

# CHALLENGES OF INTRODUCING MICRO IRRIGATION IN CANAL IRRIGATION SCHEMES IN INDIA

Suresh A, Kulkarni<sup>1</sup>

## ABSTRACT

India uses the highest amount of water (557 BCM) for irrigation in the world. As per the Ministry of Water Resources, the irrigation water demand will rise to 611BCM in 2025, and 807 BCM by 2050. Groundwater constitutes about 60 percent of the irrigation water use and the share of canal irrigated area has been continually declining. Due to increasing freshwater demand from domestic and industrial sectors, the share of irrigation water use will reduce further.

To cope up with the rising water demand from agriculture, the use of drip and sprinkler irrigation has been steadily increasing in India. The drip irrigation was introduced in India on commercial scale in the year 1985 when the area coverage was mere 1500 ha. During the decade 1990- 2000, the drip irrigated area dramatically increased 10 times i.e. from 0.035 million ha to 0.351 million ha; while in the subsequent decade (2000-2010) it grew by more than 5 times i.e. 1.9 million ha in 2010. Presently, it is estimated that about 3.0 million ha are drip irrigated all over the country placing India as the highest micro irrigated country in the world. Both, federal and state Governments are providing liberal incentives in the form of subsidy towards installation of micro and sprinkler irrigation. Presently, majority of the micro irrigation depend on groundwater and only some insignificant area is on canal water.

Performance of most of the public managed canal irrigation schemes in India is poor leading to low water use efficiency. Farmers, due to unreliable canal water supply, usually apply more water to their crops leading to wastage of water and reduction in planned area for irrigation. Moreover, the cost of construction of distribution network, on-farm structures and their subsequent maintenance is becoming increasingly prohibitive. A few states like Gujrat, Himachal Pradesh, Karnataka, and Rajasthan have adopted micro irrigation in the canal commands. Recently, Maharashtra State has taken a decision to adopt micro irrigation in canal command area of select irrigation projects on pilot basis. The major objective behind this initiative is to reduce the on-farm water losses and use the saved water to deprived areas, particularly tail reaches in an irrigation scheme. As per the notification brought out by the Water Resources Regulatory Authority of the State, it would be mandatory to adopt micro or sprinkler irrigation for cash and high water requiring crops like Sugarcane and Banana. The proportion of such crops in the irrigation schemes of the State normally range from 10 to 20

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<sup>1</sup> Secretary, Maharashtra Water Resources Regulatory Authority, Mumbai, Maharashtra, India  
Email:kulsur@gmail.com; mwrralibrary@yahoo.co.in

percent of the irrigated area. This compulsion has triggered a debate as there are many challenges to make it happen. This entails converting and operating the prevailing canal system in hybrid mode, both as surface as well as micro irrigation systems. The major issues which need to be addressed are (1) assured water availability at a shorter interval of 2 to 3 days, (2) storages at farm level (either in a farm pond or using existing wells), (3) uninterrupted availability of electric power, (4) financial support as subsidy towards capital cost of the micro irrigation system, and (5) enforcement at the ground level. The key question which needs to be answered is whether there would be 'real water saving' and can the saved water, if any would be made available for other farmers or other uses. It is contemplated to introduce the micro and sprinkler irrigation in three major canal irrigation schemes including one lift scheme. Based on the experience gained in these pilot schemes, it will be upscaled in the other irrigation schemes of the State. The proposed paper will provide a brief scenario of micro irrigation development in India and a detailed discussion on the various possible constraints and wayforward in implementation of micro irrigation in the existing canal command areas.