

# **IMPACT ASSESSMENT OF THE MICRO-IRRIGATION UNDER LIMITED (SCARCE) WATER AVAILABLABILITY IN SMALL AND MARGINAL FARMERS HOLDINGS OF KARNATAKA, INDIA**

**Ramana Gowda<sup>1</sup>, Krishnamurthy<sup>2</sup>,  
Venkata Reddy**

## **ABSTRACT**

India is emerging as a leading country in the World adopted Micro-irrigation system to improve the productivity of the land, water and crop yields. The Central Government supported by providing subsidy to an extent of 50 percent to the farmers for adopting Micro-irrigation system in Agriculture and Horticulture crops. This project was implemented in the state of Karnataka for perennial Fruit and Plantation crops.

Of the total sample 59 percent and 32 percent were working well and satisfactorily respectively, while 9 percent were poor performance due to bad maintenance. Thus, 91 percent of the farmers were getting good services resulting in good crop growth. The other feedback from the beneficiaries were the micro-irrigation system work very well during water scarcity period and also insufficient areas. The additional area ranging from 30 to 40 percent may be brought to irrigation when they adopt micro-irrigation. The additional benefits are saving investment on weeding and the other field operations to some extent.

## **INTRODUCTION**

India is emerging as a leading nation in the use of micro irrigation system by extending 30,000 hactares under Micro Irrigation System (MIS) annually as against the potential of about 27 m.ha. The major constraints in adoption of micro-irrigation system are the high investment cost and availability of technology know-how to farmers, though the research extension and industrial support is in favour of the adoption .The MIS is commonly adopted in perennial horticultural crops rather than annual food crops.

The major water source for irrigation are dams, tanks, open wells, tube wells etc. It is estimated that around 8 % with fresh water resources are currently being used in agriculture and allied production systems and the remaining water is used for industrial, domestic including the unavoidable losses as a result of tremendous pressure lies for the judicious usage of fresh water which could be achieved by enhancing productivity with increased water use efficiency.

---

Department of agronomy, college of agriculture University of agricultural sciences, gkvk campus, banalore-560065, INDIA

1- [drq.btib@hotmail.com](mailto:drq.btib@hotmail.com)

2- [krishnamurthynagappa@yahoo.co.in](mailto:krishnamurthynagappa@yahoo.co.in)

Considering the above facts the only option left to India is going for micro-irrigation system for either individual or collective farming irrespective of whether catchment or command area. The MIS has the benefit of higher water use efficiency there by providing water to larger area under scarce water availability. The union government has realized the importance of MIS through centrally sponsored schemes by providing financial support. Besides there are several companies have come forward for providing the MIS in support of policy and programme.

## **MATERIAL AND METHODS**

The centrally sponsored scheme for MIS by the Ministry of Agriculture, New Delhi during the IX<sup>th</sup> FIVE YEAR PLAN (1991 to 2001) has been evaluated for the implementation and impact assessment during X<sup>th</sup> FIVE YEAR PLAN. The study comprises of collecting the information of selected farmers and visiting the MIS adopted field. The major objectives of the evaluation were:

- Whether the scheme has any impact in area expansion of horticultural crops, yield, revenue and quality of the produce.
- Evaluation should cover the aspects on achievements of the assigned targets during each year.
- Whether the physical work tallies with the financial expenditure incurred.
- Quality of the work carried out.
- Reasons for short fall in areas of Gulbarga, Raichur(Hyderabad Karnataka region)

The sampling procedure in selecting the farmers of Karnataka state covering all the 27 districts of Karnataka by adopting force choice technique. Further the farmers were sampled based on the proportion (2%) of overall beneficiary strength of each district. The total accomplishment of Micro-irrigation system covering 69,481 beneficiaries, 15,486 lakh hacters and with an investment of Rs.1,52,863.88 lakhs. The crops covered includes plantation crops like Coconut and Arecanut and fruit crops like Mango, Grapes, Banana, Pomegranate, Sapota, Guava, Ber, Citrus, Papaya and vegetables spread across the state. Thus the total sample size was 1080 and 1128 corresponding to the IX<sup>th</sup> and X<sup>th</sup> plan period. Totally the 2208 drip farmers were interviewed and collected the data in the Proforma developed for the purpose. During the field visit the observations on functioning of micro-irrigation system, crop growth and farmers opinion was documented the data collected were analysed for various parameters / indicators and used for impact assessment on MIS.

## **RESULTS AND DISCUSSION**

Of the total sample 59 percent and 32 percent were working well and satisfactorily respectively, while 9 percent were poor performance due to bad maintenance. Thus, 91 percent of the farmers were getting good services resulting in good crop growth. The other feed back from the beneficiaries were the micro-irrigation system work very well during water scarcity period and also insufficient areas. Further the additional area ranging from 30 to 40 percent may be brought to irrigation when they adopt micro-irrigation. The additional benefits in terms of saving investment on weeding and other field operations to the extent of 48 percent. In Arid and high temperature agro climatic conditions micro-irrigation system reduced the Saline encrustation at the surface. Thus favored good soil health with better nutrient availability in the root zone. There was higher crop yield and better quality due to micro-irrigation in all the crop tested. The perennial plantation and fruit crops never suffered water shortage due to water availability in the root zone. The general problems in the micro-irrigation system were excess discharge of water (10%) and uneven soil wetting near the dripper and clogging of the emitters and rodent damage. These problems diminished in the Xth five year plans. The investment made on micro-irrigation system may be recovered with interest in 7 to 8 years of installation. The above one decade experience clearly suggests that this micro irrigation system needs to be extended other broad spaced agriculture and horticulture crop to improve quality and quantity of the produce beside ensuring the best soil health and reducing the cost of cultivation.

## **CONCLUSION**

Based on the impact assessment and feed back the acceptance of the MIS has been spreading to other crops such as plantation crops, food crops, flower crops etc through out India. The R&D from the manufacturers of micro irrigation system also have improved and by incorporating the difficulties encountered. In addition the technology support extended by the service provider, financial institutions, Krishi Vignana Kendra's, State Agricultural Universities and Line departments have become pro MIS.