

BRIDGING THE DIVIDE: RECONCILING ECONOMICS AND ENVIRONMENT

Jonathan M. Harris



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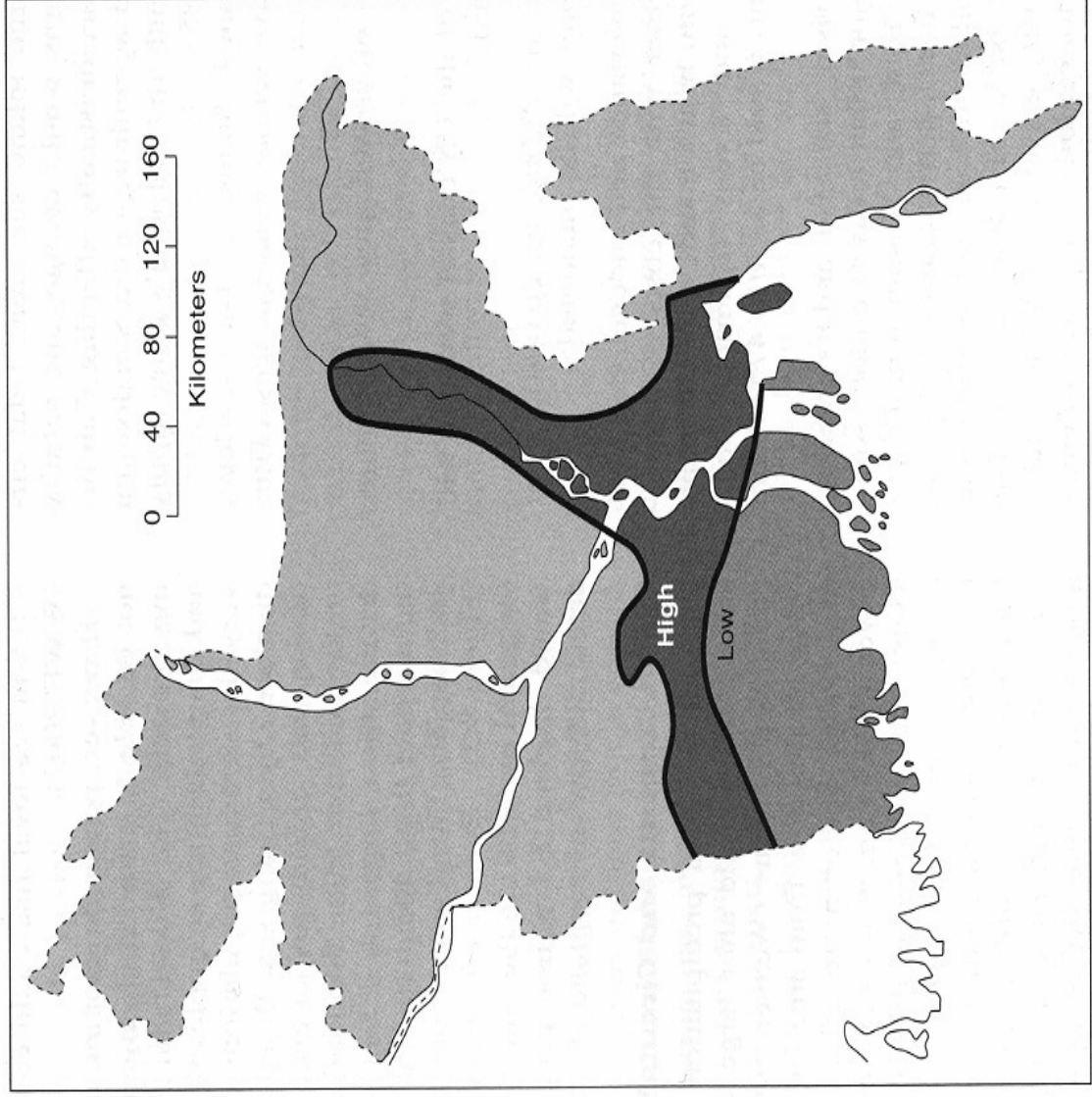
Some Recent Headlines

- Study: Warming is Intensifying Hurricanes <http://www.aoml.noaa.gov>
- Melting Mountain Majesties: Warming in Austrian Alps N.Y. Times 8/8/05
- Ocean Warming Harms Wildlife San Jose Mercury News 7/23/05
- Antarctic Glaciers Quicken Pace to Sea: Warming Cited NYT 9/24/04
- Antarctica, Warming, Looks Ever More Vulnerable NYT 1/25/05
- Greenhouse Gas Buildup Seen as Risk to Oceans Boston Globe 7/16/04
- Researchers Present What they call Conclusive Evidence of Global Warming from Greenhouse Gases Chronicle of Higher Education 2/18/05
- 2005 Could be Warmest Year on Record – NASA Reuters 2/10/05
- Studies Find Atmosphere is Warmer NYT 8/12/05
- Global Temperature Rise Accelerating Earth Policy www.earthpolicy.org

