

## ENVIRONMENTAL DIAGNOSIS - IDENTIFYING THE FRAGILITY OF THE RELIEF PATO BRANCO RIVER'S BASIN - PARANÁ - BRAZIL

Maximiano, G.A.; Jacobs, G.A. & Mendonça, W.  
Secretaria de Estado do Meio Ambiente  
Rua Desembargador Motta, 3384  
80.430-200 - Curitiba - Parana - Brazil  
Fax (005541)222:2850

### Abstract

This study treats of the environmental diagnostic of the Pato Branco River Basin, placed in Southwest of Parana State. That diagnostic was made by crossing physical variables as declivity, hydrography, soils class and also antropic action, through a Geographic Information System - GIS. As result, we obtained diferent rates of fragility of the relief, as well as a better understanding of the dinamic of the landscape.

### 1 Introduction

To the environmental analysis, is really important to know physical aspects which gave origin to the great landscapes.

Also is important to develop integrated studies to direct geographical space organization, in such way that natural resources can be used correctly.

This concept has been considered for technicians and researchers who have been working to avoid or minimize negative impacts increased for the growing of the societies in all the world.

In this paper we have sought to identify the physical characteristics of an environment in a specific region. Then, through a Geographic Information System - GIS, the variables have been crossed to identify the rate of fragility of the relief.

### 2 Purpose

The object of this study is Pato Branco River Basin, whose coordinates are: 25°10'S - 26°25'S, a 52°30'W - 52°42'W. This area in the Southwest of Parana State, South of Brazil.

The physical landscape features of the area were analyzed through digitalized maps of soils, declivity and hypsometry besides geological information.

By using Ross methodology [1], map of declivity was crossed with the soils map, in order to get the rate of the fragility of the relief.

The lowest numbers of this matrix represent minor grade of fragility of the relief. Intermediate values represent middle grades, and highest numbers denote of course, the highest grades of fragility of the relief.

For that, we made a matrix:

SUBJECT	SOILS		
	Class of soil 1 TRa1 and TRa2	Class of soil 2 TRd2	Class of soil 3 Re1 and TR8
Class (1) 0-6 %	11	12	13
Class (2) 6-12%	21	22	23
Class (3) 12-20%	31	32	33
Class (4) 20-30%	41	42	43
Class (5) > 30%	51	52	53

Table 1: Class of fragility of the relief.

Also, land use was interpreted through satellite images. Besides the classification of agricultural areas, type of vegetation were also classified.

The overlap of those information with the map of fragility made possible to define risk areas. Also, it was possible to confront how such areas have been used, and what kind of problems have been created by these uses in each class of matrix.

### 3 Conclusion

The use of this methodology showed a good performance to remote sensing technics and digital cartography. It makes easy a spatial view of the focused area, its potentialities and fragilities. For that, can help to direct decisions in the geographic space occupation, considering developing and environmental conservation.

### 4 References

- [1] Ross, J.L.S., 1994. Análise empírica da fragilidade dos ambientes naturais e antropizados. In: Revista do Departamento de Geografia. Faculdade de Filosofia, Letras e Ciências Humanas, USP, Num. 8, pp. 63-74, São Paulo.