

The text that follows is a PREPRINT.

Please cite as:

Laurance, W.F. and P.M. Fearnside. 2002. Issues in Amazonian Development. Science 295: 1643.

ISSN: 0036-8075

Copyright: American Association for the Advancement of Science (AAAS)

The original publication is available at <http://www.sciencemag.org>
<free from publisher-online format>

Frontier Governance and Exploitation in Amazonia

In a recent Policy Forum, Nepstad *et al.* (1) highlight some laudable improvements in environmental protection, legislation, and public attitudes in Brazilian Amazonia and argue that such efforts hold the key to sustainable development in the region. While their essay provides an important perspective on a complex and contentious issue, we believe that some of their assertions are misleading and even dangerous.

Our greatest concern is that, by suggesting that many of the planned infrastructure developments in the region—including an unprecedented expansion of paved highways and river-channelization projects—are “inevitable,” Nepstad *et al.* are in danger of creating a self-fulfilling prophecy. Many proposed projects are far from inevitable and are likely to have enormous environmental costs. For example, the two largest river-channelization projects (the Tocantins-Araguaia and Tapajós waterways) are the subject of ongoing legal battles and could have severe impacts on aquatic habitats and indigenous peoples (2). At a time when many proposed projects are being hotly debated, it is premature to suggest that the die has been cast.

Nepstad *et al.* correctly emphasize that many gains in Amazonian environmental protection are fragile, but they go too far, we believe, in implying that such improvements could realistically control the impacts of massive new infrastructure developments. Our view is supported by negative trends like the significant acceleration of Amazonian deforestation during the past decade (3), rampant illegal logging and gold mining (4), and a panoply of destructive activities in southern Pará (5). Several proposed projects, including major highways that would bisect large intact forest tracts, are likely to promote large-scale invasions by farmers, loggers, and hunters and dramatically increase rates of forest loss and fragmentation (6-8). Such projects can easily open a Pandora’s box of exploitive activities that are beyond the government’s capacity to control.

Nepstad *et al.* justifiably underscore the need for economic development in Amazonia, but many proposed mega-projects, such as paving the Cuiabá-Santarém highway, would mainly benefit wealthy soybean exporters in central Brazil, not the Amazonian poor (2). They also stretch plausibility to suggest that much of the US\$70 million that the soybean exporters expect to save annually would find its way, via highway tolls or taxes, to frontier governance in Amazonia. .

Finally, Nepstad *et al.* suggest that recent interministerial seminars in the Brazilian Congress could signal a shift in government attitudes toward Amazonian infrastructure development. Because press scrutiny of the Avança Brasil program spurred by our analysis of Amazonian development trends (6) was evidently a primary stimulus for these seminars, we feel gratified for this. However, there is still no compelling evidence that the planning process has fundamentally changed (2, 3), and the threats to Amazonian ecosystems remain very real.

William F. Laurance^{1,2}, Philip M. Fearnside³

¹Smithsonian Tropical Research Institute, Apartado 2072, Balboa, Republic of Panamá

²Biological Dynamics of Forest Fragments Project, National Institute for Amazonian Research (INPA), C.P. 478, Manaus, AM 69011-970, Brazil. Email: laurancew@tivoli.si.edu

³Department of Ecology, INPA, C.P. 478, Manaus, AM 69011-970, Brazil. Email: pmfearn@inpa.gov.br

References

1. D. Nepstad *et al.*, *Science* **295**, 629 (2002).
2. P. M. Fearnside, *Environ. Conserv.* **28**, 23 (2001).
3. W. F. Laurance, A. Albernaz, C. Da Costa, *Environ. Conserv.* **28**, 305 (2001).
4. W. F. Laurance, *Trends Ecol. Evol.* **13**, 411 (1998).
5. P. M. Fearnside, *World Devel.* **29**, 1361 (2001).
6. W. F. Laurance *et al.*, *Science* **291**, 438 (2001).
7. D. Nepstad *et al.*, *Avanço Brasil: Os Custos Ambientais para Amazônia* (Instituto de Pesquisa Ambiental da Amazônia, Belém, Brazil, 2000).
8. G. Carvalho, A. Barros, P. Moutinho, D. Nepstad, *Nature* **409**, 131 (2001).

(Main text: 471 words)