

## **The use of landscape units in the Integrated Environmental Management Program of Amazon , Brazil**

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The ecological-economic zoning ongoing in some Amazonas State priority areas of Integrated Environmental Management Project (Federal Ministry of the Environment) takes the landscape units as a starting point for the physic-biotic part of its diagnostics.

Landscape units are delineated recognizing areas of homogeneous tone and texture as perceived by the human eye on false color composite of Landsat TM bands 5, 4, 3 as red, green, and blue. Landscape units are elementary cells used to integrate and analyse various thematic environmental information (geology, landforms, soils and vegetation) used in the ecological-economic zoning of a region. The landscape unit maps represent the first step to elaborate the maps of natural vulnerability to erosion. They are a fundamental tool to estimate the fragility of the ecosystems.

The zoning in Amazonas State is ongoing in the Humaitá-Apuí region. In this area, the satellite and radar imagery interpretation and field checks allowed the delineation of 21 landscape units, which can be assembled into 6 strikingly different groups, geographically related to regional morphosculture units.

The origin of landscape units is related firstly to geologic processes started up at Paleoproterozoic times. From the late Cretaceous (Sul-Atlantiano Event) to the recent, the geomorphic processes are continuously modifying the landforms through denudation/accumulation and laterisation/soil formation. Strong climate changes, alternating dry and wet cycles, with consequent changes in hydrologic dynamics are invoked as the main genetic process of the present landscape units. The Amazonian rainforest and the savanna formations are also related to these processes.