Some More Recent Headlines

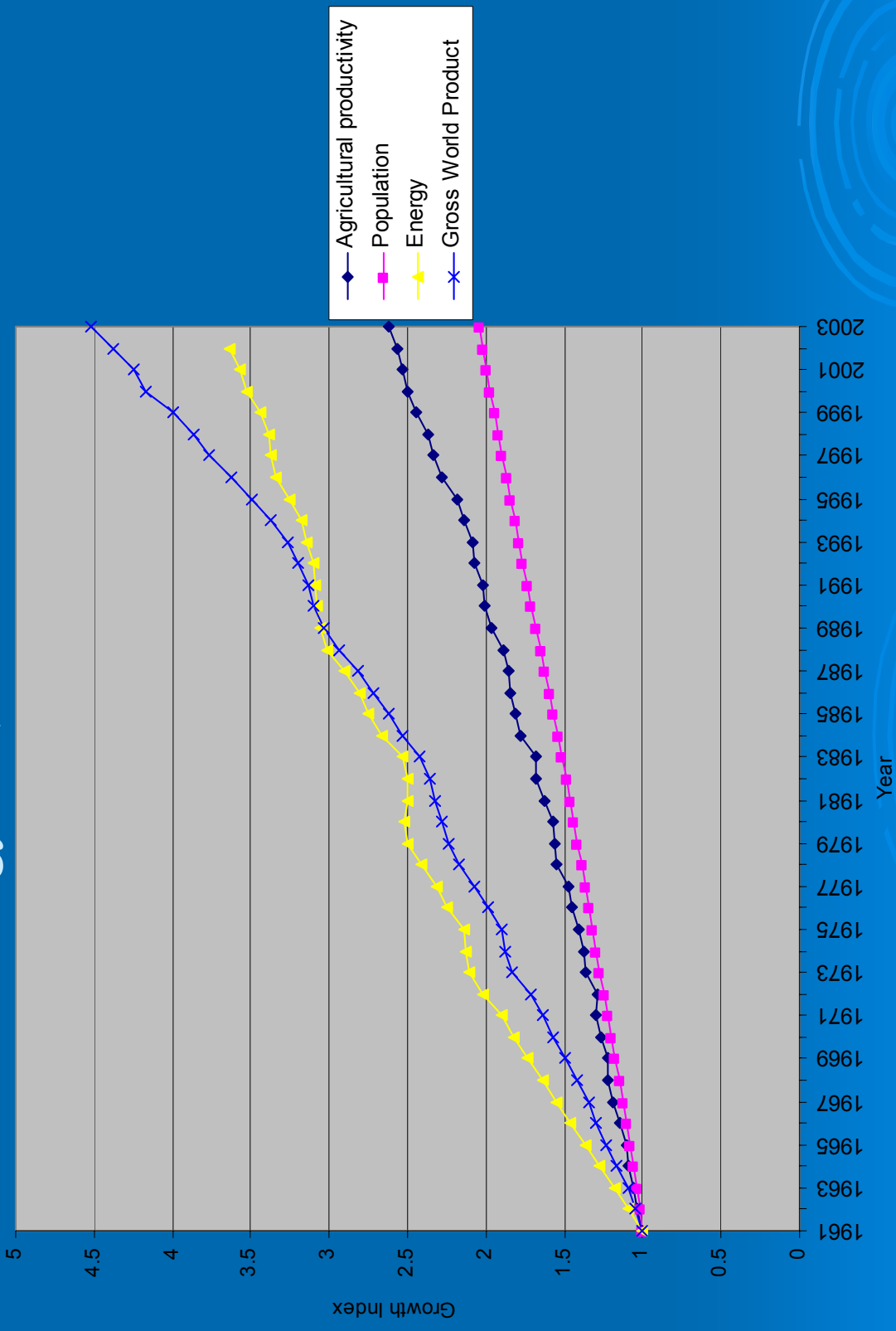
- Such Good Friends, Again: Why America is More Dependent than Ever on Saudi Arabia.
“We need their oil desperately” expert says of the Saudis NYT 8/6/05
- Crude Oil Futures Hover Around \$60 a Barrel AP 07/06/05
- Gigantic Gas-Guzzling Limos All the Rage AP 6/18/05
- GOP Senator Abandons Bill to Cut Emissions: Key Vote Shifts after push from White House Boston Globe 6/22/05
- Ex-Oil Lobbyist Watered Down U.S. Climate Research Guardian 6/9/05
- Former Bush Aide Who Edited Reports is Hired by Exxon NYT 6/15/05
