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MODELS AND ACTORS IN THE TRANSITION TOWARDS A LOW CARBON ECONOMY

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Collaborating Institutions: Cambridge University, UK; Centre de Coopération Internationale en Recherche Agronomique pour le Développement (Cirad), France; Massachusetts Institute of Technology (MIT), USA; University of Illinois at Urbana-Champaign, USA. This project is part of INCT (Brazilian National Institute of Science and Technology) Climate Change activities and Rede Clima (climate network).

PROJECT SYNTHESIS EMPHASISING ON ITS OBJECTIVES AND MAIN GOALS

Among the world's main CO_2 emitter countries, Brazil is the one whose energetic matrix is least fossil fuel-intensive. This advantage, nevertheless, does not mean that the transition towards a low carbon economy should be an irrelevant subject, nationally.

In one hand, the studies developed under FAPESP's Project "Economia do Clima" (http://unfccc.int/files/adaptation/application/pdf/brazil_climateeconomy_executive_summary.pdf) suggest a highly risky situation. Reduction of agricultural harvests on biophysical handicapped regions, changes of the Brazilian agricultural geography, the occurrence of droughts in the Amazon region, extreme events in metropolitan regions, and uncertainty about some coast cities' future: the occurrence of such scenarios is, in many cases, dramatically close.

On the other hand, there is significant evidence towards an intense social mobilization not only fighting climate changes' effects, but also in favor of designing and implementing production models much less intensive in materials and energy that the current one.

It is under these two lenses that the project deals with the climate change subject in Brazil. More precisely, it concentrates on:

a) The development and improvement of an integrated methodology to forecast the economic impacts triggered by climate change, mitigation/adaptation policies (controlling and taxing carbon emissions) in Brazil, taking into account the several different spatial scales (macro-regions, states and municipalities). Besides, the project aims to link climate change projections with socioeconomic models, in such a way that this attainment will permit an integrated analysis of these economic impacts;

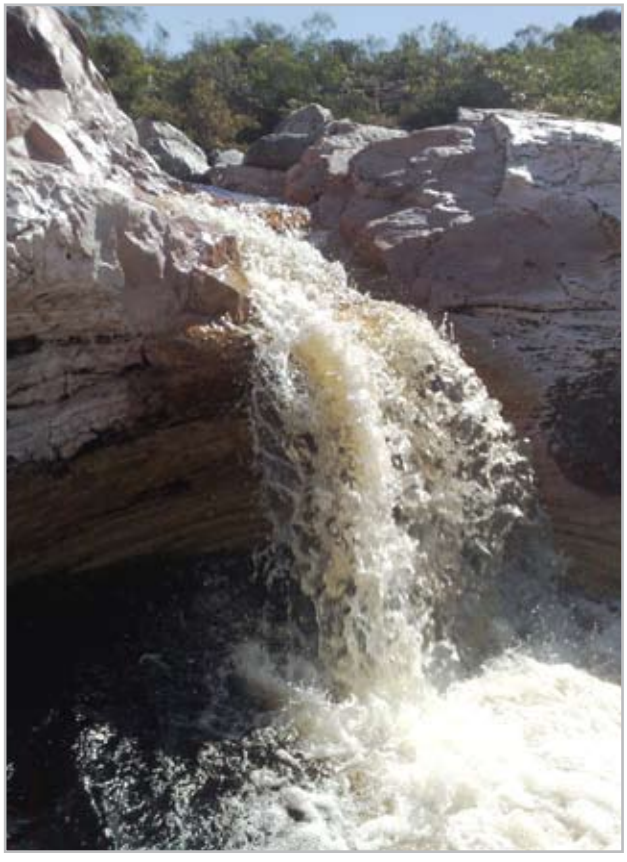

Figure 1. Chapada Diamantina (Bahia): low carbon economy to improve the use of water

b) The transition towards a low carbon economy and society with the following main subjects: Amazon; legislation; socioenvironmental corporate responsability; nuclear energy; measures of development; ecological footprint.

SYNTHESIS OF THE RESULTS AND SCIENTIFIC CONTRIBUTIONS ACHIEVED

The transition towards a low carbon economy cannot be studied without taking into account the role of the social actors involved in the subject. On the one hand, there is a sharp contrast between the promises of economic possibilities of the sustainable use of biodiversity and the restrict horizon of current entrepreneurial action on this subject (Abramovay, 2010). On the other hand, there is a non-negligible number of firms to whom sustainable forest appreciation already assumes a practical and evident dimension (Marcovitch, 2011, concerning the Amazon and Abramovay et al (2010), concerning the round table around commodities). It's important to stress that this social mobilization and the transition process towards a low carbon economy demands the development of new parameters on wealth, growth and well-being (Veiga 2010).

It seems certain that in the future the ongoing global climate changes will have consequences for regions performance. Global warming and rain pattern modifications, as well as other associate aspects, will seriously impact agriculture. These impacts will vary among crops and regions, altering the picture of agricultural competitiveness and, consequently, changing all regional economies considered (Azzoni and Haddad, 2010). Moreover, there may also be important effects over the Brazilian energetic matrix composition, along with their consequences regarding national economic growth (Azzoni et al., 2010).

Furthermore, important simulation and forecast models are being applied by the project. An example is this one: If the costs of global climate changes until 2050 could be anticipated to their present value, and considering an emissions' reduction tax of 1% per year, still the total costs of global warming would range between R$ 719 billion and R$ 3.655 billion (in terms of 2008 Brazilian reais), which corresponds to 25% and 125% of 2008´s national GDP, respectively. Such is the estimation presented by the study "Economia das mudanças climáticas no Brasil"(Economy of Global Changes in Brazil), one of the basic models for the creation of the subproject on modeling which integrates this project under consideration. The mentioned study, which had the collaboration of INCT main climate change researchers, is the first ever attempt to estimate the economic costs of climate change in Brazil, from a broad national economy integrated framework (FAPESP, INCT e Rede Clima).

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