

## Providing irrigation access to farmers in West Bengal

Dr. Aditi Mukherji,

Senior Researcher,  
International Water Management Institute (IWMI),  
New Delhi Office

Aditi Mukherji is the first ever winner of Norman Borlaug Award for Field Research and Application given by the World Food Prize. In this article, she tells us about her work which won her this award.

I started working on groundwater and irrigation issues in 2001 when I joined the IWMI-Tata Program in Anand, Gujarat in 2001. As a part of that work, Dr. Tushaar Shah of International Water Management Institute and I designed a survey of groundwater users in South Asia and the survey results surprised me. I realized that groundwater economies in eastern India were very different from the dominant discourse of scarcity and over-exploitation that we generally hear about from rest of India.

This made me curious and I wanted to understand the role of groundwater in agrarian economies of eastern India better. Therefore when I got the Gates Cambridge Scholarship to study at Cambridge in 2003, I decided to work on socio-economic and policy, institutional issues in access to groundwater in West Bengal. I have been working on agriculture and groundwater issues in West Bengal since 2003 and the award is in recognition of my several years of work in the state.

Based on my research, I found that after showing high growth in mid 1980s and early 1990s, West Bengal's agricultural economy slowed down. In recent years, it barely registered 1% annual growth. Groundwater economy contracted too. For example, as per the Minor Irrigation Census, number of groundwater wells declined from by over 1 lakh from 2001 to 2007 – entirely unprecedented in India. This is a paradox given that the same minor irrigation census shows that in 80% of the villages, groundwater is available within less than 10 m and that groundwater levels recover sufficiently after the monsoon season due to high rainfall and alluvial nature of the aquifer. Yet, farmers found it difficult to pump water from aquifers for their crops. Why was this so?

I found that most important problem that farmers were facing in West Bengal was high energy costs for pumping groundwater. This was because of their dependence on diesel pumps and that fact that diesel prices have been increasing quite rapidly since early 2000s. In West Bengal, only 17% of all pumps are electrified, against a national average of over 60%. In states like Punjab, Haryana, Karnataka, Andhra Pradesh etc., over 70-90% pumps are electrified. Electrification of pumps would have been an easy solution, especially since West Bengal has been an electricity

surplus state for a long time now. However, I found that farmers faced two main difficulties in getting an electricity connection. First was the Groundwater Act of 2005 which required all farmers to get a permit from the groundwater authority before they could apply for an electric connection. This process of getting a permit was fraught with red tape and corruption. And then, even if a farmer managed to get a permit from the groundwater authorities he would then have to pay the full capital cost of electrification of tubewell. This included cost of wires, poles and transformers and often would come to Rs. 1.5 lakhs and more – much beyond the capacity of most small and marginal farmers owning less than half a hectare of land. So, to sum up, high diesel prices and lack of electrification was the twin problem facing farmers in Bengal.

Basically, the real constrain was getting electricity connection. So, we suggested removal of permits system in all blocks where groundwater situation is safe. We also suggested rationalization of capital costs of initial electrification, but at the same time recommended that metered tariffs for use of electricity must continue. We also suggested that MGNREGA funds should be used in a targeted manner for excavation of ponds in districts with alluvial aquifers for better groundwater recharge. The government has accepted most of these suggestion. On 9<sup>th</sup> November, 2011, vide an administrative order, the Secretary Water Resources changed the law whereby farmers residing in safe blocks and wanting to install pumps with less than 5 HP would no longer require a permit from groundwater department. Similarly, the electricity utility (WBSEDCL) has also come out with a circular saying that farmers would have to pay a one-time fixed cost for electrification and this cost will be around Rs. 10,000 or so. They will of course then continue to pay metered tariff. Here, let me emphasize, that West Bengal has one of the best agricultural electricity governance regimes in India. Here, majority of electricity pumps are metered and farmers pay high electricity bill for pumping groundwater, which in my opinion is a good thing. It sends the right price signal.

With both these policy changes in place, it is expected that farmers will have easier access to groundwater, will be able to intensify their cropping systems, earn better livelihoods and emerge out of poverty. Together these have the potential to drastically change the nature of agriculture in West Bengal and usher in a second Green Revolution. The state has 7 million land holdings, of which 5.6 million are less than 1 ha size and therefore belong to small and marginal farmers. Thus the possible implications for agricultural output and poverty reduction of these two policy changes are tremendous. These policies are also replicable in much of eastern Indian states of Bihar and Assam with similar hydro-geological conditions. By providing timely, adequate and reliable irrigation, groundwater helps in reducing poverty.

## Profile of Aditi Mukherji:



Aditi Mukherji is a senior researcher at the International Water Management Institute (IWMI) and is based at IWMI, New Delhi office. She has a PhD in Human Geography from the University of Cambridge. She specializes in institutions and policies of water resources management and works on groundwater management, energy-irrigation nexus and management of public irrigation systems in South and Central Asia and in the Nile Basin. She has edited two books and has published over 40 research papers in journals and edited books. She was the Associate editor of Hydrogeology Journal from 2005 till 2010 and regularly peer reviews articles for a number of other journals including World Development, Economic and Political Weekly, Agricultural Water Management, Irrigation Science, Journal of Environmental Management, American Journal of Water Resources, Energy Policy, Transactions of the Institute of British Geographers, Ecological Economics etc. She is currently an executive committee member of the Permanent Consultative Committee on Groundwater set up by the GEF and FAO. In 2012, she received the inaugural Norman Borlaug award for Field Research and Application given by the World Food Prize Foundation. Her work has been widely covered by the media and she has been interviewed by all leading newspapers in India as well as by the BBC, Le Monde and National Geographic on issues related to irrigation and water resources management.