

Environmental Policy, Social Movements, and Science for the Brazilian Amazon - Chicago, Nov. 5-6, 2009

Report on Panel 2: “Science and Technology as a Basis for a New Development Model for the Amazon”

Sean T. Mitchell

Rutgers University, Newark

The panel’s first presentation, “Amazonian Sustainable Agriculture: From Fiction to Reality, A Contribution to a New Development Model for the Amazon,” was given by Tatiana Sá, Agricultural engineer and Executive director of Embrapa (Brazilian Enterprise for Agricultural Research), the Brazilian state-owned company that specializes in agricultural research. Her presentation focused on Embrapa’s research into sustainable agriculture and development in the Amazon. However, as many of the session’s presenters did, she also emphasized the region’s long and often ignored history. The differences in the presenter’s approaches to Amazonian history illuminate their different approaches to the panel’s focus on science, technology and development.

For Sá, the Amazon’s future trajectory should be informed by an Amazonian agriculture that “isn’t anything extra-terrestrial or artificial,” as she put it. It should also be informed by science. Unfortunately, much of recent history has been characterized by the imposition of models of agriculture foreign to Amazonian reality.

Sá provided a brief historical sketch of research on agriculture in the Amazon since midcentury. In the 1940s and 1950s, research on agriculture in the Amazon was developmentalist, oriented towards spatial occupation of the region and blind to concerns of sustainability. The Brazilian government encouraged the intensive production of the crops that constitute the basic Brazilian diet. In the late 1960s, however, a focus on utilizing plants native to Amazonia itself gained ground against colonization with outside crops, a trend promoted heavily by Embrapa since the 1980s.

Sá emphasized how, working together with other countries with similar interests, Embrapa has altered many native cultivars to be resistant to disease and insects; has helped develop alternatives to slash-and-burn in Amazonian agriculture; and has developed techniques

for sustainable cattle raising. Each of these innovations has combined knowledge of existing Amazonian agriculture with science, helping to promote sustainability and community.

Mauro Barbosa de Almeida, Professor of Anthropology at the State University of Campinas, was next, presenting, “Local Science: Agrobiodiversity and Traditional Knowledge in the Amazon.” Almeida emphasized his own perspective of long-term collaboration with traditional communities, particularly rubber tappers. Although the region’s existing farming is often overlooked by governments and NGOs (who privilege non-agricultural biodiversity and traditional knowledge), the Amazon’s robust traditional agriculture is a laboratory of “traditional biotechnology,” as he put it.

Like Sá, Almeida stressed the long history of Amazonian agriculture. But while Sá emphasized innovations by contemporary researchers, Almeida highlighted the value and importance of the many longstanding innovations of traditional communities, much of which can have scientific and ecological importance on a global scale. Amazonian communities possess a stock of tens of thousands of varieties of beans, manioc, peppers and many other crops.

This great stock of biodiversity, produced through, the “science of the concrete,” as Almeida called it, using Levi-Strauss’ phrase, is threatened, on the one hand, by its appropriation as the intellectual property of others and, on the other, by its displacement by monoculture. Diverse local cultivars are increasingly replaced by crops from the outside. Beans from Mato Grosso, for example, have replaced many varieties of beans in Acre and, Almeida argued, cultural erosion tends to accompany genetic erosion.

Almeida argued that one finds extensive deforestation in areas where the Brazilian state has engaged in resettlement projects; somewhat less in extractive reserves; and very little deforestation in areas of indigenous people, where traditional agriculture is practiced. He advocated the protection of a plurality of agricultural systems that would maintain a stock of genetic and cultural diversity, respect people’s traditional lifeways, and help to preserve the Amazon. Moreover, Almeida suggested that putting traditional agriculture into conversation with contemporary technoscience could help solve global problems using traditional techniques.

Foster Brown, researcher at the Woods Hole Research Center at the University of Acre, presented “Climate change in Amazonia and its Implications for Communities.” Characterizing

himself as a “problemologist,” in contrast to the “solutionologists” who sat beside him on the panel, Brown began his presentation by joking that, from his perspective, based in the state of Acre (often regarded as remote), Rio de Janeiro (or, indeed, Chicago) was remote. Acre is not remote, he stressed. It is central to global dynamics of climate change and it is threatened by that change and by a proliferation of Megaprojects.