- Slight Shift on SUV’s in New Mileage Rules: Administration Assails Tougher California Policies NYT 8/24/05
- 9 Northeast States in Plan to Cut Emissions: Tentative Pact after U.S. Declines to Act NYT 8/24/05

Impact of Global Climate Change on Bangladesh



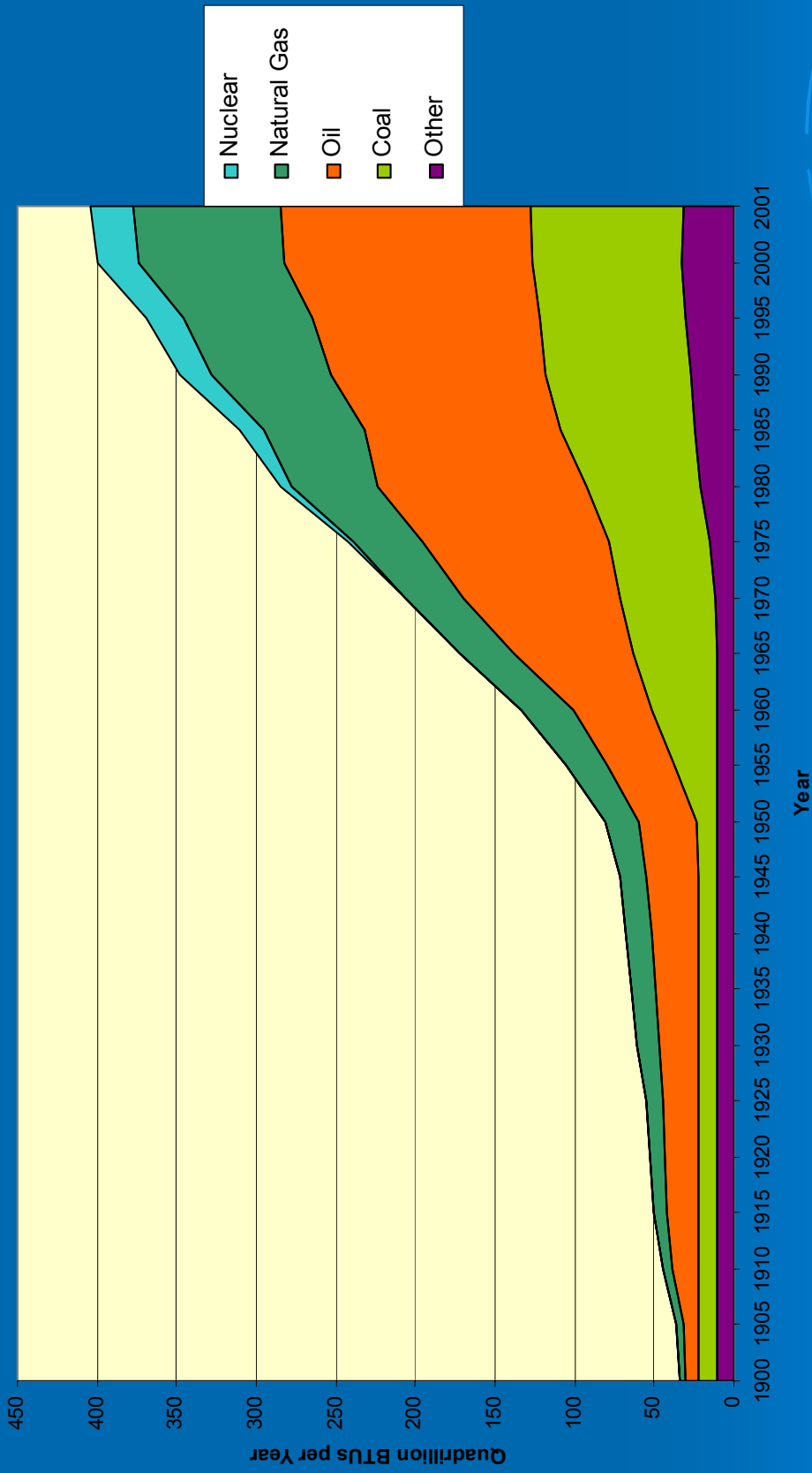
Source: Saleemul Huq (1999), *Vulnerability and Adaptation to Climate Change for Bangladesh* (Boston: Kluwer Academic Publishers). Map adapted from John T. Hardy (2003), *Climate Change: Causes, Effects, and Solutions* (West Sussex: John Wiley and Sons). © 2005 Jonathan M. Harris

