

FROM PLATE TO PLOUGH: LESS CROP PER DROP

Relevant for: Indian Economy | Topic: Different types of Irrigation & Irrigation systems storage

Recreating the classic 'mohalle ki Diwali' on Digital?

Maharashtra's chief minister, [Devendra Fadnavis](#), has announced that the state has suffered a drought in 2018 and that it is seeking drought relief of Rs 7,000 crore from the Centre. This raises several questions: First, what happened to the *Pradhan Mantri Fasal Bima Yojana* (PMFBY), which was supposed to compensate farmers in case of a drought year? Why does the state have to knock at the doors of the Centre for drought relief, as if there was no crop insurance? Second, what happened to the massive irrigation investments that the state had been making over the last 15 years or so in drought-proofing its agriculture? Obviously, that seems to have failed.

Third, if Maharashtra is to be compensated from drought relief, why not the other states that have suffered similar drought, or even worse? For example, during monsoon 2018 (June 1 to September 30), while Maharashtra's Marathwada region experienced 22 per cent lower rainfall than normal, Madhya Maharashtra was only nine per cent below normal. In comparison, rainfall in the Gujarat region was 24 per cent below normal; in Saurashtra and Kutch region, it was 34 per cent below normal; in Rajasthan it was 23 per cent below normal; and, in North Interior Karnataka, 29 per cent below normal. Bihar, Jharkhand, Assam, Meghalaya, and even Arunachal Pradesh, all experienced deficiency of more than 20 per cent compared to their respective normal rainfall levels. All of them should be then approaching the Centre for relief.

But here, we focus on public expenditures on irrigation — particularly, major and medium irrigation schemes (MMI), their costs and benefits, and, what could be the possible alternative policy options to protect farmers' incomes from the vagaries of nature, especially in a state like Maharashtra. We look at the yearly expenditures during 2002-03 through to 2013-14, convert them to 2017-18 prices using an all India wholesale price index, collate these expenditures and divide them by the cumulative irrigation potential created and utilised during that period. This will help to find out the capital costs of canal irrigation in all major states that have created at least one million hectares of additional irrigation during this period (2002-03 to 2013-14). Our analysis is limited upto 2013-14, as there is no information on IPC and IPU after 2013-14, even with the Central Water Commission or Ministry of Water Resources. While yearly expenditures are known, no one knows whether these have created any additional irrigation. Progress is measured by expenditures, not by whether farmers have received any water or not!



Let us look at the results. Graph 1 gives the state-wise capital cost of public irrigation (canals, primarily through MMI schemes). Maharashtra tops the list with Rs 20.4 lakh/ha of irrigation potential utilised (IPU) compared to the all-India average cost of just Rs 6.3 lakh/ha of IPU. The costs per ha of irrigation potential created (IPC) are somewhat lower, but still the highest is for Maharashtra at Rs 13.5 lakh/ha. While engineers and contractors are quick to announce IPC after construction of reservoirs and main canals, farmers benefit only when this potential created is converted to potential utilised, which is to be ensured by the Ministry of Agriculture and Farmers' Welfare.

One can give several reasons for the high costs of public irrigation in Maharashtra, ranging from its tough topography to the widening gap between the IPC and IPU (see Graph 2) to rampant corruption. But, the fact remains that these costs are so high that one is forced to think whether any investments in public irrigation in Maharashtra are worth making without bringing in transparency and accountability in terms of benefits and costs. We say this because the profitability in crop cultivation from public irrigation hardly matches with the opportunity cost of public irrigation. For example, if say, Rs 20 lakh (equivalent to the cost of public irrigation on IPU basis) were given to each farmer on per ha basis as long-term bonds with a fixed interest of say 8 per cent per annum, he would have got a net annual income of Rs 1.6 lakh without any risk.

The question to ask is whether the existing farmers with access to public irrigation are making this much (Rs 1.6 lakh/ha) as net income? The analysis based on cost of cultivation studies does not support this. It is thus very clear that the benefit cost (B/C) ratios of most of these projects do not justify these projects. But, as the system functions, the B/C ratios are highly inflated in feasibility reports to justify starting several projects, money is splurged, and hardly any ex-post analysis is done to see if what was promised is delivered at that cost, and, whether the

benefits have turned out to be commensurate to costs.

In sum, public irrigation needs major overhauling in the country, especially in states like Maharashtra. Also, there is the question of who uses how much of irrigation water. In Maharashtra, although about 19 per cent of gross cropped area is irrigated, in case of sugarcane, it is 100 per cent and, in case of cotton, just 3 per cent. So there is massive inequity in the distribution of irrigation water in the state. Can the Fadnavis government take up this challenge and distribute irrigation water from public canals more equitably amongst farmers, on per ha basis?

If everyone gets equal access to canal waters, it could lead to the emergence of water markets amongst farmers, encouraging efficient cropping patterns with respect to water. Only then can one say, "more crop per drop".

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