

Study of Awareness and Perception of Micro Irrigation System and Government Schemes among the Farmers in Gujarat State

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ABSTRACT

Water is an essential input for the crop production. Micro irrigation is having high potential for creating second green revolution in India. Drip irrigation is today's need of the hour as water - nature's gift to mankind, is not limited and free forever. Major Micro irrigation methods are Drip irrigation, Mini sprinkler irrigation, Sprinkler irrigation and Rain gun irrigation system. The Government is implementing various crop oriented subsidy schemes from its own fund resources besides various Centre-State Shared Schemes, Centrally Sponsored Schemes, Externally Aided Projects for the upliftment of farming community. This study entitled "Study of awareness and perception on Micro irrigation system and government schemes the farmers in Gujarat State" is a part of a project of Gujarat Green Revolution Company Ltd. The study has covered four regions of Gujarat consisting of 8 districts and 32 villages. The basic objective of the study was to know the awareness and perception of the farmers regarding MIS and MI schemes in the study area. Both primary as well as secondary data were used to achieve the stipulated objectives of the study.

1. Introduction

India is a country having population of 1.21 billion, which is growing at the rate of 17.64% (2001-11), where as world average population growth rate is only 1.3% per annum. The growth rate of Indian population has pressurized the Indian agriculture to produce more and more to feed its 1.21 billion people with limited cultivable land of only 141 m ha where 62 m ha is only irrigated. Water is the most important input playing a major role in critical growth stages of the plant. So, it has to be managed. That is why there is need of water management and the most appropriate solution is i.e. "micro irrigation" which supplies water to the plant root zone and increases the water use efficiency.

India has world's largest irrigated area and presently 57 million hectares (90 million ha harvested) are irrigated. About two-third of the area is irrigated by groundwater and one third from surface water resources. The ultimate irrigation potential is estimated as 139 million ha without the „River linking project“ and 174 million ha upon its implementation. Present irrigation withdrawals are 534 km³ and are estimated to be 611 km³ in 2025 and 807 km³ by the year 2050.

The system is beneficial for farmers in increasing crop productivity and water-use efficiency, reducing fertilizer consumption (Fertigation through drip system) and electricity and labour consumption and enhancing income. Micro irrigation (MI) has proved to be an efficient method in saving water and increasing water use efficiency as compared to the conventional surface method of irrigation, where water use efficiency is only about 35-40 percent.

The Centrally sponsored National Mission on Micro Irrigation (NMMI) was launched in June 2010 in addition to the earlier Micro Irrigation Scheme launched in January 2006. The Mission was implemented during the Eleventh Plan period for

enhancing water-use efficiency by adopting drip and sprinkler irrigation systems in all States and Union Territories for both horticulture and agricultural crops. The scheme provides assistance at 60 per cent of the system cost for small and marginal farmers and at 50 per cent for general farmers.

Since 2005-06, a sum of Rs. 2739 crore has been released by the Government of India under the scheme and 2.27 lakh ha brought under Micro irrigation (GOI, 2010).

Micro Irrigation

There are a lots of methods of irrigation available in India like irrigation through well, tube well, canal water and micro irrigation. Micro irrigation is a technique majorly invented in Israel. It defines a family of irrigation systems that apply water through small devices. These devices deliver water onto the soil surface very near to the plant or below the soil surface in the root zones of the plant.

Drip irrigation, also known as trickle irrigation or micro irrigation or localized irrigation, is an irrigation method which saves water and fertilizer by allowing water to drip slowly to the roots of plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing, and emitters. It is done with the help of narrow tubes which deliver water directly to the base of the plant.

Applications of Micro Irrigation

Micro irrigation is applied to the various crops, plants as per types of land and cropping patterns. It can be applied in various areas like:

- In irrigated agriculture, micro irrigation is used extensively for row crops, mulched crops, orchards, gardens, green houses, and nurseries.

- In urban landscapes, micro irrigation is widely used with ornamental plantings.

All these micro irrigation methods help to solve the water scarcity, low farm yield, poor quality food and other problems.

