

Land-cover and soil loss multi-temporal study in the Pantanal-Chaco wetlands (Southern Brazil)

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This work describes some of the results of the EU funded project *Geo-environmental dynamics of Pantanal-Chaco: multitemporal study and previsional modelling*. The partners of this project are the University of Siena and ENEA (Italy), EZN (Portugal), the University of Paraná (Brazil) and the University of Asuncion (Paraguay). The study area is the Brazilian side of the Upper Paraguay river basin and the Northern Paraguayan Chaco. It includes the Pantanal wetlands, one of the largest continental alluvial fan of the world. Due to human impact, this region experienced land-cover changes which threatened the ecosystem equilibrium. For this reason, a land-cover multitemporal study was carried out in order to evaluate the changes occurred in the last thirty years. Remote sensing and GIS techniques allowed to build geocoded land-cover data bases for the '60s (from topographic maps) and the years 1985 and 1996 (from Landsat TM images interpretation). Analysis and comparison of such data bases showed that during the last thirty years deforestation dramatically reduced forest and the process is still going on. Mathematical modelling allowed to recognise a strong increase of the soil erosion rate due to the uncontrolled change from forest to pastures and extensive agricultural lands. Such results are in agreement with the accelerated soil erosion and river silting phenomena known in the region. The results of this project suggest that the above described data should represent the basis to plan the environmental preservation of the Pantanal-Chaco ecosystem, and to carry out a previsional modelling for the sustainable development of the area. (European Union Fund).