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Optimizing groundwater usage through DBT in electricity: Lessons from Punjab – Part II

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In part I of this publication, we discussed how free or highly subsidized power has resulted in the overdependence of farmers on water-intensive crops, which has resulted in degradation of water table levels. The government of Punjab introduced the Direct Benefit Transfer in Electricity (DBTE) model also known as *Paani Bachao, Paise Kamao*, which uses a monetary incentive to encourage farmers to cut down on electricity consumption. In this part of the publication, we will highlight challenges in the program and look at the path forward.

Despite the beneficiary-centric program design and provision of monetary benefits, the program did not generate the expected level of farmer participation. Several key challenges prevented farmers from adopting the program and service providers from implementing it. The following section summarizes the challenges experienced by both demand and supply sides.

Demand-side challenge

Issues around behavior and awareness:

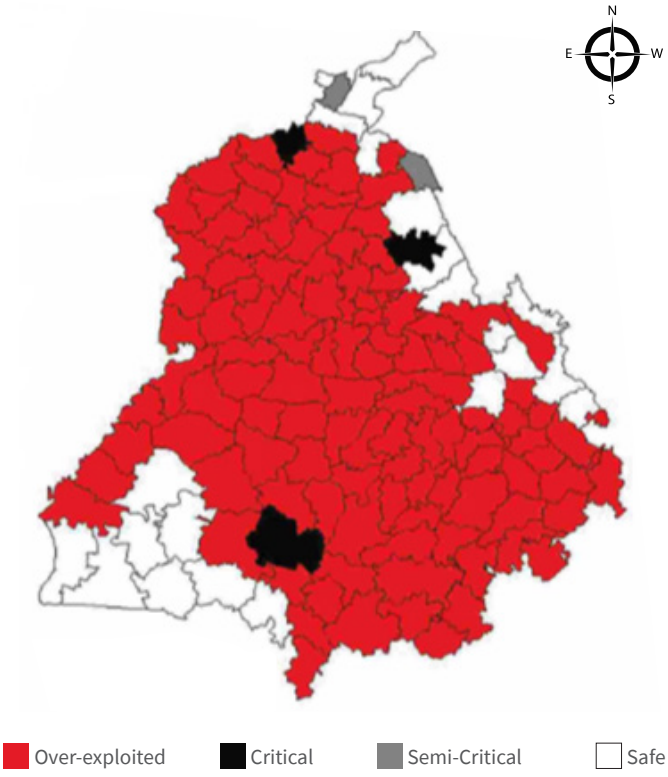
Punjab have come to rely on free electricity for irrigation since the late 1990s. They are accustomed to using heavy motor pumps to extract groundwater for their crops. Participation in the program demands proper monitoring and judicious use of electricity—both of which require major behavioral changes, making farmers reluctant to enroll. Moreover, farmers did not understand the rationale behind the program and did not know that the water table was critically low in 110 among the 138 blocks in Punjab.

Widespread skepticism and misconceptions:

After enrolling in the program, the government added a meter on the agriculture pump-set (AP) connection to monitor the beneficiary's power consumption. As AP connections in Punjab have historically been unmetered, farmers were skeptical that the government would send them electricity bills. This sentiment was also widely echoed on social media. Doubting the Punjab government's intentions, farmers' unions opposed the program and urged their members not to participate. Further, farmers who applied for the program did not receive an acknowledgment or SMS confirming their registration, which created a sense of doubt among beneficiaries.

Exclusion of tenant farmers:

During phase I of the pilot, tenant farmers could not avail of the benefits of the program as only registered AP connection owners were eligible to enroll. Of the total cultivated land in the state, nearly 25% is cultivated by tenant farmers.[1]



1 Agricultural Tenancy in Contemporary Punjab, 2019

Supply-side challenges

Low level of communication and outreach:

The field staff from Punjab State Power Corporation Limited (PSPCL)[2] and other implementing agencies appointed by the Government of Punjab conducted communication camps to sensitize farmers about the DBTE program. However, these did not reach the target group in the manner intended due to opposition from farmer unions. In time, most farmers came to know of the program through word of mouth or from informal discussions circulating on social media, which led to many misconceptions among farmers.