2. Literature Review

Considering the rapid progress made under the Central Sponsored Scheme on Micro irrigation over the years, GOI entrusted the task of conducting "Evaluation study of CSS-MI" to NABARD consultancy Services Pvt. Ltd. (Nabcons). The result so evaluated is helpful to access the impact of the scheme on productivity, irrigation water use efficiency, savings in input use and labour use, constraints in adoption of the scheme and feasibility study. The implementation of the scheme has boosted the Micro irrigation development in such states where MI scheme implemented by the Central and State Government already in operation like Karnataka, Andhra Pradesh. In other states the implementation process has gradually accelerated like Madhya Pradesh, Orissa, Gujarat and Punjab. (Anonymous 2009)

Primaflor farm, located in Almeria, produces different varieties of lettuces. To ensure that irrigation is undertaken in the most efficient manner, the farm has integral soil moisture meters within the growing crop to monitor soil moisture levels. These have sensors which monitor moisture levels over the time in order to adjust irrigation amounts from the pre-determined target levels. Any rise in moisture levels recorded shows that the crop has been over irrigated and the technician will reduce the subsequent applications of water to address this. It can be 25% more efficient than other methods of irrigation as it does not incur the losses through evaporation that topical applications of water are subject to. The farm has gone one step further with the introduction of a pressure compensated drip irrigation system, which is more expensive to purchase than the convention drippers but provides a higher

degree of accuracy over the conventional system. (Anonymous, 2010)

Greece has the highest population dependent on agriculture in Europe. Between 33-40% of total agricultural area is under irrigation, mostly for crops (approximately 70%), vines (4%) and trees (25%). Water is often supplied through public networks. Within these networks, efficient irrigation technologies have not been widely adopted. While surface water irrigation accounts for 35-40% and irrigation with sprinklers amounts to 50-55%, drip irrigation remains at 10% only. There is significant scope, therefore, to improve water productivity at the farm level by switching to more water efficient techniques or by improving current systems. In Greece, for example, a significant proportion of cotton is grown using flood irrigation, which requires 20000 litres of flood water to produce a kilogram of harvested crop due to high levels of surface runoff and evaporation. Drip irrigation of cotton can require 7000 litres per kilogram of crop, although that is still seven times higher than the volume of water needed for the production of a kilogram of wheat. (Anonymous, 2010)

3. Research Methodology

Sources of data

Primary data were collected from the respondents with the help of semi structured questionnaire.

Sampling Method

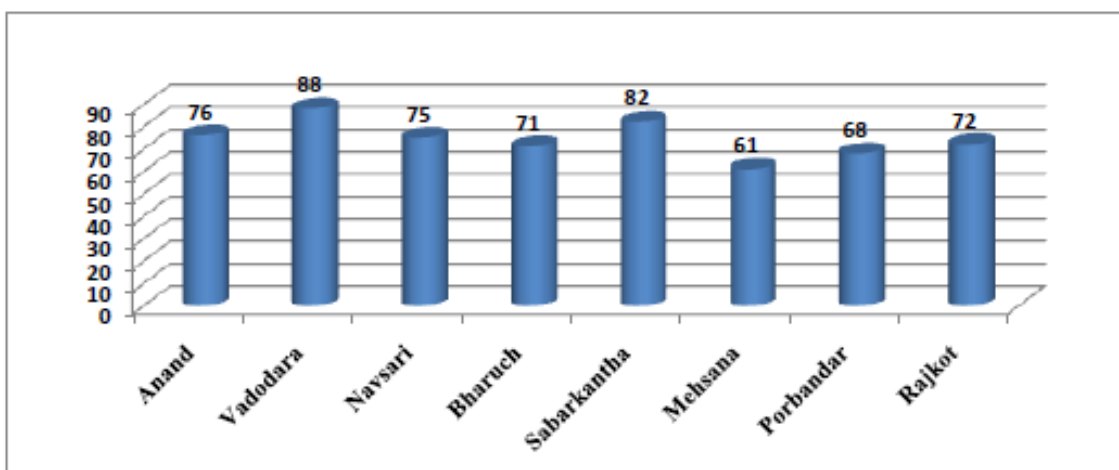
The sampling method was Non probability sampling under which convenience sampling technique was used.

Sample Size

A sample of 256 respondents consisting of small, medium and large farmers as per their proportion in the population was selected and interviewed.

4. Data Analysis

1. District wise awareness of MI Scheme



The awareness about the MI scheme in different districts of the Gujarat state so surveyed was experienced well. Most of

the farmers were known of the subsidy introduction on MIS. Hence, they had installed MIS on their field. Majority of the

farmers in Vadodara district were aware of the MI scheme regarding subsidy i.e. 88%.