Figure 2-3: Growth in Population, Agricultural Production, and Energy Use, 1961–2003



- Source: Food and Agricultural Organization of the United Nations, FAOSTAT database, 2004; United States Department of Energy, 2004; Worldwatch Institute Database 2004. Indices based on 1961 = 1.0 © 2005 Jonathan M. Harris

Figure 13-1: World Marketed Energy Consumption



• Source: Meadows, 1992; US Department of Energy, 2004.

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Figure 13-3: Past and Projected Energy Consumption, 1970–2030

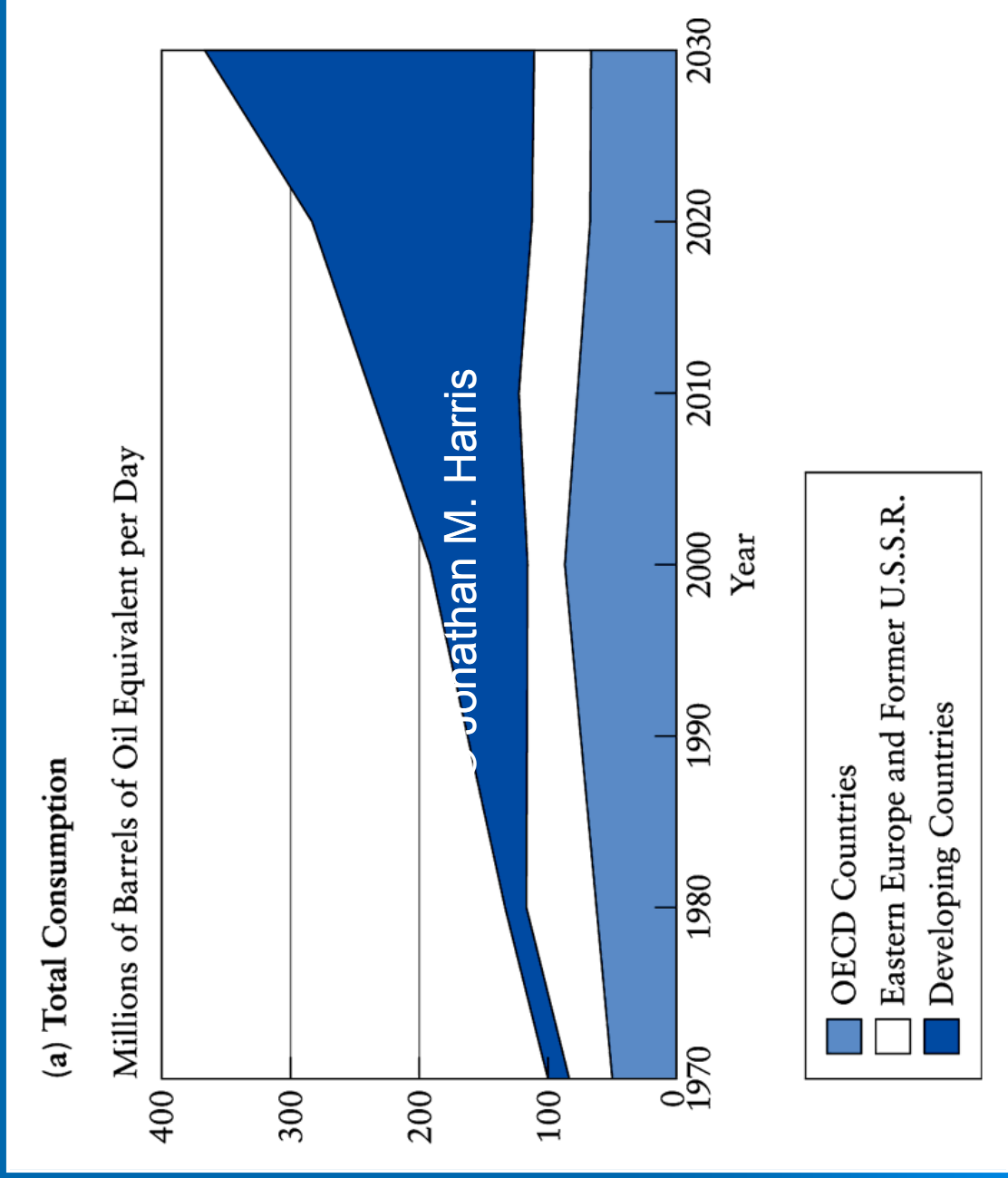
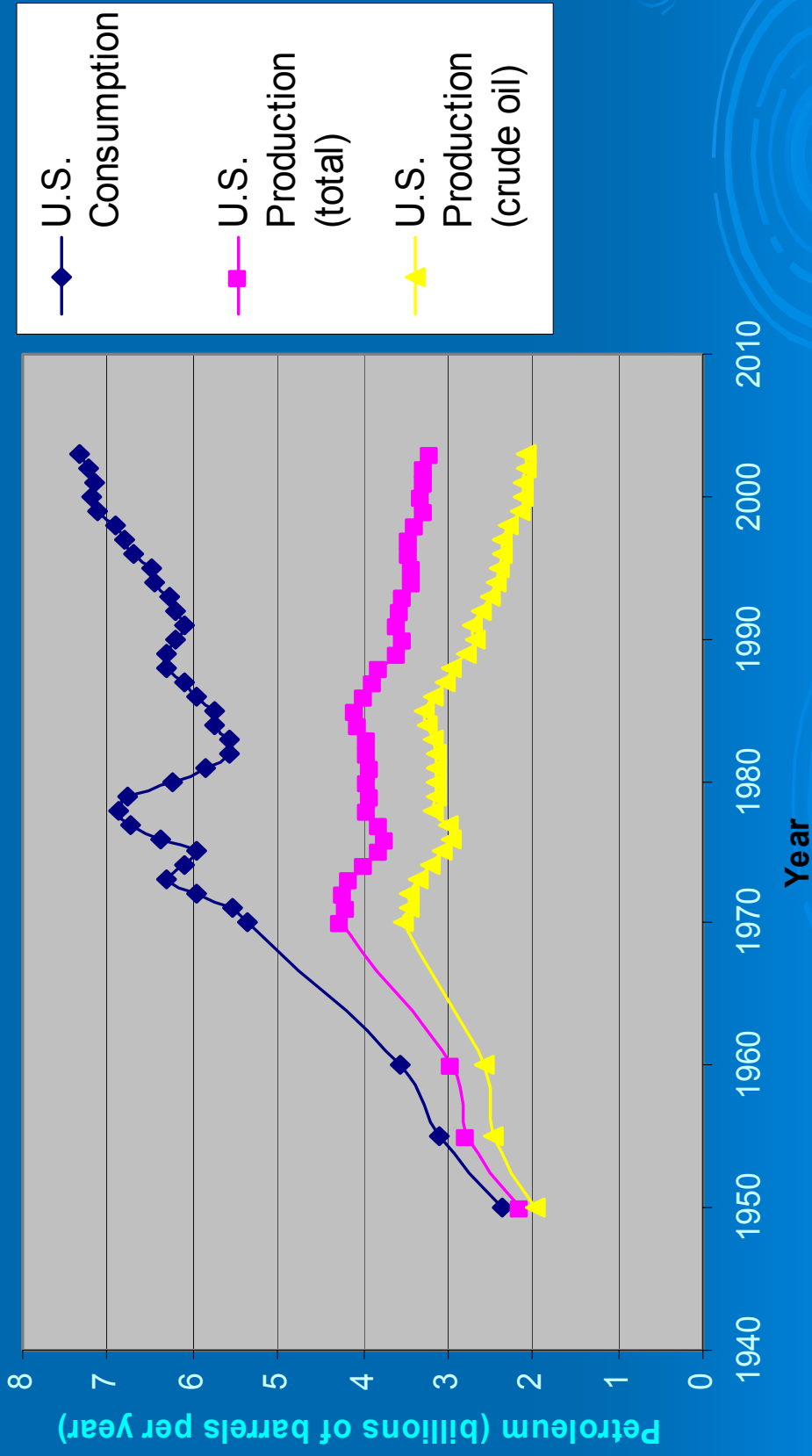
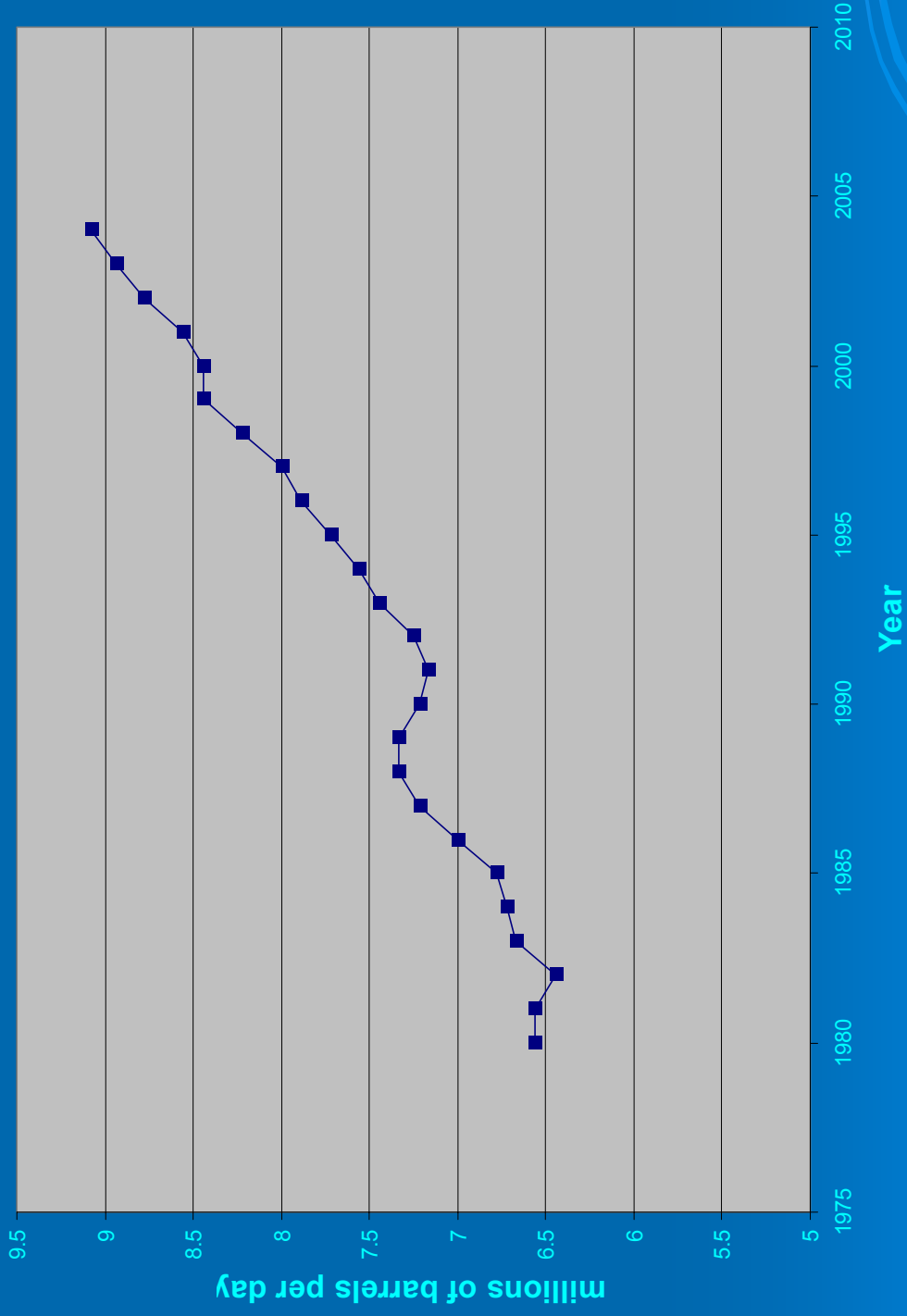


