

Dossier: The Management of Waters and Protected Territories

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This Dossier is part of the project, “New Frontiers in the West: The relationship between society and nature in the Ceres microregion of Goiás (1940-2013)”. It involves the partnership and interinstitutional cooperation of professors of the Graduate Programs in Geography, at the São Paulo State University of “Júlio Mesquita Filho” - Presidente Prudente Campus (PPGG / UNESP); the Graduate Program in Society, Technology and Environment at the University Center of Anápolis (PPSTMA / UniEVANGÉLICA); and in Sustainable Development, at the Center for Sustainable Development, University of Brasilia (CDS / UnB).¹

In the present summary, we discuss issues related to water resource management and protected areas, encompassing public policy issues, impacts on local populations and traditional communities, land and soil use assessments, and anthropogenic impacts of activities such as agriculture, sugarcane agribusiness and agro silvopastoril. The research presented by the articles selected for this Dossier was carried out in the northern, northeastern, southeastern states located in the midwest of Brazil, as well as in municipalities of the Ceres Microregion, located in the center of the state of Goiás.

One of the issues that has led to the preparation of this Dossier is the world’s water crisis, which among many causes, includes the increase in the world’s population and thus the increased demand for resource use, pollution of water sources that affect water quality, and the impacts caused by dam construction, destruction of catchment areas and climate change (MARENGO, 2008; ROJAS and IZA, 2009).

¹ The academic cooperations of this Project is in accordance with the objectives of the National Program for Academics Cooperation (PRO-CAD), Public Notice Capes N. 71/2013.

Managing water resources requires both awareness and access to information, as well as the protection of areas around water sources, which surpass administrative boundaries, and require dialogue and multilateral action by local governments, organizations and other institutions involved with the resource (BURSZTYN and BURSZTYN, 2012).

In an attempt to embrace different perspectives of environmental management, the different institutions and organizations involved in water management and protected areas can operate at different levels, including those of municipality, intercity, state and nation. The levels of action of institutions, as well as the articulation between them and society, should be considered when broadly addressing the socio-environmental issues considered in the interrelationship between water resources and protected areas (VIEIRA et al., 2005).

Thus, we consider that water management encompasses a multitude of social actors and environmental factors, especially linked to territories protected by Conservation Units, indigenous lands and quilombola territories, among others. To ensure the maintenance of water systems, protection of forests and biodiversity need to be considered and supported by legislation. In order to find solutions that seek to meet the multiple demands that involve biodiversity protection and water management, in turn, both require the dialogue and participation of different instances of civil, public and private society.

Therefore, the present Dossier proposed in Volume 10, Number 3 (Dec./2019) of the magazine Sustainability in Debate (SeD), gathers eleven articles evaluated by the blind peer review system. Among the articles selected, six of them present and discuss socio-environmental issues related to the Ceres Microregion in Goiás State (GO), providing data and reflections on the impacts of anthropogenic activities on the region's watersheds, soil and local communities. Four articles present research that discusses the management of water resources and environmental impacts in different regions of the Midwest including, Brumadinho (MG), a municipality of the state of Amazonas in the Eastern Amazon, and Rio Grande do Norte. Lastly, this Dossier examines an article that discusses issues of biogeography related to the legal limits for the conservation of the Atlantic Forest Biome.

In the article "Geospatial analysis of water uses and potential conflicts in the microregion of Ceres (Goiás)", authors Cristiane Gomes Barreto, Renato Arthur Franco Rodrigues and José Augusto Leitão Drummond analyze geostatistical data regarding the impacts of sugarcane agro-industrialization on water resources in the microregion, discussing the possible socio-environmental conflicts that such impacts may bring to the region.

From the perspective of the development of local communities and their relationship with environmental preservation areas, the authors Joana D'Arc Bardella Castro, Talita Freitas Souza Barros, Murilo Rodrigues da Silva and Maurício Gabriel Santos analyze the Environmental Protection Area (EPA) and Pirineus State Park (GO) and their influence on the surrounding municipalities and districts. In their article "Conservation units, ecological attributes and their implications: The case of the Park and EPA of the Pirineus - GO", the authors evaluate the benefits that residents of municipalities bordering the PAs obtain, in terms of local development, social growth and per capita income, due to tourism and visitation provided by the protected areas.

Regarding the water resources of the Ceres Microregion, the degradation of Rio Vermelho, located in the city of Crixás (GO), were studied by France de Aquino Ribeiro, Giovana Galvão Tavares and Vivian da Silva Braz, in the article "The environmental degradation process of the Vermelho River through the perception of Crixás's residents". Through a bibliographic, documentary survey and the construction of mental maps, the authors investigate the perception of local residents about the changes that Rio Vermelho is undergoing in the face of anthropic actions, especially the impacts of mining.