Brown principally emphasized the risks posed by deforestation and climate change, chief among them, severe droughts. He spoke, in particular, of the drought of 2005-6, a year 8-10 times drier than other years in Acre, and of Acre’s paucity of firefighters to combat the fires that were started. Brown pointed out that the Amazon has seen droughts of this severity before but, under conditions of global climate change, they have become disturbingly common. Many models predict that droughts of the severity of the 2005 drought could be a yearly occurrence in the Amazon’s near future. In the last 15 years, he stressed, average rainfall has decreased significantly in Acre. Local communities, who suffer the immediate consequences of droughts and fires, observe that water levels are running lower than they had in the past. These droughts, besides endangering the Amazon itself, also contribute to further climate change, because they cause the forest to lose carbon.

Despite characterizing himself as a problematologist, Brown did suggest that finding sustainable solutions requires taking advantage of globalization, stimulating collaboration between Amazonian communities and others, and emphasizing education within and outside of the Amazon.

The last paper, “Science and Technology and the Current Proposals for the Development of the Amazon,” was given by Bertha Becker, professor emeritus of geography at the Federal University of Rio de Janeiro. Like Almeida and Sá, Becker pointed to an often ignored history in the Amazon, but her point of focus was the inverse of theirs. While, in different ways, Almeida and Sá stressed the long history of agriculture, technology, and settlement in the region, Becker stressed their absence. For Becker the Amazon’s economy had long been a “Caribbean-style” economy of extraction, without the stable development of agriculture or livestock.

Latin America is the “oldest periphery in the world,” Becker argued, and Amazonia particularly so. So science and technology have been historically been used in the Amazon only

for outsiders, never for the region itself. In Becker's analysis, neither colonial governments, nor the modern nations of the Amazon have ever produced an Amazonian development project equal to the region's natural and cultural sophistication.

Becker identified three models of development for the Amazon: First, she mentioned what she called a "project of continuity" with long dominant practices of destructive extraction. Today, the growth of soy and beef cultivation, based on this unsustainable model, threatens the entire forest. Second, Becker discussed "preservationist projects," such as REDD (reduced emissions from deforestation and degradation), which would compensate communities for preserving the forest. She argued that this model is also unsatisfactory, both because it doesn't utilize the forest's productive potential and because she it would merely displace deforestation to new areas.

Finally, Becker advocated a third model, one based on "production without deforestation." For Becker, this involves the sustainable industrialization of the Amazon. Amazonian cities, particularly Manaus could be developed into centers of research and coordination, organizing sustainable productive activity in the Amazon. She advocated processing Amazonian products, such as aluminum, in the Amazon itself, and the promotion of sustainable, organized, productive activity by Amazonian communities, tied to these urban research centers. Generating laughs among the Chicago-based audience, she suggested that, "we could build a stock market in Manaus. Why not? Why must such a thing be only in Chicago?"

Manuela Carneiro da Cunha, of the Anthropology Department of the University of Chicago, and the organizer of the conference, was the session's respondent. She pointed out that three questions about science, implicit in all the presentations, should be distinguished: what is it for? Whom is it for? Who is it by? Cunha is an anthropologist and thus works with local communities; "we look at the world from the micro-perspective," she emphasized. And as Brown pointed out in his presentation, the Amazon is not a periphery from the perspective of Amazonian communities. To to answer the question of "for what and for whom," she argued, one needs to look to the people who already live in the Amazon and who consider it home.

This emphasis on local knowledge and its importance informed her response to each of the papers. She pointed out that Sá paper had underemphasized the ways in which Embrapa

encourages an extractive “business as usual” of soy and cattle. To Brown’s emphasis on education, she recounted how divorced from local realities much education in the Amazon is. Cunha noted that each of the panelists focused on partnerships with local communities, but she emphasized that we need to ask what the terms of this partnership will be. Bolstering Almeida’s key point, Cunha argued that we need to recognize the contribution of local Amazonian science to produce this partnership.

Cunha also took issue with Becker’s assertion that the Amazon’s colonization didn’t leave significant traces. In fact, colonization there was historically precocious. But in the 16th and 17th centuries, many European religious orders departed the Amazon, because of revolts and other problems, and once-colonized Amazonian societies rebuilt themselves. Amazonian communities that today seem isolated are often descended from communities that reconstituted themselves after very early colonization, and the consequences of this are perceptible.

Cunha emphasized that we need to modify our ideas about development to make them commensurate with Amazonian realities. Responding to Becker, who had stressed the importance of employment in the Amazon, Cunha drew a laugh from the audience, quipping that work was a curse that God inflicted on Adam and Eve because they had sinned. “Why must we bring it to the Amazon?” For traditional residents of the Amazon, hunting, farming, and gathering aren’t thought of as work, she said. Stressing the importance of a more careful attention to local knowledge and experience in the Amazon, Cunha opened up the floor for the debate that followed.