Figure 13-5: U.S. Oil Production and Consumption

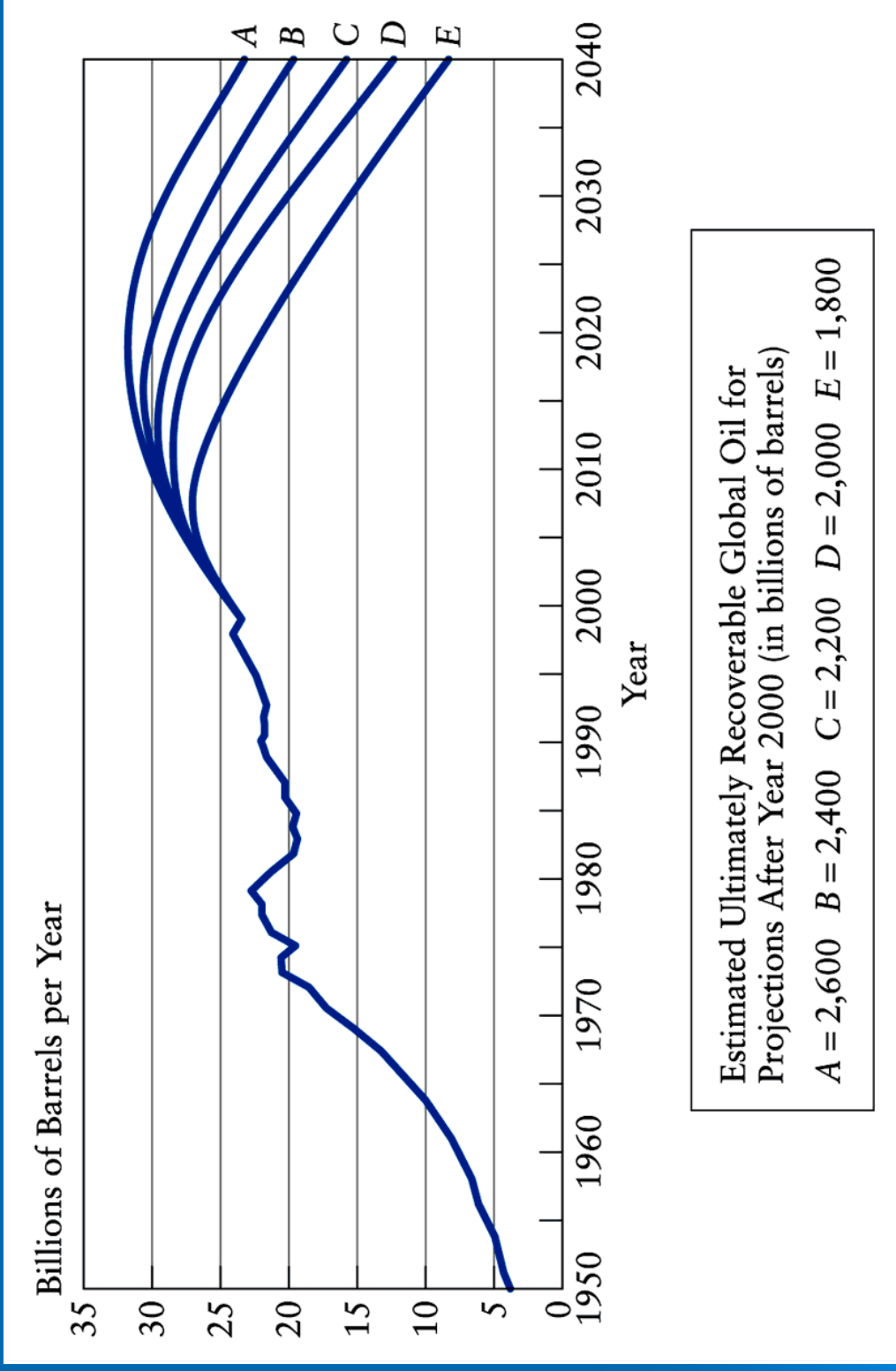


U.S. GASOLINE CONSUMPTION



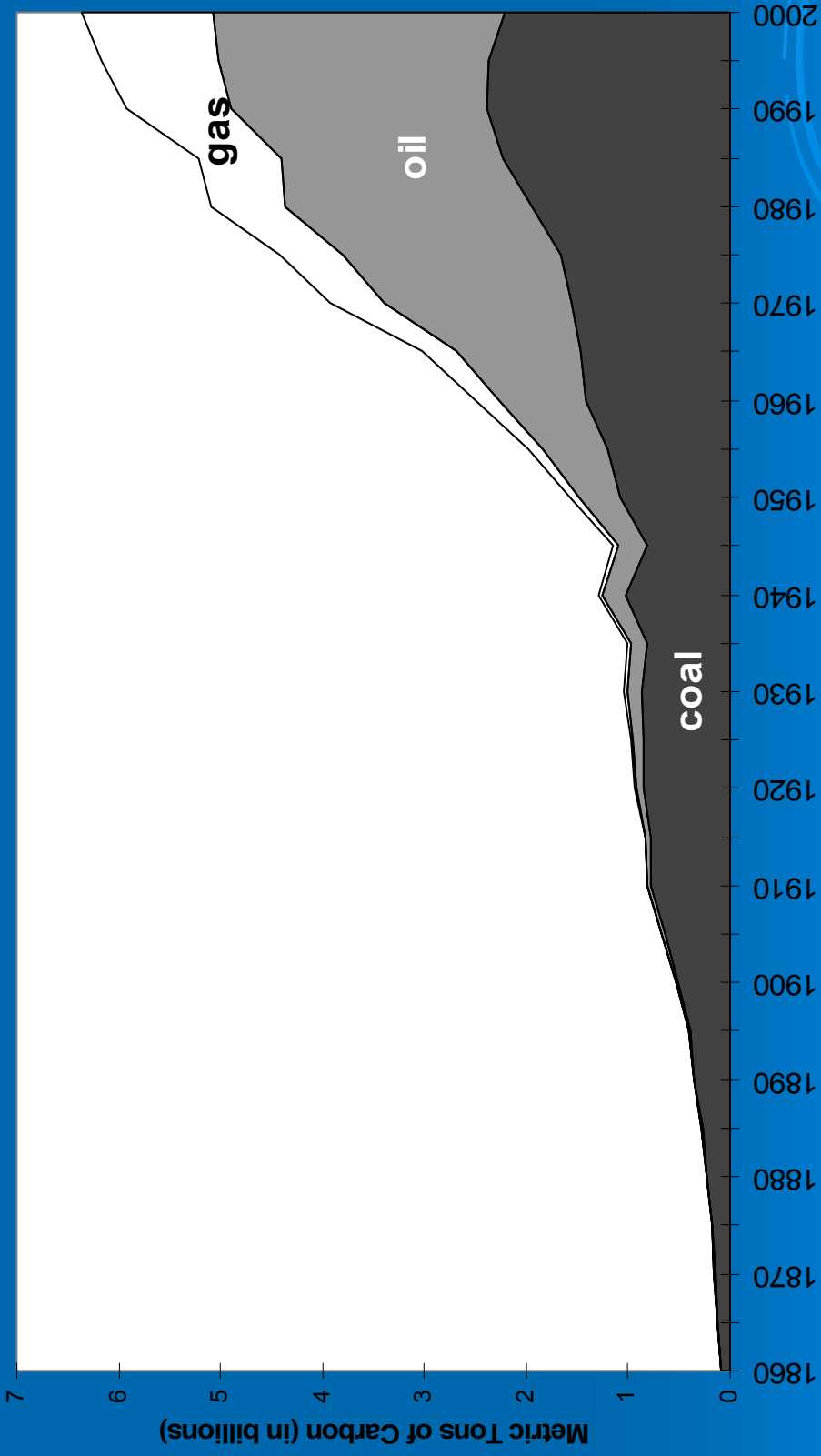
Source: Energy Information Administration
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Figure 13-7: Actual and Projected World Oil Production, 1950–2040



- Source: Adapted from MacKenzie, Oil as a Finite Resource: When Is Global Production Likely to Peak?, Washington, D.C.: World Resources Institute, 1996. Reprinted by permission of World Resources Institute. © 2005 Jonathan M. Harris

