

Evaluation of Drip Irrigation- A Case Study of Jaipur City

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Abstract: Increasing demand for irrigation water in the face of its inefficient use amid concerns of growing water scarcity has brought into renewed focus the need for water and improving water use efficiency. Given the problems and political considerations associated with bringing effective policy reforms to achieve the objective of water conservation, the emphasis has generally focus on technological solutions. Micro irrigation technology such as those based on drip and sprinkler systems are being increasingly used as ideal technological solutions for achieving water conservation of the two technologies, drip irrigation of its various forms, has been a relatively more important mode of micro irrigation in India. Despite the advantages and water saving potential drip technology offers, it has failed to attract the kind of market that expect of such a technology. The present study attempts to enquire into some of the possible reasons for the slow flow of this Given that the main driver for the use of drip irrigation in India for the purpose of financial subsidies by the government, the study mainly assesses the efficacy of subsidies in promoting flow of drip. While the present case of the study focuses primarily on the Jaipur, the evidence drawn upon and the facts come out from the study will have general applicability for the other regions of country.

Keywords: Drip Irrigation, Soil Moisture, Crop

1. INTRODUCTION

Market and manufactures estimates suggest that more than 90% of the drip sales in Rajasthan are subsidy linked. Government provides subsidy of the 70 to 80% of the capital cost of the drip system is available for purchase of a drip system; it is real thing that few farmers interested to invest in a drip irrigation system without the subsidy[1].

The uptakes of drip systems and the availability of the subsidy has stifled both the inertia of aggressive marketing strategies on the part of the manufacturers to increase sales of unsubsidized systems, and any attempts at decrease the manufactured cost of drip systems through product technological or designs. All efforts of producer, stakeholders and other dealer are focused on making the available government subsidy through sale of these products. The system has thus made manufacturers subservient to government favours and has led to a defect of this enterprise spirit. Similarly, the insistence on the drip products to carry the as a seal of guarantee, and more so as a primary-condition for qualifying to become eligible for a government subsidy on drip, has led choose of unfair business practices.

Our assessment of the subsidy of the government together with the procedures set and method in which subsidy disbursal takes place, suggest a strong connection between

manufacturers and government entrusted with the administration of that subsidy program. The subsidy as currently administered is really going to the manufacturers who claim it in the name of the farmers.

The market model followed by companies is governed more by the state subsidy system and companies operate more to benefit from it provisions of the program. Producers and the chain of sellers involved in marketing this irrigation technology emphasize building contacts with government at different levels to get their maximum share of the subsidy kitty [2].

At the field level, the aim is to convince the farmers that they would get a high cost product without paying the total amount. More than emphasizing the benefits that the farmers might get from use of the technical method or details with maintenance, the focus is entirely on getting the required papers prepared for release of the subsidy amount. Even the decision about the choice of product and the company is determined by the agent who gets success in approaching the farmer and getting his papers cleared. The farmers are generally a passive participant in the entire process. All the companies lead to competition among firms producing equipment and services of checking quality. This system is also responsible for unhealthy competition. Generally in any field of business, revenue is generated by the companies through various fields such as sales and support, the cost structure of the product, and targeted profit. But in case of drip irrigation systems, they adopt very high cost drip equipment is directly related to the provision of subsidies. Given the strong relation that has developed over time between different players involved in disbursing and receiving the available drip subsidies, and in the shaping the subsidy delivery system of the government to their advantage and indirectly constraining the increase of drip irrigation technology, one often wonders is the government, by providing subsidies, trying to promote a specific method of drip irrigation system kit or the concept of drip system in general? Why should eligible conditions for a subsidy connect a farmer to a specific drip system configuration and not let a farmer choose components of use drip system. Which in his view could serve the same purpose but at a somewhat lower cost without the use of all the preliminary-specified components? Is there a way to use the available government subsidies to get the goals they are intended to achieve? We propose that if the government were to dispense completely with the existing mechanism of subsidy delivery to the manufacturer of drip system and arrange the make

direct delivery of the drip subsidy provides benefit to the farmers themselves, the market prices and uptake of drip may change considerably.

On feedback based from stakeholders, we postulate that if the subsidies on drip system in its present form were to be withdrawn by government, it is same as that the open market unsubsidized cost of construction drip systems will fall by at least 35 %. Increased open market competition may reduce further the cost of a system by another 6-10 %. The net result is a likely reduction in prices construction of drip systems by about 50%. This perception is shared by almost all the market investors including some of the leading manufacturer component and sellers of drip systems. This is also evidenced by the open market cost of the systems being sold by the manufacturers and assemblers of non-BIS drip systems in the study area, although there may be some differences in the quality of equipment and performance between the two types of drip irrigation systems.

We propose an alternative subsidy delivery model. Rather than giving a one-time capital cost subsidy for drip system, the government gives an interest cost subsidy to farmers wish to invest in a drip irrigation system.