The major reason was that Gujarat Green Revolution Company Limited, a government facilitator for MI scheme has headquartered at Vadodara, nearby Savlitaluka (surveyed) in

Vadodara district. Mehsana had least i.e. 61% micro irrigation scheme awareness due to reason that majority of the farmers had livestock cultivation in Kadi taluka of Mehsana so surveyed.

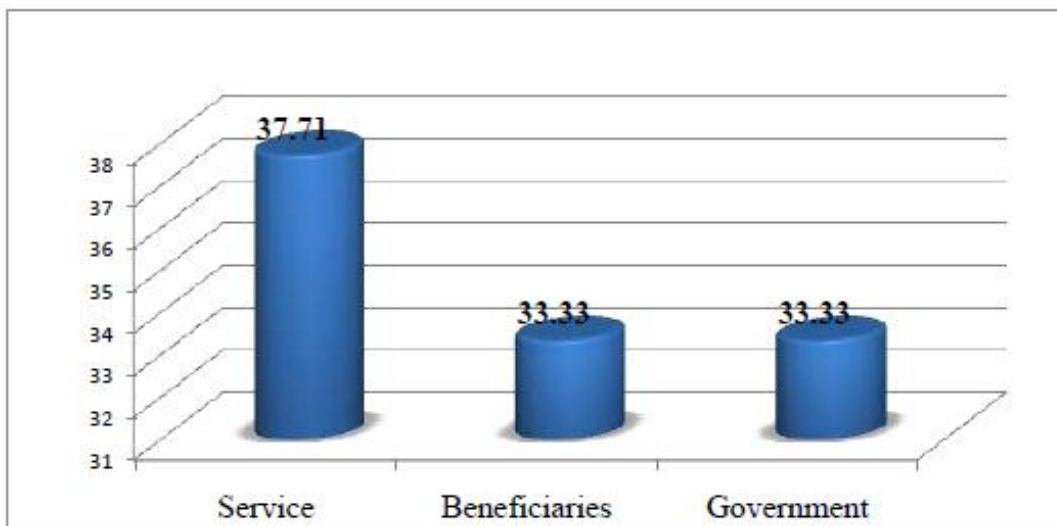
2. Reasons for MIS installation



It can be seen from above figure, 54.76% of the farmers had installed MIS in order to conserve water. As water being the essential input and required much and timely by the plant for growth. 23 % of the farmers had installed due to the reason that now a day's labours in the villages are one of the scarce

factor that affect farming. The less skilled manpower in the villages led to the installation of the mechanized way and reducing the cost of production and maximizing the crop production.

3. Reasons for MIS installation only through GGRC

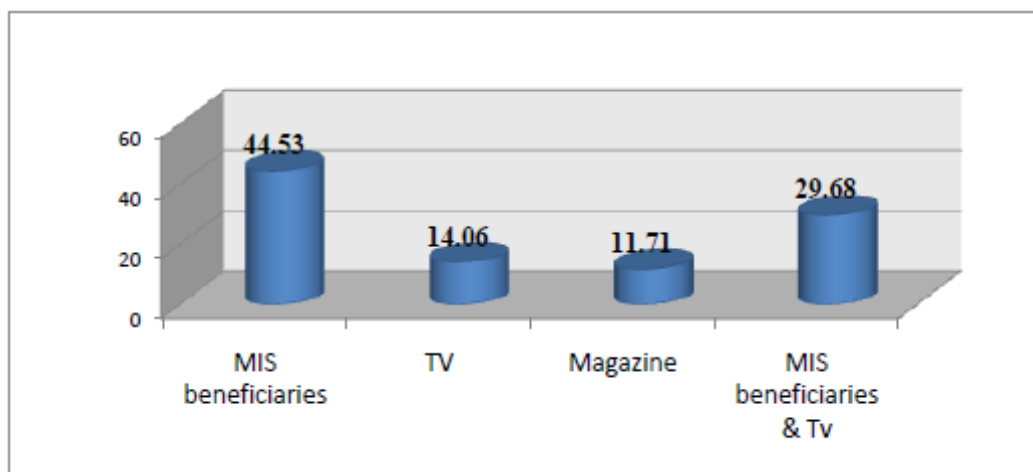


Above figure reveals that farmers had given several reasons of installation through GGRC. Farmers were satisfied of the schemes of GGRC and its services(37.71%). GGRC used to visit the installed plot twice or thrice in two months. Regular visit by the company and the value addition services like e-capture at the time of installation affected a lot. Hence, 37.71% of the farmers were satisfied of the services of the GGRC and hence, utilizing it. MIS beneficiaries(33.33%) i.e. friends, relatives and other users in the villages also affected to

