

Managing water-energy-food nexus in India: Insights from three Indian states

India is the world's largest groundwater user and current regime of power subsidy has much to do with it. Agriculture, groundwater and electricity sectors in much of India are now bound in an invidious nexus of mutual dependence where the growth of one sector (agriculture) is being supported by unsustainable trends in the other two sectors (groundwater and electricity). All three components of the nexus – groundwater, electricity and agriculture are state subjects. Different states in India have adopted different ways of managing this nexus.

In West Bengal, till 2007, farmers had to pay an unmetered flat rate for electricity consumption – a rate, which was non-trivial and quite high when compared to other states where farmers get electricity subsidy. Subsequently the political establishment in the state government enforced metering of all electric tube wells and switched to charging based on actual electricity consumption. . Thus, a strong political decision sent price signals to the farmers to make efficient use of electricity and groundwater and break the invidious nexus.

Punjab, the heart of Indian Green Revolution, located in the north-western part of the country, is a semi-arid state, endowed with alluvial aquifer that has been much over-exploited. The government gives unmetered free electricity to farmers for pumping, but the amount of electricity is strictly rationed through separation of supply feeders into agricultural and non-agricultural feeders. There is a strong political resistance to metering and charging and hence rationing came up as the second best option. This has forced farmers to invest in efficiency enhancing measures such as use of energy efficient pumps and laser levelers and thereby in partially addressing the nexus issue.

Karnataka, a drought prone state South provides yet another contrasting situation. Agriculture here is precariously dependent on groundwater and aquifers with limited storage capacity have been depleted. Here the government has undertaken a scheme for feeder segregation and ration electricity to agriculture, but the design of the scheme has defeated the very purpose of rationing. In segregated agricultural feeders, three-phase electricity is provided for 6 hours, but single phase electricity is provided for another 10-12 hours. This enables farmers to withdraw groundwater using a single phase electric pump. Thus in spite of its good intentions, purportedly due to strong farmers lobby the political establishment in the state government has not been able to to take strong intended measures to break the invidious nexus. To sum up, we present examples from three states in India—states which have used very different approaches for managing this nexus—ranging from economics text book solution in West Bengal, to second best solution in Punjab, to utter anarchy in Karnataka. This underlines the importance of politics and governance in managing water-food –energy nexus in India.