic Plains ²	5,000
Russia	4,500
China	3,100
Paraguay	2,400
Kazakhstan	1,600
Bolivia	706
Uruguay	655
Spain	650
Ukraine	600
South Africa	368
Venezuela	300
France	200
Zambia	200
Chile	180
New Zealand	162
Finland	160
Mozambique	152
United Kingdom	150
Zimbabwe	139
Colombia	127
Others	409
Total	124,795

Notes:

¹ One hectare = 2.47 acres.

² Includes four countries in South Asia (India, Pakistan, Bangladesh, and Nepal) where adoption of *permanent* no-till is marginal. This figure is excluded from the world total.

Source: Compiled by Earth Policy Institute from Theodor Friedrich, Rolf Derpsch, and Amir Kassam, "Overview of the Global Spread of Agriculture," *Field Action Sciences Reports* (2012).

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Plan B Budget: Additional Annual Funding Needed to Restore the Earth

Activity	Funding
	Billion U.S. Dollars
Planting trees	23
Protecting topsoil on cropland	24
Restoring rangelands	9
Restoring fisheries	13
Stabilizing water tables	10
Protecting biological diversity	31
Total	110

Note: Plan B is a global plan for moving the world onto an environmentally and economically sustainable path. More information on Plan B can be found at Earth Policy Institute's website, www.earth-policy.org.

Sources: Compiled by Earth Policy Institute, with planting trees to reduce flooding and conserve soil and protecting top soil from Lester R. Brown and Edward C. Wolf, "Reclaiming the Future," in Lester R. Brown et al., *State of the World 1988* (New York: W. W. Norton & Company, 1988), p. 174, using data from U.N. Food and Agriculture Organization (FAO), *Fuelwood Supplies in the Developing Countries*, Forestry Paper 42 (Rome: 1983), and planting trees to sequester carbon from Intergovernmental Panel on Climate Change, *Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, U.K.: Cambridge University Press, 2007), pp. 543, 559; restoring rangelands from United Nations Environment Programme, *Status of Desertification and Implementation of the United Nations Plan of Action to Combat Desertification* (Nairobi: 1991), pp. 73–92, with figures converted from 1990 to 2004 dollars using implicit price deflators from U.S. Department of Commerce, Bureau of Economic Analysis, "Table C.1. GDP and Other Major NIPA Aggregates," in *Survey of Current Business*, September 2005, p. D–48; restoring fisheries from Andrew Balmford et al., "The Worldwide Costs of Marine Protected Areas," *Proceedings of the National Academy of Sciences*, vol. 101, no. 26 (29 June 2004), pp. 9,694–97; stabilizing water tables is author's estimate; protecting biological diversity from World Parks Congress, *Recommendations of the Vth IUCN World Parks Congress* (Durban, South Africa: 2003), pp. 17–19, and World Parks Congress, "The Durban Accord," at www.iucn.org/about/work/programmes/pa/pa_event/wcpa.wpc, viewed 19 October 2007.

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Plan B Budget: Additional Annual Funding Needed to Reach Basic Social Goals

Goal	Funding
	Billion U.S. Dollars
Universal primary education	10
Eradication of adult illiteracy	4
School lunch programs	3
Aid to women, infants, and preschool children	4
Reproductive health and family planning	21
Universal basic health care	33
Total	75

Note: Plan B is a global plan for moving the world onto an environmentally and economically sustainable path. More information on Plan B can be found at Earth Policy Institute's website, www.earth-policy.org.

Source: Compiled by Earth Policy Institute, with universal primary education from U.N. Educational, Scientific, and Cultural Organization (UNESCO), *Education for All Global Monitoring Report 2010: Reaching the Marginalized* (Paris: 2010), pp. 119-131 and from Annababette Wils et al., "Estimating the Costs of Achieving Education for All in Low-Income Countries," paper commissioned for the EFA Global Monitoring Report 2010, (December 2009); adult literacy program cost is author's estimate based on U.N. Commission on Population and Development, Thirty-sixth Session, Population, Education, and Development, press releases (New York: 31 March–4 April 2003); school lunch program from U.N. World Food Programme, "Two Minutes to Learn About: School Meals," fact sheet (Rome: May 2010); aid to women, infants, and preschool children is author's estimate, based on George McGovern, "Yes We CAN Feed the World's Hungry," *Parade*, 16 December 2001; universal reproductive health and family planning calculated by Earth Policy Institute, based on United Nations Population Fund (UNFPA), Flow of Financial Resources for Assisting in the Implementation of the Programme of Action of the International Conference on Population and Development, report for the U.N. Economic and Social Council Commission on Population and Development (New York: 21 January 2009), and on J. Joseph Speidel, University of California, San Francisco Bixby Center for Global Reproductive Health, discussion with and e-mail to Brigid Fitzgerald Reading, Earth Policy Institute, 8 October 2010, with cost of closing the condom gap estimated from Population Action International, "Why Condoms Count in the Era of HIV/AIDS," fact sheet (Washington, DC: 2008), and from United Nations Population Fund (UNFPA), Donor Support for Contraceptives and Condoms for STI/HIV Prevention 2007 (New York: 2008); universal basic health care from Jeffrey D. Sachs and the Commission on Macroeconomics and Health, *Macroeconomics and Health: Investing in Health for Economic Development* (Geneva: World Health Organization, 2001).