utilize the scheme of GGRC and installation with registration in GGRC. 33.33%of the farmers had installed through GGRC due to the reason that it is government organization and hence security is more in it.

About 49% of the farmers had installed MIS and 90% out of that had installed through GGRC scheme and other through private incorporation. 51% of the farmers had not yet installed MIS on their field.

4. Sources of Agricultural information



The farmers believe in learning by doing and seeing is believing. Mainly farmers were influenced through their friends, relatives i.e. beneficiaries. The study showed that majority of farmers (44.53%) were influenced by MIS beneficiaries i.e. Friends, relatives. Television broadcastings like Krushi Darshan on DD Gujarati, and agricultural programmes on E TV Gujarati also influencing the farmers i.e. 14%. A few farmers were also influenced by Magazines like Jaljivan, Krushi Go vidya etc.

5. Conclusion

There is relatively less awareness about MIS in Mehsana district. Majority of the farmers were engaged in Livestock cultivation and animal husbandry. The network of the Netafim India Private Limited is much more in the surveyed area. Out of 42 competitors and MIS suppliers, the result of Netafim was observed by the respondents, was brilliant with best services.

There is high potential of MIS in Rajkot district. The farmers are well aware about the MI Scheme and MIS adoption is less. The reason is that the farmers were involved in adopting water harvesting technology. The awareness about the suppliers in Anand district is more but the installation is less. The reason for the more awareness is that Anand is located in between Vadodara and Ahmedabad. There are several head offices of several MIS companies in Vadodara and Ahmedabad. Installation is less due to reason of more production of crops by farmers for own consumption of the farmers. In spite of 50% subsidy to farmers by GGRC, few farmers were observed for installing directly through the private entities. Hence, GGRC has to develop more effective extension services so that no farmers may go for private installation of MIS and get government benefits and security.

References

- Anonymous(2010).Report on "Water conservation and technical brief", SAI platform, Greece. <http://www.irrigationtutorial.com> accessed on 2/5/2012
- Anonymous(2010).Report on "Gujarat Green Revolution Agriculture governance", Forbes India, New Delhi, India
- Anonymous(2008).Report on "Micro irrigation Schemes in India", <http://www.agricoop.nic.in> accessed on 8/5/2012
- Bhaskar, Rao, Mendhe, Suryavanshi (2010).Report on "Micro irrigation Management in Cotton" CICR, Nagpur, Maharashtra
- Business Standard (2011). "Gujarat plans big micro irrigation thrust", Business Standard, New Delhi, Feb 10th, 2012.
- GoG (Government of Gujarat). (2012). "Agriculture Profile in Gujarat state" <http://www.agri.gujarat.gov.in> accessed on 10/5/2012
- GoG (Government of Gujarat). (2012). "Land Use Pattern in Gujarat state" <http://www.gujaratindia.com> accessed on 13/2/2012
- GoG (Government of Gujarat). (2012). "Micro irrigation Scheme in Gujarat" www.ggrc.co.in accessed on 25/5/2012
- Gol (2010-11). "Economic survey", Ministry of finance, New Delhi. P: 197
- Gol (2010) Report on "Evaluation study on Centrally Sponsored Scheme on MicroIrrigation", NCPH, Ministry of Agriculture, Department of Agriculture and Cooperation, New Delhi
- Gol(2010). "National Mission on Micro irrigation", Ministry of Agriculture, Department of Agriculture and Cooperation, New Delhi. P: 3,8,20.
- Jain R. B. (2007). Report on "Development of Micro irrigation" www.jains.com accessed on 6/5/2012.
- Narayanamoorthy (2010). Report on "Potential for Drip and Sprinkler irrigation in India", Hyderabad, A.P.
- TOI (Times of India), (2010). "Micro irrigation Scheme", The Times of India, Mumbai, May 12th, 2010.