P2.2-2 Towards a Low Carbon Future in Brazil: Voluntary Goals for 2020

Emilio Lebre La Rovere

Federal University of Rio de Janeiro, Brazil

The main objective of the Climate Convention (UNFCC) is stabilising the concentration of GHG in the atmosphere at a safe level which will not compromise food safety and allow for the natural adaptation of ecosystems within a sustainable development path. The extent of the impacts caused by climate change is still uncertain at the regional level, which makes it difficult to define where lies the safe level of concentration. However, most studies (including the IPCC reports and the Stern review) show that the impacts caused by climate change grow faster after a temperature increase of 2ºC to 3ºC compared to the level before the industrial age. Based on these studies, the Copenhagen declaration released at the end of COP15 established that the UNFCCC should aim to limit global temperature increase to at most 2ºC.

Brasil has already been making a lot of efforts to limit its GHG emissions. For the future, the National Climate Change Policy Law approved by the Congress and sanctioned by the President just before COP15 at the end of 2009 included voluntary goals to limit the country's GHG emissions, as summarised in Table 1.

The main contribution to curb the country's GHG emissions comes from the efforts to reduce deforestation in the Amazon, following the successful record of recent years. The goal set for the agriculture sector is very ambitious, considering the recent growth of the country's grains and meat exports. However, economically feasible mitigation alternatives already exist and have a great potential: recovery of degraded pasture land, agroforestry schemes, more intensive cattle raising activities (given the current low average ratio of 0.5 heads per hectare), biologic nitrogen fixation and low tillage techniques, which covers more than 20 million hectares in the country and is rapidly spreading.

Table 1. Brazil's GHG emissions and mitigation actions in 2020

Emissions / Mitigation actions ($MMt\ CO_2eq$ / year)	2005 Inventory data	2020 BAU scenario	2020 Mitigation scenario	Reduction in 2020 MM t CO_2eq	Reduction / BAU Total in 2020 (%)
Land Use Change	1268	1084	415	669	24.7%
Agriculture / Husbandry	487	627	461 - 494	133 – 166	4.9 – 6.1%
Energy	362	901	694 - 735	166 – 207	6.1 – 7.7%
• Energy efficiency				12 – 15	0.4 – 0.6%
• Biofuels increase				48 – 60	1.8 – 2.2%
• Hydropower increase				79 – 99	2.9 – 3.7%
• Small Hydro, Biomass, Wind				26 – 33	1.0 – 1.2%
Others	86	92	82 - 84	8 – 10	0.3 – 0.4%
TOTAL	2203	2703	1652 - 1728	975 – 1052	36.1 – 38.9%

Note: MMt CO2eq = million tons of CO2eq

Source: La Rovere, Brazilian Ministries of Environment and Science and Technology, 2009

In the case of the emissions of industrial processes and waste disposal, grouped under Other Sectors due to its minor contribution to the total, the business as usual scenario already shows a low growth trend, and the voluntary commitments aim to keep roughly constant GHG emissions in these sectors. Again, there are feasible mitigation options in these sectors, such as the capture, burning and/or energy use of biogas in sanitary landfills that make it possible to achieve this objective.

The case of the energy sector deserves special attention. The emissions due to the use of fossil energy have been increasing significantly in the country in the form of oil products, natural gas and coal. These fuels play a basic role to run the modern part of Brazilian economy, such as industry and transports, as well as agribusiness and the residential, commercial and service sectors. Its share in power generation has also been increasing, starting from a low departure level, to complement the use of the huge Brazilian hydropower potential, which is by far the dominant energy source for generating electricity in the country. Thus, the emission of GHG due to the use of energy, especially CO2 resulting from burning fossil fuels showed a high growth rate in the period between 1990 and 2005, reaching in 2005 a level 68% higher than in 1990. Indeed, economic growth, the rising urbanisation and the dominance of road transportation in the country are the driving forces to increase fossil energy consumption and the associated CO2 emissions.

Thus, unlike in other sectors, the BAU scenario projected by the government shows a significant increase in the emissions due to the consumption of fossil fuels by 2020: a rise of nearly 150% compared to 2005, that is, 2.5 times the level of 2005 emissions in this sector.

As far as mitigation is concerned, the levels of hydroelectric power generation, energy efficiency and alcohol production were those included in the 10-Year Energy Expansion Plan (PDE) for 2020 (EPE, 2009). Other mitigation actions included were the production and use of biodiesel in a 5% blend with diesel oil for 2020 (B5) and the increase in power generation from other renewable sources: small hydropower plants, biomass (especially sugarcane bagasse) and wind energy. Even so, GHG emissions due to the use of fossil fuels in the country will double in the mitigation scenario compared to 2005 emissions. The achievement of the mitigation scenario goals will require the implementation of public policy tools capable of stimulating the substitution of renewable energy sources for the use of fossil fuels. This need will be even more acute in the future to drive Brazilian economy towards a low carbon path, as fossil fuels will become the most important source of GHG emissions as elsewhere in the industrial world.

References

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