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"Filling gaps and removing traps
for sustainable resource management"

Applying the MESMIS Methodology to the Nexus Approach: The Nexus Pampa Project

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Abstract

The Brazilian Pampa is an old group of ecosystems that has its own flora and fauna, and is home to sizable biodiversity. It is a natural, genetic and cultural heritage of great national and global importance. Continuous introduction and expansion of monoculture, especially soybean, and of pastures with exotic species has led to rapid degradation and to the loss of distinctive characteristics of the Pampa. This issue has prompted the creation of the Nexus Pampa Project (Projeto Nexus Pampa), financed by the Brazilian Ministry of Science and Technology, with the goal of verifying and creating scenarios that are subsequent to the farming production systems used in the Ibirapuitã river basin, in the Brazilian Pampa biome. Accordingly, this paper describes the way in which the MESMIS methodology was applied to the Water-Energy-Food nexus in the Nexus Pampa Project. The research method used is the MESMIS (Framework for Assessing the Sustainability of Natural Resource Management Systems). The MESMIS operational structure used consisted of six stages developed through collaborative methods: i) definition and description of the systems that would be evaluated; ii) identification of the critical points of the systems; iii) selection of diagnostic criteria and indicators; iv) measurement and monitoring of the indicators; vi) conclusions and recommendations regarding the systems. The first three stages of the MESMIS method took place in group meetings between researchers and other project participants. Agricultural and livestock farming systems from the Ibirapuitã river basin in the Brazilian Pampa biome were evaluated. The identification of weaknesses and strengths of the production systems studied were evaluated, as well as their opportunities and threats, through a SWOT analysis. Subsequently, indicators were formulated in light of the Nexus approach, inside the water, energy and food axis, in an interdisciplinary approach. Presently, indicators in four systems have been assessed, validating the methodological construction of the Nexus Pampa Project. Initial results indicate a positive capacity of the methodology used in this project for assessing the sustainability of production systems, contributing to human development and to reaching the objectives of sustainable development projected by the UN.

Keywords: Animal production, Ibirapuitã river basin, MESMIS, nexus, Pampa Biome

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