



Agroecological Zoning in Brazil incentivizes more sustainable agricultural practices

Author: Aaron Leopold (UFZ)

Short title: Agroecological Zoning, Brazil

Key Message: Although Brazilian agroecological zoning takes into account only some aspects of ecosystems services and biodiversity, it remains an important example of how innovative environmental policy can be used to inexpensively incentivize more sustainable agricultural pathways.

Suggested citation: Leopold, A. (2010) TEEBcase: Agroecological Zoning, Brazil, available at: TEEBweb.org.

Reviewer: Verena Glass

What is the problem?

Being responsible for the health and protection of much of the Amazon rainforest, accounting for 40% of the world's total tropical forest area, Brazilian environmental legislation is as often the object of praise as it is the victim of sharp criticism. The Janus-faced nature of environmental law in Brazil has primarily been associated with its strength on paper but weakness in reality due to governance failures and the sheer size of areas attempting to be protected from encroaching loggers and farmers. Newest on Brazil's long list of attempts to protect the green lung of the Earth are innovative new regulations on agroecological zoning for sugarcane and palm.

What was done to solve it?

With increasing attention in recent years on its sugarcane ethanol and palm oil diesel biofuels programs, a combination of global and home-grown pressure led the federal government to re-think its role in the agricultural advancement of this sector in mid 2007, when it began researching the introduction of agroecological zoning for sugarcane and palm. These programs became reality through presidential decrees in June of 2009 and May of 2010, respectively. Agricultural zoning is not a new phenomenon and indeed, has been practiced in Brazil since 2002 but has been primarily focused on agro-economic criteria. These regulations guide the sowing of crops by coupling government subsidies and credits to crops appropriate to the climatic, hydrological and soil conditions in different regions and biomes, to enhance economic output.

With the introduction of agroecological zoning for sugarcane however, globally the first of its kind, the stakes have been raised to include significant new ecological criteria together with a nationwide requirement for all financing institutions to evaluate the loans essential for large farming endeavours based on their compatibility with new agroecological zoning requirements (Leopold and Aguilar 2009). Additionally, if evidence of illegal activity is found, the government reserves the right to refuse the granting or renewal of permits to local

processing facilities on which farmers depend upon to buy their goods. This functions as an effective enforcement mechanism because sugarcane must be processed within a few hours of its harvest and producers rarely have more than one processing plant close enough to work with.

Which ecosystem services were examined? And how?

The new zoning framework for sugarcane was established through discussions with stakeholders from industry, civil society, academia and government to identify areas where cultivation of sugarcane should be sanctioned and where it should be prohibited. Among the most significant results of this process, which have now entered into law, are that sugarcane cultivation is forbidden in:

- areas with more than 12% declivity, incentivizing mechanical harvesting for both efficiency and humanitarian reasons (due to labor conditions of cane field workers);
- the entire Amazon region (totaling 59% of the country) including previously deforested areas;
- areas with any kind of natural vegetation, to prohibit new deforestation
- the enormous Pantanal wetland and its hydrographic basin; and
- all high conservation-value areas.

Though not without its critics, who note that the zoning largely ignores biodiversity aspects, as is apparent by the lack of restrictions for sugarcane expansion in the mega-biodiverse Brazilian savannah (Cerrado) (Repórter Brasil 2009), this broad legislation creates clear rules for actors interested in expanding sugarcane production and strategically uses financing and processing pressure points to spread the burden of implementation and enforcement (author interview with the Agroenergy Department of the Brazilian Ministry of Agriculture).

At the time of writing, zoning for palm cultivation has been mandated by presidential decree (Presidential declaration No. 7,172 2010), but legislation providing incentives and enforcement mechanisms has not yet been passed. Contrary to the agroecological zoning of sugarcane, that of palm oil is to have a different geographic and socioeconomic focus, specifically aiming to avoid the negative environmental consequences of palm oil expansion seen in some Southeast Asian countries. Due to the more tropical conditions for palm, palm zoning is to focus on the recovery of degraded land *within* the Amazon basin and aims to benefit smallholder farmers by providing nearly 10 times more employment per unit than alternative crops in the region such as soybean, which is also inferior to palm in terms of carbon storage (Embrapa 2010). In this case, nationally protected and indigenous lands are to be excluded, and zoning has been carried out using soil and hydrological analyses over no less than 10 years. Additionally, financial assistance and incentives are to be structured around improving livelihoods of smallholders, and intercropping is to be encouraged (ibid). Critics note however, that although the Brazilian government has been extremely careful in designing this project to avoid the destructive land-use changes seen in the creation of many southeast Asian oil palm plantations, they seem not to have fully investigated possible consequences for the Amazons thousands of rivers of the large amounts of chemical pesticides, herbicides and fertilizers to be used on these new plantations (Repórter Brasil 2010).

Conclusion and lessons learned

Valid criticisms notwithstanding, agroecological zoning in Brazil offers a unique example of regulatory shaping of an agricultural sector aiming to improve socio-economic benefits and

minimize environmental impacts, and within the sensitive Amazon region, to help revitalize what has already been lost by incentivizing sustainable palm oil production on degraded lands. Using the sectoral bottlenecks of lending institutions and processing plants through which nearly all producers must pass, the Brazilian government has devised a system that places a significant share of the burden of oversight into the hands of an easily observable and controllable part of the private (and public in the case of banks) sector, which are subject to detailed government oversight. Brazilian agroecological zoning, though perhaps less focused on ecosystems services and biodiversity, nonetheless represents an important example of how innovative environmental policy can be used to provide incentives to inexpensively begin shifting agricultural production onto a more sustainable pathway.

References

Embrapa (2010). "Zoneamento Agroecológico do Dendzeiro Para as Áreas Desmatadas da Amazônia Legal." Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária, Emprapa) Publishing House, Rio de Janeiro. Available at: http://www.cnps.embrapa.br/zoneamento_dende/ZonDende.pdf

Leopold, Aaron and Aguilar, Soledad (2009) "Brazil." in E. Morgera, K. Kulovesi and A. Gobena (2009) Case Studies on Bioenergy Policy and Law: Options for Sustainability. FAO Legislative Study 102, FAO Rome. Available at: <http://www.fao.org/docrep/012/i1285e/i1285e00.htm>

Presidential declaration No. 7,172 (2010) Available at: www.jusbrasil.com.br/legislacao/822896/decreto-7172-10

Repórter Brasil (2010). "A Agricultura Familiar e o Programa Nacional de Biodiesel: Retrato do presente, perspectivas de futuro. Available at: http://www.reporterbrasil.org.br/documentos/AgriculturaFamiliar_Biodiesel2010.pdf

Repórter Brasil (2009). "O Zoneamento Agroecológico da Cana-de-Açúcar: Análise dos Avanços e das Lacunas do Projeto Oficial." Biofuel Watch Center, Repórter Brasil. Available at: http://www.reporterbrasil.org.br/documentos/zoneamento_cana_reporterbrasil_out09.pdf