High level of manual processing:

The process of calculating the actual benefit inured to a farmer and the resulting disbursement amount was carried out manually during the pilot. As the number of beneficiaries was limited, this did not create significant challenges. However, with the expectation of scaling up, and the corresponding increase in beneficiaries, managing data, and processing payments manually will not be feasible. Another hurdle to overcome will be collecting meter readings, especially in areas with poor network connectivity. Each month under the existing system, field staff from the PSPCL have to collect meter readings manually in such areas. Smart meters installed on AP connections could rectify this issue.

The financial burden on the government:

During the implementation of phase I of the pilot, PSPCL had a limited number of meters available to install on AP connections of beneficiaries due to shortages in the budget. This led to delays in farmer registration. Meter installations on AP connections of beneficiaries are also an added cost borne by the government. As the program expands, this has the potential to create a significant financial burden. Although it is a big one-time investment, savings from the program will eventually pay off the investment.

Recommendation and way forward

We have compiled several recommendations to improve the outreach of the program and overcome the challenges in Punjab.

1. **The government must plan a focused communication campaign** to sensitize people about the water crisis in Punjab and generate awareness on sustainable water and electricity practices.
The communication campaign should incorporate proper extension management [3], as the DBTE program relies largely on behavioral change. The revamped campaign would establish trust and generate the desired outcomes, including acceptance of the program and changes in the current water usage patterns of farmers. Satisfied beneficiaries from phase I of the program should be included in the campaign as opinion influencers to motivate new farmers.

2. **An automated and integrated system** should be developed to maintain the beneficiary database, estimate entitlements and benefits, and manage payments. The system should be capable of sending automated SMS alerts to beneficiaries at different stages during the DBTE lifecycle. This would help improve management and bring transparency to the system.

3. **Clear guidelines that address the inclusion of tenant** farmers should be created to increase coverage. The process of transferring connections should also be simplified in cases where the registered owner is deceased or the property has been sold.

The Punjab government has responded to the stark decline in groundwater through its innovative model of DBTE. Sadly, declines in the water table are all too common throughout India and require urgent action. Models like *Paani Bachao Paise Kamao* should be replicated in other states. In the following section, we look at factors that should be considered before rolling out similar models in other states.

2 PSPCL is the electricity generating and distributing company of the Government of Punjab.
3.Extension management refers to a wide range of participatory communication and learning activities organized with the objective of encouraging behavior change.

Technical level

- States should have provisions for separate supply of agricultural and domestic power.
- Meters (preferably smart meters) need to be installed at all agricultural connections.
- An automated and integrated system to maintain the beneficiary database, subsidy calculations, and payment systems need to be in place.
- The Public Financial Management System (PFMS) or the state's integrated Financial Management System (IFMS) platform should be available to enable direct payments to beneficiary accounts.

Governance level

- The role of the governing body needs to be defined, and a project management unit should be created within the Department of Power to manage and monitor the implementation of the program.
- An automated system to monitor the status of the program and analyze reports needs to be in place.
- Effective extension (change) management should be adopted to introduce the program among beneficiaries.
- Capacity-building exercises are needed for stakeholders at all levels.
- A feedback mechanism and system to resolve grievances should be in place.

Beneficiary level

- Beneficiary database needs to be updated; if the beneficiary is deceased or ownership is transferred, the process of transferring the connection should be seamless.
- Adequate guidelines need to be created to ensure tenant farmers are not deprived of the benefits of the program.
- Farmer associations and key influencers from the community should be sensitized to increase the outreach of the program.
- Beneficiaries should receive regular SMS updates to monitor their power consumption.

Conclusion

The current system of providing electricity to farmers is not sustainable in terms of either energy, groundwater, or financial viability. If the issue of subsidized power is left unaddressed, the availability of water for future agricultural production will be further compromised. The potential fallout from this could affect the livelihoods of millions of people. Withdrawing the agricultural power subsidy and asking farmers to pay for their electricity not only lacks political viability but will also result in farmer distress.

The DBT-E model introduced in Punjab offers a politically feasible and effective approach to the persistent issue of groundwater loss and overuse of electricity, while continuing to provide electricity to farmers at subsidized rates. Given the complexity of the "food-energy-water" nexus that India faces, policy interventions like Paani Bachao, Paise Kamao are not only innovative but also imperative. Other state governments in India should take a cue from Punjab to design and adopt similar policy initiatives.