Micro Irrigation-Benefits/Utility

The Government of India has been implementing Centrally Sponsored Scheme on Micro Irrigation with the objective to enhance water use efficiency in the agriculture sector by promoting appropriate technological interventions like drip & sprinkler irrigation technologies and encourage the farmers to use water saving and conservation technologies.

The Scheme was launched by the Department of Agriculture & Cooperation, Ministry of Agriculture in January, 2006 as Centrally Sponsored Scheme on Micro Irrigation (CSS). In June, 2010, it was up-scaled to National Mission on Micro Irrigation (NMMI), which continued till the year 2013-14. From 1st April, 2014, NMMI was subsumed under National Mission on Sustainable Agriculture (NMSA) and implemented as On Farm Water Management (OFWM) during the financial year 2014-15.

From 1st April 2015, Micro Irrigation component of OFWM has been subsumed under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). It will be implemented as Centrally Sponsored Scheme on Micro Irrigation under PMKSY during the financial year 2015-16 as per the same pattern of assistance and cost norms as were prevailing under OFWM, unless revised. In the FY 2015-16, funding pattern between Central Government and State Government under PMKSY has been fixed as 50:50%.

The study of NMMI was conducted by Global Agri. System and their Impact Evaluation Study report (June 2014) brings-forth that following benefits have accrued on adoption of Micro Irrigation:

(i) The irrigated area has increased in all the surveyed states after the introduction of NMMI Scheme. The Irrigated area within the 5892 sampled beneficiaries of the 13 states before adoption of MI system was found to be 13320.86 ha which became 14441.47 ha after adoption of MI system. It is therefore concluded that total percentage increase in irrigated area with the sampled beneficiaries in 13 states after adoption of MI system was noted to be 8.41% from same source of water. Maharashtra has topped the list with 22.28% growth in irrigated area followed by Chhattisgarh.

(ii) Farmers of all the states have shown an increase in area under horticulture crops after the adoption of the MI system. The cropped area after implementation of CSS for promotion of MI during 2005-06 and subsequently NMMI has shown an increase which may be due to utilization of degraded/ marginal land into cultivable land & increase in cropping intensity.

(iii) Scheme has performed well in terms of reduction in input cost and significant cost saving has been observed for irrigation in all the surveyed states. Irrigation cost is reduced by 20%-50% with average of 32.3%. Reduction in electricity consumption after installation of MI system. Average electricity consumption has been reduced by about 31% after using the micro irrigation system. Saving of fertilizers with averages reduction of about 28% in total fertilizer consumption in the surveyed states. Fertilizer saving vary from 7%- 42%.

(iv) Micro irrigation has generated benefits to the farmers in terms of enhancement of the productivity. The average productivity of fruits and vegetables has increased about 42.3% and 52.8%, respectively mainly because of crop spacing, judicious use of water and other inputs etc.

(v) The overall benefits accrued from the micro irrigation system are reflected in the income enhancement of the farmers. All the surveyed states reported increase in farmer's income in the range of 20% to 68% with an average increase of 48.5%.

(vi) Benefit Cost (BC) ratio of installing micro irrigation system is greater than "1" across the states and across the crops, which signifies the importance of MI system in net income enhancement of the farmers. The BC ratio was observed to be highest in Odisha among fruits & vegetables whereas, in flowers, Rajasthan & Haryana beneficiary farmers achieved higher BC ratio.

(vii) The positive outcomes have made the food security effective due to the increase in the production and productivity of different crops and increased area under irrigation from same source of water. Area under horticulture crops as well as nutritional security has also enhanced.

it is a fact that more area can be irrigated adopting Micro Irrigation including Drip Irrigation using less amount of water in comparison to area that

can be irrigated adopting flow irrigation. Studies conducted on the aspect have revealed that (i) irrigated area has increase from same source of water by 8.41% on an average with the use of Micro Irrigation Systems and (ii) the water use efficiency in conventional irrigation ranges from 30% to 50% whereas it is 80% to 95% in the case of Micro irrigation including Drip Irrigation.

Crop experiments have shown that use of water soluble fertilizers through drip irrigation can result in savings in water (15-40%) and fertilizer (20-50%). Crop wise details regarding saving in water and fertilizer due to use of water soluble fertilizers at various location is as given in following table:-

Table indicating Crop-wise details regarding saving in water and fertilizers due to use of water soluble fertilizers at various locations

Crop	Locations	Yield (t/h	Savings (%)	
			Water	Fertilize
Lady Finger	Belvatgi (Karnataka)	**35**	**22**	**25**
Banana	Bhavanisagar (Tamil	**85**	**20**	**15**
	Rahuri (Maharashtra)	**83**	**25**	**17**
Brinjal	Gayeshpur (West	**26**	**20**	**—**
	Navsari (Gujarat)	**30**	**15**	**—**
Onion	Dharwad (Karnataka)	**19.6**	**25**	**28**
Cotton	Rahuri (Maharashtra)	**3.7**	**25**	**—**
	Parbhani (Maharashtra)	**2.9**	**20**	**25**
	Sriganganagar	**3.4**	**37**	**20**
	Bathinda (Punjab)	**1.7**	**40**	**—**
Dry chilly	Madurai (Tamil Nadu)	**2.2**	**40**	**25**
Pomegranate	Sholapur (Maharashtra)	**8.0**	**25**	**25**
Sugarcane	Sivganga (Tamil Nadu)	**137**	**20**	**—**
	Rahuri (Maharashtra)	**155**	**20**	**—**
	Navsari (Gujarat)	**110**	**20**	**—**
Tomato	Bhavanisagar (Tamil	**27**	**40**	**50**

In nut shall following benefits have accrued to the farmers:

- Saving of irrigation water from 20 to 48%
- Energy saving from 10 to 17%
- Saving of labour cost from 30 to 40%
- Saving of fertilizers from 11 to 19%
- Increase in crop production from 20 to 38%
- Increase in net annual income of the farmer beneficiary