

**Giampaolo Queiroz Pellegrino**  
**Brazilian Agricultural Research Corporation**  
**Embrapa Agriculture Informatics**  
**giam@cnptia.embrapa.br**

## **GLOBAL WARMING AND THE NEW GEOGRAPHY OF AGRICULTURAL PRODUCTION IN BRAZIL**

### **Vulnerability main results**

The rise in temperature due to global warming could provoke seed crop losses of R\$ 7.4 billion in 2020 – and up to R\$ 14 billion in 2070 – generating drastic changes to the agricultural production map in Brazil. If nothing is done to mitigate the effects of the climate changes and to adapt the crops to the new reality, then we will witness a migration of plants to regions where they are not native in search of better climatic conditions. Areas which are currently the biggest producers of grains may no longer be suitable for plantation well before the end of the century. Cassava may vanish from the semi-arid region, and coffee will have a slim chance of survival in the southeast. On the other hand, the southern region of Brazil, which, due to the high risk of frost, is presently more restrictive in terms of crops suited to the tropical climate, should witness a fall in this extreme event, thus becoming more suitable for planting cassava, coffee and sugarcane, but no longer for soybean, as the region is likely to become more vulnerable to water shortages. Meanwhile, sugarcane could spread throughout the country to the point of doubling its area of occurrence

More information available at: [http://www.cpa.unicamp.br/aquecimento\\_agricola\\_en.html](http://www.cpa.unicamp.br/aquecimento_agricola_en.html)

## **THE ECONOMICS OF CLIMATE CHANGE IN BRAZIL: COSTS AND OPPORTUNITIES**

### **Adaptation main results - Sectoral**

**Agriculture.** Genetic modification would be a highly feasible alternative to minimize the impacts of climate change, requiring R\$ 1 billion a year in research investments. Irrigation was also considered an adaptation alternative, but with lower overall benefit/cost ratios.

**Electric power.** Additional installed capacity would be needed to generate between 162 and 153 TWh (25% and 31% of the 2008 domestic electric power supply) a year, preferably from natural gas, sugarcane bagasse and wind, at a capital cost between US\$ 51 and 48 billion.

**Coastal zone.** The cost of coastal management actions and other public policies (14 actions recommended) would reach R\$ 3.72 billion by 2050, or nearly R\$ 93 million per year.

More information available at:

<http://www.economiadoclima.org.br/files/biblioteca/Executive%20Summary.pdf>