

PROPOSAL: "LOCAL WATER MARKETS IN TAMIL NADU, INDIA."

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Global warming and industrialization are straining water supplies around the world. The problem is especially important in developing countries, which may lack the social institutions and physical infrastructure to deal with prolonged droughts. In fact, the structure of local water markets can *worsen* water stress for some farmers.

Indian water markets are an example of this phenomenon. Many farmers in India pump water out of the ground using electric pumps. As the groundwater table declines, fewer farmers can afford the larger pumps needed to pump water up, and the remaining water sellers therefore obtain local monopolies. This raises the price of water and lowers agricultural yields for farmers without access to a pump themselves.

The goal of the project is to understand this interaction of water and electricity markets in the Indian state of Tamil Nadu, which has seen massive increases in pump use and declining groundwater tables. We will use survey data collected by the Yale EGC-CMF Tamil Nadu Panel Survey and other auxiliary data on electricity supply. We want to understand the degree of water market integration across space and the relation of water market structure to electricity supply and changes in groundwater depth. Our analysis will quantify the losses from having competitive extraction of a shared groundwater resource, and propose alternative institutions for managing water that might make all farmers better off.

The RA(s) will help analyze the panel data base and complement it with auxiliary data. The RA(s) will also help preparing an extensive literature review of groundwater use and electricity allocation in Tamil Nadu (India). Knowledge of econometric software such as STATA or R is required.