In the article "Preservation areas x environmental legislation in the Rio das Almas hydrographic basin, Ceres microregion (GO) between 2008/2016", Karhene Garcia Rodrigues de Sousa, Maria Gonçalves

da Silva Barbalho, Adriana Aparecida Silva, Cristiane Gonçalves Moraes and Josana de Castro Peixoto analyze, through cartography, the remaining areas of vegetation coverage in the Rio das Almas hydrographic region. They especially focus on the Permanent Preservation Areas (PPA) and Legal Reserve areas (RLs) in two periods established by the Forest Code of 2012, discussing the amnesty provided by Law 12.651 / 2012 and its environmental impacts for the region.

The evaluation of the destination of inorganic solid waste, resulting from activities of the agrosilvopastoral sector in Ceres (GO), was discussed in the article “Inorganic solid wastes from agrosilvopastoral sector in Ceres, Goiás, Brazil”, by authors Ana Paula Veloso de Assis Sousa, Renato Rosseto, Izabel Cristina Bruno Bacellar Zaneti, Josana de Castro Peixoto e Lucimar Pinheiro Rosseto. In this article, we analyzed the application of legislation regarding the appropriate disposal of waste generated by agrosilvopastoral activities, and the methods used by municipal managers to dispose of waste, broadening the discussion of solid waste to other cases in Brazil.

The article “Permanent preservation, coverage area and use of the land in the hydrographic basin of the Almas River, microregion de Ceres, Goiás, Brazil”, by the authors Maria Gonçalves da Silva Barbalho, José Luiz de Andrade Franco, Antonio Cezar Leal and Josana de Castro Peixoto, map data for PPAs for an important watershed of Goiás. Through geoprocessing, the authors discuss the percentage of remaining areas of the original vegetation, as well as land uses, along with what the implications of the observed results may bring to the hydrographic management of the studied region.

Among the articles that analyze environmental impacts in other regions of the country, and their interference with local populations, the article “The impact of the Brumadinho dam rupture in Naô Xohã village”, analyzes how the environmental disaster in question was perceived by members of the NaôXohã ethnic group, who live on the banks of the Paraopeba River (MG). Authors Adriana Aparecida Silva, Divina Aparecida Leonel Lunas, Poliene Soares dos Santos Bicalho and Roseli Martins Tristan Maciel, based their analysis on press publications and bibliographic reviews, and bring to discussion interdisciplinary issues involving the breach of the dam and its consequences for the traditional community hit by the waste.

Spatial modifications caused by anthropogenic activities in the northern region of Brazil were analyzed by Fabiana da Silva Pereira and Ima Célia Guimarães Vieira, in the article “Anthropic transformation of Gurupi river basin, eastern Amazon”. For this analysis, the authors used data from the TerraClass project, from 2004 to 2014, and evaluated the impacts of the expansion of agricultural activities into forested areas in the Gurupi River basin.

The perceptions of riverine populations on the risks of river disaster and the effectiveness of the public authorities in responding to such disasters are addressed in the article “Fluvial environmental disasters: risk perception and evaluation of government responses by riverine populations in Cacau Pirêra, Iranduba-AM”. Authors David Franklin da Silva Guimarães, Camila Santos Belmiro and Monica Alves recorded and analyzed the perceptions of residents of the district of Cacau Pirêra (AM) through interviews with focus groups, and discuss their results together using fluviometric and altimetric data, which characterizing environmental vulnerabilities.

The assessment of infrastructure and water supply in rural communities, as well as the environmental perception of these residents about the quality of water consumed are presented in the article “Management of water resources in semi-arid: assessment of the drinking water supply in rural communities of Chapada do Apodi-RN”, by Jorge Luís de Oliveira Pinto Filho, Alana Ticiane Alves do Rêgo and Anderson Rodrigues da Silva Lunes. The authors address physicochemical and biological analyses of the water consumed in this region. They discuss its physicochemical quality and compare it with the parameters present in legislation for freshwater bodies intended for human consumption.

Finally, the conservation of the Atlantic Forest Biome is treated from the perspective of biogeography, by

authors André de Almeida Cunha, Carla Bernadete Madureira Cruz and Gustavo Alberto Bouchardet da Fonseca, in the article “Legal Atlantic Forest (Mata Atlântica Legal): integrating biogeography to public policies towards the conservation of the biodiversity hotspot”. The authors discuss the definition used by legislation for the protection of the Atlantic Forest, and through using field data and bibliographic surveying, they suggest a new definition for emplacing conservational limits for this Biome.

With the articles presented, this Dossier “The Management of Waters and Protected Territories” aims to add insightful information to the interdisciplinary debate on environmental management, thus contributing to impact assessments and public policy development and management actions for conservation and sustainability of environmental resources.

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