

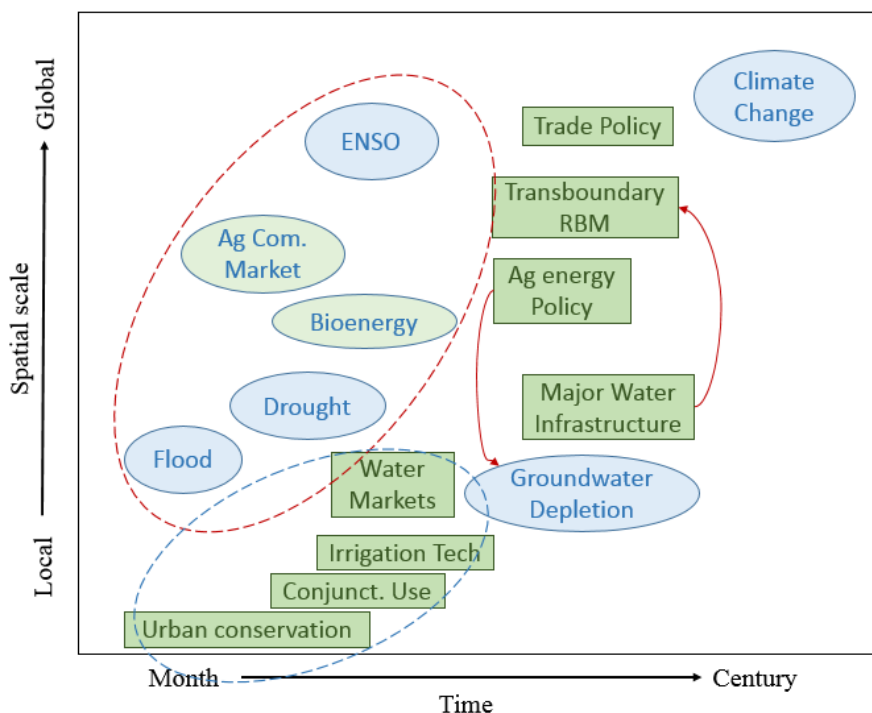
Policy modeling for sustainable water management in agriculture

Challenges of spatial scales

Tingju Zhu, Ph.D.

International Food Policy Research Institute, Washington, DC

Politecnico di Milano, June 8, 11:00, conference room DEIB (ed. 20)



Abstract

Commonly perceived as 'the cause' of water scarcity, agriculture is by far the largest water user globally. Modeling of policies and investments, which aim at improving productivity and efficiency in the agricultural water sector, involve complex tradeoffs where spatial modeling scale usually plays an important role. In contrast to local scale modeling for which data is available and the physical processes and institutional arrangement are generally well understood, macro-scale water management

modeling faces the challenges of inadequate information and aggregation bias. The fundamental cause of aggregation bias lies in the heterogeneity of water resource and agricultural systems and the nonlinearities in relationships within and across system components. Using three hydro-economic modeling studies geographically ranging from local scale to global scale, we explore the challenges of spatial scales in policy modeling for agricultural water management and discuss potential solutions.

Tingju Zhu is a senior researcher in the International Food Policy Research Institute (IFPRI) based in its headquarters in Washington, DC. He conducts interdisciplinary research at the interface of water resource management, food security and resource economics, focusing on issues in developing countries, and leads water resource modeling in IFPRI's global water and food projections model, IMPACT. He earned his PhD in water resources systems engineering, with a minor in agricultural and resource economics, from the University of California, Davis. Prior to that, he studied hydrology and water resources at Tsinghua University and Wuhan University in China. A co-winner of the 2010 Editor's Choice Award of Water Resources Research, he currently serves as an associate editor of the Journal of Water Resources Planning and Management.



**POLITECNICO
MILANO 1863**