

## **Agriculture distress - Re-examining the electricity, water, agriculture linkages**

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Agitations and loan waivers have brought the economics of agriculture in focus. Much of the discussion is about minimum support price, farmers' net incomes and debt repayment capacities. The inputs side of the issue, especially the role and sustainability of subsidised inputs, also need equal attention if agriculture distress is to be comprehensively addressed. Once such input is electricity supply.

There has been a sharp growth in the electricity use in the agriculture sector, especially since the 1980s with consumption rising from 3,465 Million Units (MU) in 1969 (8% of total consumption) to 173,185 MU in 2016 (17% of total). This is supplied either free or at subsidised rates, and large part of it is not metered.

Ironically, most of the discussion on subsidised electricity supply to agriculture is on increased cross subsidy burden on industrial and commercial consumers, massive financial outgo from the state government as direct subsidy, and deteriorating financial health of the electricity distribution companies (DISCOMs). Another thread is about cheap electricity leading to the unrestrained exploitation of groundwater. Not surprisingly, a major push of power sector reforms has been towards the elimination of subsidies and increasing tariffs for agricultural consumers.

Yet the problem persists and worsens, with neither the farmers, the DISCOMs, nor the governments happy with the situation. Attempts like increasing tariffs, metered connections or financial bail-out packages for DISCOMs have not helped. A major reason is that the discourse has largely ignored the crucial role of agriculture in the country and the strong linkages between electricity, water and agriculture sectors.

The importance of the linkages is seen from the fact that all of the electricity supplied to agriculture is used for pumping water, mostly groundwater, for irrigation. Close to 85% of pumping energy used in agriculture comes from electricity, the rest being mainly from diesel. The net area irrigated by groundwater increased by seven times from 5.98 million ha in 1950-51 to 42.44 million ha in 2013-14. In the same period, canal irrigated increased only two times, from 8.29 million ha to 16.28 million ha.

Before attempting any quick fixes, it is essential to take a comprehensive assessment of the issue, giving due consideration to the farmer's perspective. This would provide many insights.

First of all, it is important to recognise that while agriculture subsidy has put a burden on state finances, it has played a crucial role in enabling and sustaining agriculture. As groundwater irrigation gives control of the timing and quantity to the farmers, it has been the preferred mode of irrigation. In future too, groundwater, and in turn electricity will remain crucial for agricultural growth and by implication for livelihoods and food security in the country.

Secondly, most of the agricultural supply is unmetered, and hence consumption of electricity in agriculture is estimated. These estimates have been problematic in almost all the states, with

inaccuracies and over-estimation. This implies that subsidy requirements have been over-estimated with State governments and cross-subsiding consumers financing theft and DISCOM inefficiencies under the guise of agricultural consumption.

Thirdly, there are many other reasons leading to financial problems of the DISCOMs including poor power procurement planning, inefficiencies in operations and loss of cross-subsiding consumers. While agriculture remains the category with the highest quantum of subsidy, subsidy to other categories like domestic and even industrial users has been increasing. Often, subsidy from state governments is getting delayed or is falling short of requirements.

Fourthly, data from various states shows that the link between excessive extraction of groundwater and electricity subsidy is not straightforward, and cheap electricity is an enabler, rather than driver for excessive groundwater extraction. Cropping patterns, especially water-intensive crops in areas that are not agro-climatically suitable are a major driver for the demand for groundwater. Such skewed cropping patterns are a result of better prices and assured procurement. Hence, it is doubtful if metering and raising tariff will address groundwater over-extraction.

Fifthly, since subsidy is an enabler rather than the driver for the use of electricity, rationing of electricity, metering and increasing tariffs are not likely to be effective in curbing electricity consumption, and thus subsidy requirements. If at all they do, it could entail heavy social costs. Rationing of power supply by limiting hours of supply or restricting number of connections has often been met by farmers installing higher capacity pumps or more pumps. Feeder separation has reduced the hours of supply and reportedly improved the quality of supply, but has not improved estimation and has adversely affected water markets in several cases.

Sixthly, raising tariffs is likely to have significant impact on farmers' incomes, which are already being squeezed. This is in spite of electricity cost being a small portion of the total input costs. Given this, and the existing trust deficit between farmers and DISCOMs, the first steps to improve the quality of service should be taken by DISCOMs, before raising tariffs. Otherwise, revenue is unlikely to improve in spite of tariff increase.

To conclude, subsidised electricity supply to agriculture is important and the problems related to it cannot be addressed by the electricity sector alone. It calls for a comprehensive study of the interlinked electricity, water and agriculture sectors with a pro-farmer perspective. Estimation of agricultural consumption should be carried out using more rigorous and accurate methods. The quantum of subsidy should be backed by a clear rationale arrived through studies.

Ideas to address specific parts of the problem need to be designed using a holistic approach and tried out as pilots. These include solar plants of 1-2 MW capacity at the feeder level, community driven regulation of ground water extraction, allocating a fixed quota of subsidised power and water to each farmer, and a procurement and price regime to encourage a shift towards an appropriate cropping pattern.

Without these measures, agriculture will continue to be an easy scapegoat for issues surrounding the electricity-groundwater-agriculture 'nexus', and effective solutions will remain elusive.

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