

trol or normalizing variable in these analyses. Virtually overlooked, however, is the possibility that population itself may be a driving force in environmental quality and may behave in more complex ways than is commonly assumed. Indeed, the early results from our research program (3) assessing the driving forces of carbon dioxide emissions with the IPAT model (4) indicate that population is a significant predictor of national carbon dioxide loads across the entire spectrum of national incomes and suggest that the effects of population may be disproportionately large for the largest nations.

**Eugene A. Rosa**

Department of Sociology, and  
Program in Environmental Science,  
Washington State University,  
Pullman, WA 99164-4020, USA  
E-mail: [facrosa@wsuvm1](mailto:facrosa@wsuvm1)

**Thomas Dietz**

Department of Sociology  
and Anthropology,  
George Mason University,  
Fairfax, VA 22030-4440, USA

#### References

1. D. Holtz-Eakin and T. Seldon, *J. Publ. Econ.*, in press.
2. N. Shafik, *Oxford Econ. Pap.* **46**, 757 (1994).

3. T. Dietz and E. Rosa, *Hum. Ecol. Rev.* **1**, 277 (1994). "Effects of population and affluence on CO<sub>2</sub> emissions" (Working paper, George Mason University, Fairfax, VA, 1994).
4. P. Ehrlich and J. Holdren, *Bull. Atom. Sci.* **25**, 18 (1972).



#### Pharmaceutical Value Estimates

In his Policy Forum "The world's forests: Need for a policy appraisal" (12 May, p. 823), Norman Myers cites me as the source of estimates of the commercial value of pharmaceuticals from tropical forest plants of \$25 billion per year and of the economic value of these pharmaceuticals of at least twice as large. While I do not want to detract from the thrust of Myers's Policy Forum, I would like to state precisely what estimates I made.

The first estimate to which Myers refers characterizes the retail value of plant-based pharmaceuticals in the United States. For 1990, this estimate is \$15.5 billion (1). The pharmaceuticals included in this estimate are not limited to those derived from tropical forest species; the estimate only covers the market in the United States and it does not include over-the-counter products. The economic value estimate (which includes

market value as well as intangible values, such as the value of lives saved or suffering alleviated) describes the economic value of plant-based anti-cancer pharmaceuticals in the United States, and it is about \$250 billion (1983 dollars) annually (2). As in the retail value estimate, the pharmaceuticals are not limited to those from tropical forests, and the estimate only covers the market in the United States. The derivation and limitations of these estimates have been thoroughly described (1, 3, 4).

I would also call the readers' attention to the correct citation (1) for the work referenced by Myers.

**Peter P. Principe**

National Exposure Research Laboratory,  
U.S. Environmental Protection Agency,  
Research Triangle Park, NC 27711, USA

#### References

1. P. P. Principe, in *Medicinal Resources of the Tropical Forest: Biodiversity and Its Importance to Human Health*, M. J. Balick *et al.*, Eds. (Columbia Univ. Press, New York, in press).
2. P. P. Principe, in *Economic and Medicinal Plant Research*, H. Wagner *et al.*, Eds. (Academic Press, London, 1989), vol. 3, pp. 1-17.
3. N. R. Farnsworth and D. D. Soejarto, *Econ. Bot.* **39**, 231 (1985).
4. P. P. Principe, in *Conservation of Medicinal Plants*, O. Akerele *et al.*, Eds. (Cambridge Univ. Press, Cambridge, UK, 1991), pp. 70-124.

Uppsala (pronounced OOP-SA-LA) is a university town about 45 minutes by car from Stockholm, Sweden. The university here was founded in 1477 and has a lengthy tradition of developing exceptional life science researchers. (The great Carl von Linné and Anders Celsius both lived and worked in Uppsala.)

Pharmacia Biotech helped enlarge Uppsala's scientific scope by making it our home base. We settled here because when you're committed to being one of the world's leading suppliers of life science research products, equipment and methodologies, it helps to be at the source of bright young life scientists.

That Pharmacia Biotech hails from Sweden doesn't make us better – it just makes us Swedish. For many, that's

enough to remember us by. But if you would rather, Pharmacia Biotech is an international company committed to supplying life science researchers with the most advanced solutions available. Full-service offices on every continent and in over 27 countries mean that every minute of the day someone in the world is calling a Pharmacia Biotech office to ask us for advice on separating biomolecules or to enquire about our comprehensive range of products for molecular biology. (See why it's easier just to remember us as being Swedish.)

We realize it takes time to gauge a company's merits. So if you would like to learn more about Pharmacia Biotech, just call us at +46-18-16 50 00 and we'll send you a free copy of our company brochure. In Swedish, if you insist.

