

## INTEGRATED MANAGEMENT OF WATER RESOURCES AND OVERCOMING INSECURITY IN THE COUNTRYSIDE AND THE CITY

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### ABSTRACT

Population growth, followed by increased agricultural, industrial, and urban water consumption pressured by climate change, has caused irreparable damage to water resources. The present research aims to evaluate the integrated management of water resources strategies and overcoming insecurity in the countryside and the city in the Upper Bauru and Batalha watershed in the municipality of Bauru (SP). The strategy to achieve this objective is based on (i) establishing a new approach to territorial and water management arrangement with field experiments and numerical simulations based on the conjunctive surface and groundwater use, designing water allocation strategies, and promoting adequate mechanisms for land management and financial compensation; (ii) understanding and quantifying water availability and the role of aquifer storage in regulating surface river flows and groundwater availability, specifically during periods of drought, through transient models, incorporating problems associated with global climate change; and (iii) searching for a new institutional and social arrangement that involves "private water producers" as part of the public supply solution in a low investment context, with a specific focus on the financial health and sustainability of the public water utility considering the presence of extensive private well owners. This research is part of the SACRE Thematic Fapesp (Proc. 2020/15434-0) that started in 2022, with a 5-year duration.

**Keyword:** Integrated water resource management; climate change; water allocation; private water producer.