

Title: Deforestation simulation and atmospheric Carbon emissions estimate in three future scenarios in the south of the Roraima State presuming BR-319 highway reconstruction and paving, linking Porto Velho-RO to Manaus-AM

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Thema: 1. Forests and biodiversity

Subtheme: 1.2 Deforestation and forest fragmentation

Abstract of the paper: The BR-319 highway, connecting Porto Velho-RO to Manaus-AM, was the main migration link towards Roraima, from 1975 until its closure in 1987. Lula's federal administration has recently included its reconstruction and paving in his Growth Acceleration Program (PAC, according to the Portuguese acronym) concomitantly with the construction of the Santo Antônio and Jirau hydroelectric dams in Rondonia state. This region in the southeastern Brazilian Amazonia belongs to the so called "Amazonia's Deforestation Arch". According to specialists those projects will attract about 100.000 people into the region during the construction period. By the dams conclusion time this may increase even more the demand for arable lands. In the deforestation arch region arable lands become increasingly scarce for colonization and forest exploration, due to the advance of agribusiness and extensive cattle ranching. Therefore we presume that reopening the road will engage a new migrant flux, from those regions into central and northern Brazilian Amazonia. The Roraima state lies in the far north of the Brazilian Amazonia and there are 72.500 km<sup>2</sup> of primary forests in its southern regions. About 40 % of those forests lack any legal conservation status and are accessible from Manaus by the BR-174 highway. This region may attract the great migratory flux expected, in case BR-319 highway paving is confirmed, because its soils are more fertile and productive than those found in central Amazonia. From those premises and using the land use and land cover change simulation and modeling software DINAMICA-EGO, we have built three future scenarios of deforestation and carbon atmospheric emission estimation, from 2007 until 2030. One scenario, baseline, precluding the reconstruction and paving of BR-319 highway, follows the deforestation trend observed between 2004 and 2007. The other two scenarios were built by tanking into account the reconstruction and paving of BR-319 highway. In one of them, called BAU (Business as Usual), occurs a great migratory flux into the south of Roraima with a consequent increase in the unhindered deforestation rate. In the other, a conservationist one, public preservation policies negatively influence the deforestation rate. According to the baseline scenario deforestation reaches about 3,937.5 km<sup>2</sup> in 2030, emitting de 73,22x10<sup>6</sup> tons of carbon. BAU scenario shows a 5,957.4 km<sup>2</sup> deforestation and 100,0 x 10<sup>6</sup> ton of Carbon into the atmosphere. In the conservationist scenario, on the other hand, 3,770 km<sup>2</sup> of deforestation are avoided in relation to the BAU scenario.

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