

Restructuring the government's subsidy program would remove one of the major bottlenecks to expansion allowing the private sector to focus on addressing some of the technical barriers that prevent farmers from adopting drip irrigation.

The Opportunity

Drip irrigation technology saves water, increases farm yields, reduces the cost of pumping, and requires less labor. Current programs to subsidize the cost of drip systems may, paradoxically, hinder wider-spread use of the technology. Alternative financing schemes could increase adoption rates and save the State considerable expense.

The Research

This study looked into the reasons for the slow uptake of drip irrigation, a technology which ostensibly has good potential for conserving water, with particular emphasis on the role of subsidies. Researchers identified interventions that could accelerate the pace of adopting drip technology.

The study is based on extensive interviews with manufacturers, retailers and promoters of high-end and low-cost drip technology in two selected regions of Madhya Pradesh. Researchers interviewed officials of the State Horticulture Department responsible for administering the subsidy program, and individual farmers and farmer groups who have adopted the technology. A field survey was conducted in Sagar, Dhar and Indore districts.

Main Findings

There are several technical factors hindering the adoption of drip technology including the quality of drip systems and spare parts, and lack of training in the use and maintenance of the systems. But the key factor dissuading a number of potential drip users from investing is the high capital cost. To address this issue, the Government of Madhya Pradesh offers a generous subsidy, which meets around 70-80% of the cost of a drip system. Manufacturer and market estimates suggest that more than 95% of drip sales in Madhya Pradesh are subsidy linked.



Hoses carry water directly to the crop, saving water and maximizing irrigation.

ACCELERATING DRIP IRRIGATION IN MADHYA PRADESH

Based on a report by Ravinder P. Malik

The process of applying and being approved for the subsidy however, is complex and involves numerous agencies. As a result, farmers are dependent on manufacturers and middlemen to facilitate the process. Moreover, only selected, pre-approved drip kits qualify for the subsidy which stifles creative marketing strategies on the part of manufacturers as well as efforts to bring down the cost of drip systems through innovative technology or product designs (Box 1).

Based on discussions with stakeholders and prevailing open market prices of components, we envisage that if the subsidies on drip were withdrawn, the prices of manufactured drip systems and components would fall by at least 40%. Increased competition among manufacturers could further reduce the cost by another 5-10%, making the adoption of drip technology more attractive to farmers.

Current Madhya Pradesh subsidy regime

- The total subsidy as a per cent of the cost of equipment varies between 70 and 80% for different categories of farmers.
- Farmers must pay the unsubsidized portion of the equipment cost (usually as an upfront payment with no financial support).
- Farmers must undertake a long and complex process to receive approval for a subsidy or rely on middlemen, who charge a fee.
- Because the subsidy accounts for 70-80% of the cost, many farmers will wait for a subsidy rather than invest their own money.
- There is no choice in selection of equipment; farmers have to purchase a kit rather than individual components. This stifles product design and technology innovation.

Solutions

- To illustrate how the current subsidy program could be revamped, the research team developed an alternative subsidy delivery model which would be more transparent, easier to manage and govern, and lead to more efficient use of the available subsidy fund without distorting the market for sales of drip systems.
- Under an alternative subsidy delivery model, rather than providing capital cost subsidies, the government would give interest free loans, repayable after five years, for the entire cost of a drip system. Loans would be administered through existing financial institutions in rural areas. The farmer is free to buy a drip system from any dealer or manufacturer, choose any desired configuration, and negotiate a price and after-sales service conditions with the dealer. The farmer does not need to visit government offices to obtain approval, clearance or 'no objection' documents before buying the system. The government plays a facilitative role in ensuring farmers are treated fairly by manufacturers or retailers.

Potential impact

If the current subsidy regime were modified, the capital outlay to bring the same number of farmers and acreage under drip would be substantially reduced for both the government and the farmer.

To illustrate the potential impact, we assume a total government subsidy budget of INR 500 million (USD 9.7 million) per year, and show the allocation of the budget under the current subsidy regime (Table 1) and an alternative loan scheme (Table 2) for two farm sizes (0.2 and 5.0 hectares) The three scenarios provided under the loan scheme represent the potential reduction in the market price of drip systems following the withdrawal of the current subsidy regime.

Under the alternative loan scheme, there is no upfront cost for the farmer as in the current subsidy scheme. Moreover, the proposed loan scheme would cover the entire cost of the drip system, whereas the current subsidy regime covers only 70-80% of the cost.

On all parameters the proposed alternative loan scheme to purchase drip kits or components outweighs the existing subsidy scheme. The cost of the loan regime per hectare and per farmer is significantly less than the current subsidy program, resulting in a more efficient use of available government funds and greater incentives for manufacturers to produce and provide support for high quality, low cost drip technologies.

Table 1. Current subsidy scheme: illustrative allocation of state budget
(Exchange rate: 1 US\$ = INR 51.54)

Farm size (ha)	Drip cost (INR)	Subsidy (70%)	Number of farmers benefitting	Area brought under drip (ha)	Total cost to government (subsidy) (INR million)	Cost per ha. (INR)	Cost per farmer (INR)
0.2	11,177	7,824	63,907	12,751	500	39,213	7,824
5.0	135,459	94,821	5,273	26,365	500	18,964	94,823

Table 2. Alternative loan scheme: illustrative allocation of state budget under three price scenarios
(Exchange rate: 1 US\$ = INR 51.54)

Current price (INR)	Assumed reduction in market price (%)	New open market price (INR)	Number of farmers benefitting	Area brought under drip (ha)	Total capital outlay for loans (INR million)	Total cost to government (foregone interest) (INR million)	Cost per ha. (INR)	Cost per farmer (INR)
0.2 hectare farm								
11,177	50	5,588	63,907	12,781	357	218	17,059	3,412
11,177	40	6,702	63,907	12,781	428	262	20,471	4,094
11,177	30	7,824	63,907	12,781	500	305	23,883	4,777
5.0 hectare farm								
135,459	50	67,730	5,273	26,365	357	218	8,270	41,350
135,459	40	81,275	5,273	26,365	428	262	9,924	49,619
135,459	30	94,821	5,273	26,365	500	305	11,578	57,889

These findings and recommendations are preliminary and are reproduced here for the purposes of discussion. The AgWater Solutions Project welcomes all comments and suggestions. These should be directed to AWMSolutions@cgiar.org, please write "Madhya Pradesh" in the subject line.