

Capacity building for Landscape Ecological research at the State University of Mato Grosso UNEMAT, Brazil.

Executive summary

Introduction

On 15 October 2007 the governor of Mato Grosso (Blairo Borges Maggi) and the Chairman of the executive board of Wageningen UR (Aalt Dijkhuizen) signed a letter of intend to cooperate. In this letter they express their wish to establish scientific cooperation between the State University of Mato Grosso (UNEMAT) and Wageningen University in the plant, forestry, animal and environmental sciences. The letter of intend to be elaborated. For Biodiversity and ecology the letter of intend has been elaborated though a collaboration project between UNEMAT and the Environmental Sciences Group of Wageningen UR. The Ministry of ANF of the Netherlands considered this cooperation important and financed the development of this cooperation through its policy supporting research programme (BO).

In its mission statement UNEMAT declares to intend to contribute to the knowledge needed for the sustainable development of the Mato Grosso state maintaining the integrity of the biomes and its biodiversity.

However, the present knowledge base of UNEMAT for achieving these objectives is limited. To improve its quality in education and science the university focuses on capacity building to carry out the required research. The knowledge at Wageningen UR in landscape ecological research, especially ecological monitoring, land use change analysis and environmental planning will be used to contribute to this capacity building.

Mato Grosso

Mato Grosso is the third largest state of Brazil, and covers the three major biomes Cerrado (41%), Amazon forest (52%) and Pantanal (7%). In Mato Grosso agricultural development, mainly soy and animal husbandry, threatens biodiversity and other environmental values. The challenge is to minimize the negative externalities of agricultural production, to recuperate nature and landscape diversity and conserve soil, water and biodiversity.

Policy background & research programmes

The policy programme of Mato Grosso MT +20 has been set up as a future strategy for the development of the state. The programme includes several objectives, among others (in italic are the objectives on which the cooperation between both universities should focus):

1. *Capacity building UNEMAT (quantity and quality)*
2. Poverty alleviation
3. *Conservation of the environment and biodiversity*
4. Reduction of deforestation
5. Diversification of productivity

The same objectives can be found in the federal research programmes Bionorte and Centroeste. In Bionorte the objective is to develop the research on the amazon forest and its biodiversity with two research lines: 1) Biodiversity in the Amazon; 2) application of biotechnology (on forest products). In Centroeste the objective is to

develop environmental research in the Pantanal and Cerrado through two research lines: 1) Biodiversity and 2) Geodiversity in Cerrado and Pantanal.

Opportunities for cooperation

As internationally leading university and research centre, the mission of Wageningen UR is “to contribute to improving the Quality of Life through cutting edge scientific research and innovative education in the domains of healthy food, sustainable food production, a viable green space and social transition processes.” Wageningen UR works at national, European and global level and strives for sustainable use of land and environment. Therefore cooperation with UNEMAT in these fields is logical, as both have common interests and responsibilities (sustainable agriculture, climate change; biodiversity) and because Europe and the Netherlands have a large ecological footprint in this part of the world. Moreover concepts and methodologies developed in Wageningen could be very in the context of Mato Grosso. The alleviation of major environmental and biodiversity problems can be part of this by means of research on how to maintain biodiversity and provide good living conditions for people involved.

From mission to actions.

As a first step towards a further cooperation between both universities, a workshop was organized in December 2009 in Cuiabá, with researchers of UNEMAT and Wageningen UR. A three day program was organised in December 2009 focusing on the identification of most important elements for cooperation between UNEMAT and Wageningen UR. During the workshop exchange of knowledge concerning land use change analysis, landscape ecology, and sustainability impact assessment took place. Consensus has been reached concerning the major objects of research:

1. The landscape ecological patterns and processes in Mato Grosso.
2. The impact of land use (including water systems) and climate change on biodiversity and sustainable development..

Concerning the more specific content of the research, five lines of research were identified, that preferably should be carried out in the three biomes (Amazonia, Cerrado, Pantanal):

- Landscape typology and ecological zonation;
- Monitoring and assessing land use change analysis (past/present);
- Identification and monitoring of 3P indicators;
- Modelling and scenario development (normative);
- Impact assessment of land use through long term research.

The last day of the workshop was dedicated to define an action list for the further cooperation between both universities. These actions concern (1) capacity building (courses in landscape ecology, GIS, land use change modelling), (2) research cooperation (carrying out projects, publishing papers) and (3) assisting in setting up a PhD school, including PhD courses.

This means that UNEMAT has to invest in internal digital communication structures, language courses and possibilities for exchange of academics with Wageningen UR. Wageningen UR explores the possibilities to: assist in organizing the set up a PhD school, organize courses on landscape ecology, GIS and land use change and contribute to joint scientific publications.