

## **Adaptation of irrigated agricultural systems to climate change: How can water pricing help?**

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### **Abstract**

We analyse the role of pricing systems in the adaptation to climate change. A stochastic agro-economic model is developed to reflect farmers' land allocation, water reservation and irrigation intensity decisions for different crops. The model is then used to assess how the representative farmer in south western France would adapt to given climate change scenarios. We show that a change in average rainfall or in rainfall variability would lead to different types of consequences and managerial implications. If average rainfall is the most affected variable, then the farmers will change their allocation of land to different crops and the manager's revenue will be reduced. But if rainfall variability is mostly affected, the farmer will only change the allocation of water between crops once the climatic event has been observed and the manager's revenue will be increased. Furthermore, with the different adaptation mechanisms and specific pricing systems, the impact of climate change on the farmers' profit would be significantly reduced. Finally, we formulate policy recommendations to facilitate adaptation to climate change and to reach water management objectives. The model developed is suited for several agricultural environments.

### **Biography**

Yoro Sidibé is a specialist in water engineering and water economics. His research focuses on agricultural productivity and investment, adaptation to climate change and the variability of water resources. He has experience with several economic methods including econometrics, mathematical programming and simulation. One of his present research interests is to model the links between adaptation to climate change, soil biodiversity conservation issues. He is involved in several projects with the International Water Management Institute (IWMI).