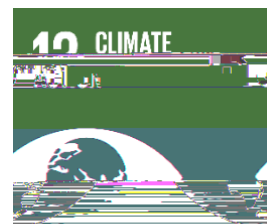


Impacts of Biofuel Production on Water Resources: Case Study of Ethanol Production from Sugarcane in the Paranaíba Hydrographic Basin



Sustainable Development Goals Addressed



Organization, Institution or Company
Energy Planning Program, COPPE (Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering), Federal University of Rio de Janeiro, Brazil and International Atomic Energy Agency (IAEA)
Location of project site, Country
Paranaíba River Basin, Brazil
Brief narrative description of objective/project/activity/initiative

Brazil has long been a leader in biofuel production, which helps to displace fossil fuels and reduce energy import dependence. However, increasing biofuel demands have led to production moving into new areas, raising concerns about the potential for detrimental impacts on food and water security. In addition, changing climate conditions are expected to affect water availability and requirements, creating an additional threat to water security. These factors are playing out in the Paranaíba River Basin in the Central West and Southeast Regions of Brazil, where there have been significant changes in land and water use due to expanding bio-ethanol production.

The IAEA supported national experts in Brazil to develop capacity to integrate linkages between water, agriculture and energy planning using the integrated CLEW (Climate, Land, Energy and Water) framework. Experts analysed the potential impact on water and land resources of alternative future scenarios of sugarcane cultivation (for biofuel production) in the Paranaíba River Basin, accounting for the impact of climate change. Key inputs to this analysis include the water footprint of sugarcane ethanol (i.e. the volume of water used in the agricultural stage of production), including

N.P. Fachinelli and A.O. Pereira Jr, Impacts of Biofuels Production on Water Resources: Case Study of Ethanol Production from Sugarcane in the Paranaíba Hydrographic Basin, Final Report, IAEA