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ENVIRONMENTAL DIAGNOSIS OF RIO ARAGUAIA BASIN - FROM BARRA DO GARÇAS (MT) TO LUIZ ALVES (GO).

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This study is concerning to the analysis of physical-biotic characteristics and land use in an area of Araguaia River basin, 80 352 Km² , placed between Barra do Garças (MT) and Luís Alves (GO), Center-West Brazilian Region. This research results from a contract involving the companies "Administração das Hidrovias do Tocantins e Araguaia – AHITAR" and "Instituto Brasileiro de Geografia e Estatística – IBGE", through its Geoscience Division at the Center-West Region in order to produce regional environmental information which would allow the development of exploration projects without the destruction of natural resources. This analysis made use of RADAMBRASIL project 1:250 000 thematic maps which were reviewed and updated, 1996 Landsat 5-TM satellite images, on the same scale; field work which took place in 1996 and 1997 and bibliographic research. The diagnosis distinguishes physical-biotic environmental systems (called geosystems), describes the components (rocks, relief, soils, vegetation, climate, rivers), points to the potential of the natural resources, classifies the land vulnerability, defines the human occupation patterns or actual land use. This paper presents an agricultural and ecological zoning and evaluates the environmental quality of the area confronting land support natural capacity to support different human actions and its environmental legislation adjustment. The results of this analysis are shown by thematic maps and integrated maps at 1:1 500 000 scale, tables, photographs and

five maps at 1:500 000 scale: Geoenvironmental Compartment Map, Land Vulnerability Map, Agricultural and Ecological Map, Land Quality Map, and Territorial Rearrangement Map.

The first one shows what the area is like. This map consists of minimum size units (at 1:250 000 scale) in which all the study is based on. It still allows to distinguish, in a glance, the terrain settings and their relief characteristics.

The second one indicates the physical landscape evolution capacity which is mainly caused by erosion due to the superficial water actions, mostly analysing the pluvial erosion. It divides the environment into 3 dynamic categories: stable, transition and unstable which include vulnerability classes that go from very weak to very strong. The legend of the map describes the environmental characteristics to each class, their erosive processes and their effects. This allows, for example, to select the land occupation in order to prevent damages caused by erosion.

The Agricultural and Ecological Map presents the land agriculture potential to different kinds of uses faced support capacity of the physical area, its natural agricultural potential and environmental preservation needs. This study has an ecological and economical character that points to the landscape units which are apt to be used by short cycle cultures, long cycle cultures, grew pasture, natural pasture, vegetation sustainable management, vegetation extraction and areas which should not have agricultural use, and those of environmental fragility. This map separates 89 units and for them it points to the agricultural potential at A, B and C management levels and main limitations of the soil, fertility of the soil, superficial erosion, mechanization potential and the sorts of relief and many other relevant aspects. About 50% of the lands are indicated to grow (short and long cycles cultures) and 15% are unable to agricultural use.

The Environmental Quality map shows the man and the environment relationship based on the identification and analysis of different ways of land use and also indicates the several degradation degrees of the

physical-biotic landscape related to existent or potential impacts caused by several human interferences. This map has areas that are on dynamic balance: preserved areas (with more than 80% of natural vegetation covering), and derived areas (where the deforesting is between 20% and 80% and land use is correct); alert situation; critical situation; and environmental fragility areas. Almost 9% of the project area are composed by preserved continuous areas and the rest – occupied mainly by agricultural and cattle-raising – has only fragments of natural vegetation covering. About 62% of the land used by agricultural and cattle-raising are in alert situation establishing five categories. The critical areas present punctual character and their impacts are caused by mining activities, engineering and/or wrong use of the soil with agriculture and/or with urban-industrial actions; they were assigned in the map by symbols.

The Territorial Rearrangement Map, which contemplates all the other analysis, reveals areas that need corrective and/or preservative actions, according to the identified environmental impacts, and the areas that do not need to be rearranged up to now. Its legend suggests actions to a correct use of the natural resources, which could fix the degradation and guide the government intervention looking forward to developing a better live quality for all.

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