Under this scheme the government gives interest free loans for the entire cost for component of drip irrigation system to all farmers including large or small, who belong to a Scheduled Caste category and are willing to buy a drip system. These loans can be provided through the existing financial institutions in rural and urban areas. The government provides interest free loans with capital refundable after five years. The farmer is free buy to drip irrigation system from any dealer choose any configuration, and negotiate a price and sales service conditions with the dealer. The farmer does not required to visit government offices to obtain approval, clearances or no objection certificates before buying a system. The government plays facilitative and regulatory role in ensuring that only good quality products are sold in the market and farmers are not cheated by manufacturer's component. With a given amount of funds available for stable system, the proposed model can provide subsidies to a much larger number of farmers and dealers can bring a much larger area under drip irrigation resulting in lower subsidy outgo per hectare of drip irrigated area, incentivize farmers to invest in drip systems, lower the cost of subsidy outgo, be more transparent, less prone to corruption, easy to manage and stable, less prone to interference and the whims and fancies of officials, and lead to more useful for available subsidy, without distorting the market for sales of drip systems. The proposed subsidy scheme for delivery direct of drip subsidy to farmers outweighs the existing subsidy scheme of subsidizing the manufacturers and providers of drip irrigation component systems in the name of the farmers.

2. STUDY AREA

Jaipur (longitude: 950 24. E; latitude: 270 18. N), a city located at the central part of Rajasthan, is undergoing rapid urbanization and industrialization. The study is conducted in the way of Southern area of Jaipur city.

3. METHODOLOGY

The study is based on interviews with manufacturers, sellers, retailers and promoters such as NGOs and extension agencies of both high end and low cost drip technology in two selected regions of Jaipur. Officials of Jaipur Horticulture Department which is responsible for administering the subsidy program were interviewed. Individual farmers and farmer groups of adopters were interviewed to ascertain their experiences. The field survey was conducted in three locations, southern area of Jaipur. A total of 40 farmers were interviewed in addition to dealers and government officials in the districts. Identifying villages and farmers was not easy as the number of drip users is a few and spread over a wide area, hence, they were selected purposively depending on ease of operation and level of cooperation.

The use of drip irrigation in India, starting from initial testing at Tamil Nadu Agricultural University in Coimbatore in 1970, increased rapidly to 55,000 hectares by 1992. The technology in India was introduced on a commercial scale only during the Eighth Five Year Plan (1993-98). Of the 69 MH net irrigated area in the country, only 0.5 MH had been brought under drip and 0.7 MH under sprinkler irrigation by 2003 (GOI, 2004). By the end of October 2008, the area under micro irrigation had risen to 3.88 MH, of which about 1.43 million (37%) was under drip and the remaining 2.45 million (63%) under sprinkler irrigation (Table 1).

Table 1. Selected area covered (in hectares) under micro irrigation as at 31 October, 2008

State	Drip	Sprinkler	Total
Rajasthan	17,002	706,813	723,815
Haryana	7,136	518,367	525,502
Gujarat	169,689	136,284	305,973
Madhya Pradesh	20,432	117,685	138,117
Other state	36,276	288,995	325,272

Use of drip has also led to a significant reduction of labour in irrigation, weeding, harvesting and eliminated drudgery in farm management. Tables 2 summarize some of the literature on impact of using drip on various farm variables, water use efficiency and the benefit-cost ratio of using drip technology under both subsidized and unsubsidized conditions. Estimates of impact of drip on different farm variables and economics of using drip vary, sometimes significantly, depending on the underlying conditions and crop regions being studied.

Table 2. Relative Cost of Drip and Non-Drip Irrigated Crops in Jaipur (INR/ha)

Crop	Drip irrigation	non-drip irrigation	Cost saving (%)
Sugar cane	42,000	47,000	10.63%
Tomato	70,000	75,000	6.66%
Banana	51,000	53,000	3.77%
Cotton	42,000	43,000	2.5%

Drip irrigation has helped bring about crop diversification from rain fed crops to horticultural crops and brought cultivatable waste lands under horticultural crops. Water saving expected from use of MIS has motivated the beneficiary farmers to shift from low duty crops to high duty crops. Savings in water due to the use of drip varied amongst horticultural crops in the range of 40-65% and in vegetables from 30-40%

Table 3. Water Saving in Drip Irrigation

Crop	Water Saving (%)
Sugarcane	45%
Tomato	30%
Banana	35%
Cotton	25%

4. RESULT AND CONCLUSION

Drip irrigation is better for the low amount of water available. In southern area of Jaipur water amount is not high then drip irrigation is good .drip irrigation in which the water are saving 40-50% and cost benefits. Maintenance cost of drip irrigation is very low. Drip irrigation are increase the gross income.

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