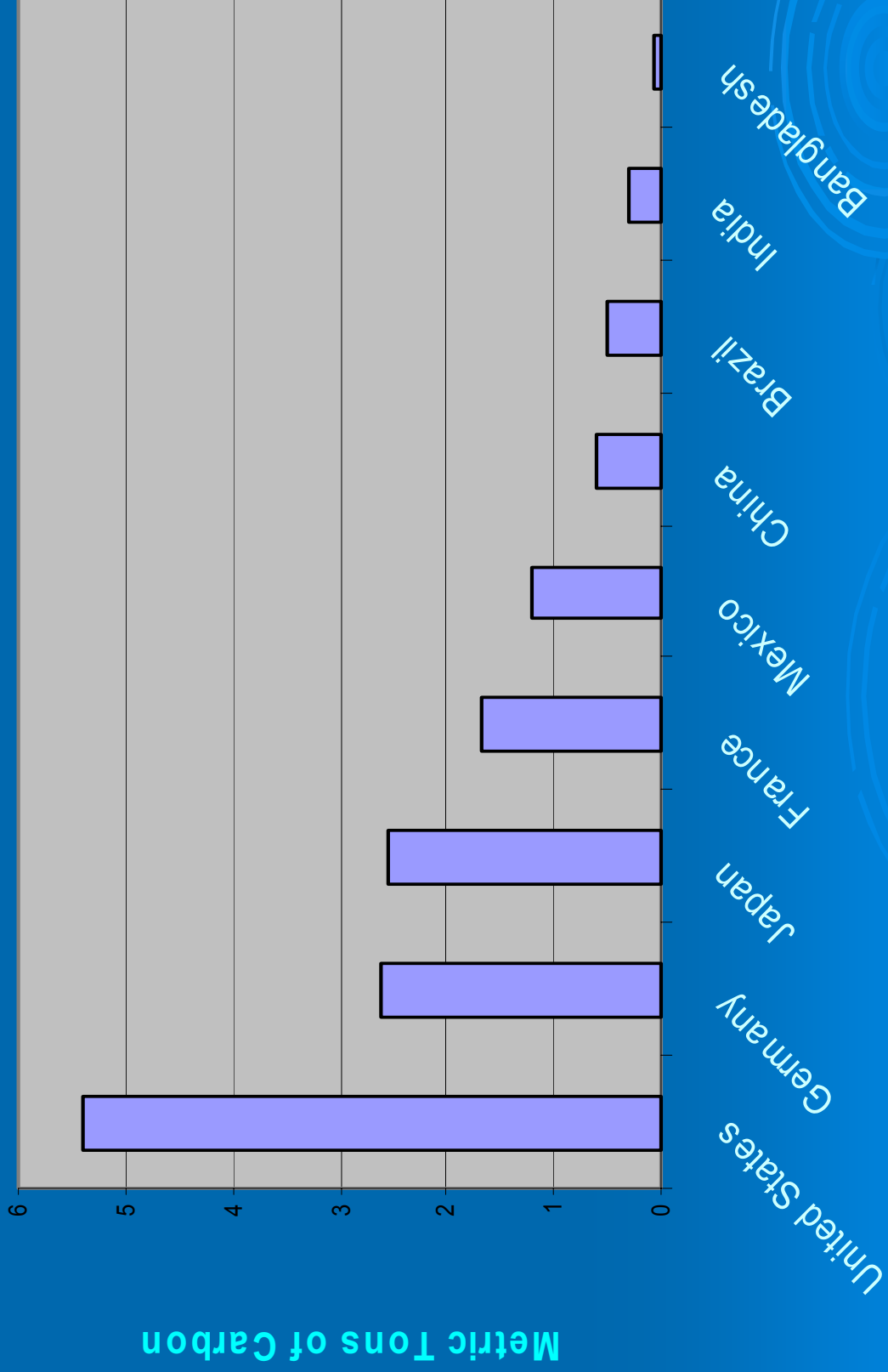
Figure 18-1: Carbon Emissions Due to Fossil Fuel Consumption, 1860–1995



• Source: Adapted from Manne and Richels, *Buying Greenhouse Insurance: The Economic Costs of CO2 Emission Limits*. Cambridge, MA: MIT Press, 1994. Updated with data only from Carbon Dioxide Information Analysis Center (CDIAC), <http://cdiac.esd.ornl.gov/>. Courtesy of CDIAC.

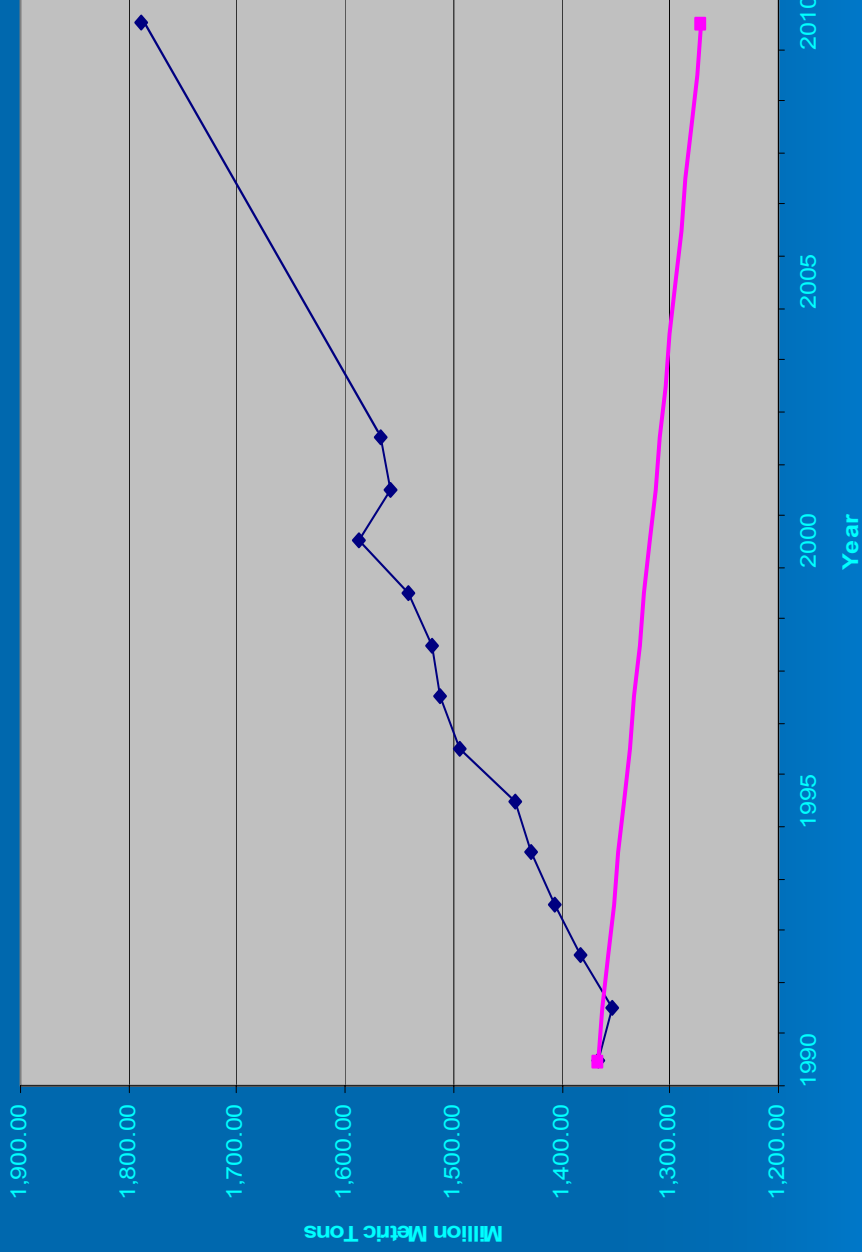
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Per Capita Fossil-Fuel CO2 Emission Rates (2000)