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Plan B Budget: Additional Annual Expenditures Needed to Meet Social Goals and to Restore the Earth

<u>Goal</u>	<u>Funding</u>
	Billion Dollars
Basic Social Goals	
Universal primary education	10
Eradication of adult illiteracy	4
School lunch programs	3
Aid to women, infants, and preschool children	4
Reproductive health and family planning	21
Universal basic health care	33
Total	75
Earth Restoration Goals	
Planting trees	23
Protecting topsoil on cropland	24
Restoring rangelands	9
Restoring fisheries	13
Stabilizing water tables	10
Protecting biological diversity	31
Total	110
Grand Total	185

Note: Plan B is a global plan for moving the world onto an environmentally and economically sustainable path. More information on Plan B can be found at Earth Policy Institute's website, www.earth-policy.org.

Source: Compiled by Earth Policy Institute, with full sources at www.earth-policy.org/books/fpep/fpep_data.

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Plan B Carbon Dioxide Emissions Reductions Goals for 2020

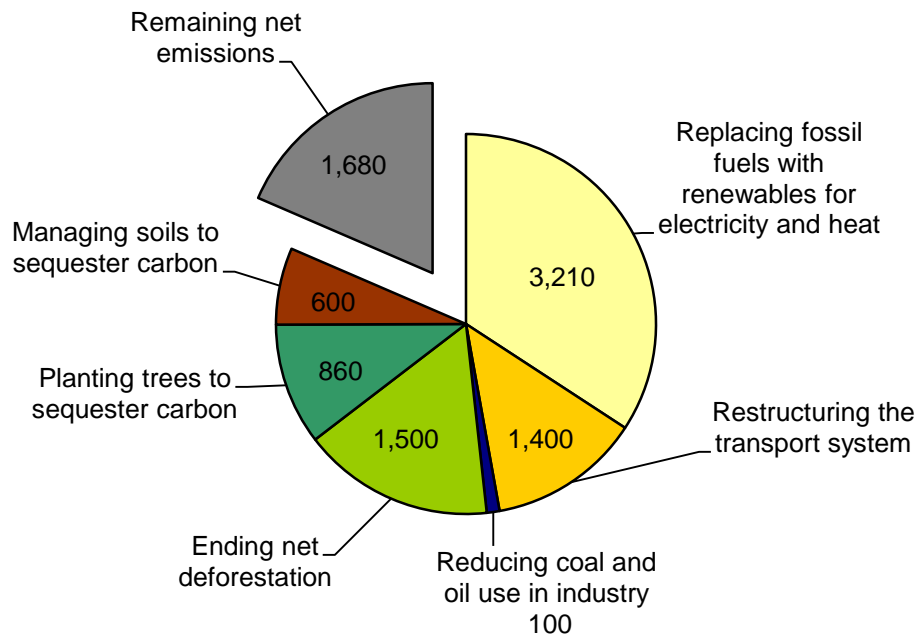
Action	Amount
	Million Tons of Carbon
Energy Restructuring	
Replacing fossil fuels with renewables for electricity and heat	3,210
Restructuring the transport system	1,400
Reducing coal and oil use in industry	100
Biological Carbon Sequestration	
Ending net deforestation	1,500
Planting trees to sequester carbon	860
Managing soils to sequester carbon	600
Total Carbon Dioxide Reductions in 2020	7,670
Carbon Dioxide Emissions in 2006	9,350
Percent Reduction from 2006 Baseline	82.0

Note: Plan B is a global plan for moving the world onto an environmentally and economically sustainable path. More information on Plan B can be found at Earth Policy Institute's website, www.earth-policy.org.

Source: Calculated by Earth Policy Institute from International Energy Agency (IEA), *World Energy Outlook 2008* (Paris: 2008), p. 507; IEA, *Tracking Industrial Energy Efficiency and CO2 Emissions* (Paris: 2007); Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, U.K.: Cambridge University Press, 2007), pp. 543, 559; and Rattan Lal, "Soil Carbon Sequestration Impacts on Global Climate Change and Food Security," *Science*, vol. 304 (11 June 2004), pp. 1,623–27.

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Plan B Carbon Dioxide Emissions Reduction Goals for 2020 (Million Tons of Carbon)



Baseline Emissions (2006) = 9,350 Million Tons of Carbon

Source: EPI

Military Budgets by Country and for the World in 2011 and Plan B Budget

Country	Budget
	Billion Dollars
United States	690
China	129
Russia	64
France	58
United Kingdom	58
Japan	55
Saudi Arabia	46
India	44
Germany	43
Italy	32
All Other	379
World Military Expenditure	1,599
Plan B Budget	185
U.S. Military Budget	690
Plan B budget as share of this	27%
World Military Budget	1,599
Plan B budget as share of this	12%

Note: Plan B is a global plan for moving the world onto an environmentally and economically sustainable path. More information on Plan B can be found at Earth Policy Institute's website, www.earth-policy.org.

Source: Compiled by Earth Policy Institute with military spending in constant 2010 U.S. dollars from Stockholm International Peace Research Institute (SIPRI), *SIPRI Military Expenditure Database 2011*, electronic database, at milexdata.sipri.org, updated 2012; Plan B budget compiled by Earth Policy Institute, with full sources at www.earth-policy.org/books/fpep/fpep_data.

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