Source: Carbon Dioxide Information Analysis Center, CDIAC, <http://cdiac.esd.ornl.gov/> © 2005 Jonathan M. Harris

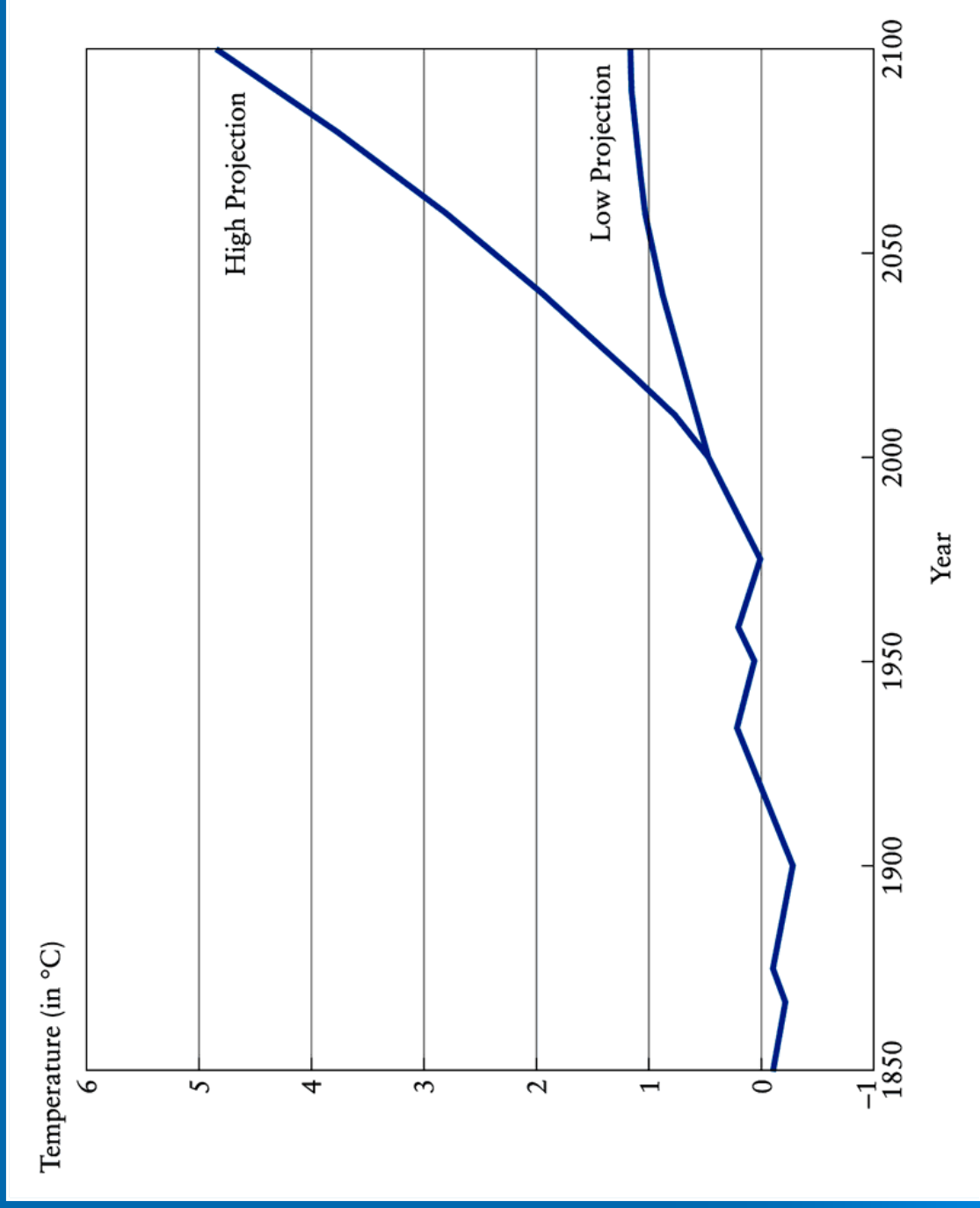
U.S. Carbon Emissions, with projections to 2010



Source: U.S. Department of Energy, 2004, <http://www.eia.doe.gov/emeu/international/enviroennm.html>; IPCC, 2001.

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Figure 18-3: Global Temperature Trends Projected to 2100



Source: IPCC, 1996. IPCC, 2001, projects a slightly higher range of temperature increase from 1.4°C to 5.8°C over 1990 levels by 2100.

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Why Don't Economists Get It?

- “Markets must be right”
- Only money values count
- Discounting: looking through the wrong end of the telescope

Top Down versus Bottom Up

- Technological potential: 30-50% increase in energy efficiency (or more)
- U.S. versus Europe and Japan: 50% potential to start?
- The barrier of (low) price
- Voluntary strategies and the problem of “leakage”

What economics can tell us

- The importance of incentives
- Price is the crucial variable
- Long-term investment based on current and expected prices
- Who gets the revenues?
- Revenue recycling and revenue neutrality

Towards a new energy economy

- Voluntary action is not enough
- Smart strategies and high-priced energy regimes
- Cap-and-trade and technology-forcing standards
- Political acceptability and economic strategies
- Economics: clever servant, insufferable master

Economics of Sustainability

- Intergenerational /intra-generational equity
- Sustainable economic scale
- Precautionary principle
- Ecosystem integrity
- Markets as means, not ends

Note: Graphics in this presentation are from Jonathan M. Harris, *Environmental and Natural Resource Economics: A Contemporary Approach* (Houghton Mifflin, 2006).

Ordering information available at:

http://www.ase.tufts.edu/gdae/publications/textbooks/env_nat_res_economics.html

Bangladesh map from Rachel Massey, *Environmental Justice: Income, Race, and Health*, available at http://www.ase.tufts.edu/gdae/education_materials/modules.html