Micro irrigation-

A boon to Indian agriculture!

By Prasanta Misra



Agriculture has been the main stay of human races survival and well being.Civilisations across the world grew around river banks and water bodies where it was possible to grow crops and vegetations.Even today most of the world population stays around water bodies whether it is rivers,lakes,reservoirs or oceans.Modern technologies have made it possible to harness ground water resources for agriculture and other usages and that has helped development of agriculture in many other clusters.In India as much as 80% of our fresh water resources are utilised in agriculture alone.Since the demand for water is also growing from the industry sector and the domestic users it is being increasingly felt that the water use efficiency in the agriculture sector must improve so that more water can be made available for the growing industries and domestic sector.

India has invested heavily in large resrvoir and canal projects to harness the water flowing through the river systems.However the efficieccy of water usage from these irrigation projects have been miserably low,because of seepage and evaporation losses.Besides,these irrigation projects have led to over irrigation and salinity in the canal banks which has rendered millions of hectares of land unculturable.

Since the demand for food production is also increasing at a rapid rate to support the growing population it is pertinent that solutions are found to reduce amount of water presently being used by the agriculture sector and at the same time increase agricultural productivity to meet the food demand.

In this back drop considerable efforts are being made to adopt modern irrigation practices which can use irrigation water more efficiently at field level.Besides this, efforts are also on to modernise canal water usage to increase the effective command area of the major and minor irrigation projects in the country.

Micro irrigation has emerged as the front runner solution which offers the double benefit of appreciable reduction in volume of water used and at the same time results in higher agricultural productivity.Use of fertigation further enhances the productivity and offers the dual advantage of fertiliser saving and non pollution of ground water as well as surface runoff water.

The modern day Micro irrigation technology was accidentally discovered in Israel where an apple tree in an orchard was seen to grow much faster and better near a leaking pipe.Today Israel is a leader in Micro irrigation and the worlds- who-is-who in Micro irrigation are from Israeli Kibbutz.It will not be an exaggeration to say that Israeli agriculture miracle in the arid desert lands was possible because of micro irrigation.

Micro irrigation is not new to India.More than half a century back M/s Jyoti ltd tried to market drip irrigation in the country and M/S Voltas joined the race by marketing drip systems in the oil rich Arab countries.Even Indian reserchers tried to develop plastics emitters which are the heart of micro irrigation system.Precision Hardware development has not been the forte of Indian technologists and manufacturers and therefore most of India’s micro irrigation emitters are either licensed from abroad or are imitations and copies of designs developed abroad.

Micro irrigation adoption results in 50 to 100% increase in agricultural,horticulturalproduction combined with almost 40 to50% decrease in fertiliser consumption.The ball does not stop here,the quality of produce also improves appreciably.However micro irrigation has been mostly deployed for horticultural crops so far.With increasing pressure on water availability there is high possibility of using drip irrigation in field crops like rice and wheat.Since major components of drip irrigation systems are made of plastics materials the rapid developments in polymer field much more cost effective systems could be developed in the years to come.

Micro irrigation industry in India has grown appreciably and there are more than 7 million hectares of drip and sprinkler systems installed in the fields to date. All these systems are are almost entirely indigenously manufactured .Many of the fruits and vegetables which are available on the grocery shelves round the year are a result of extensive adoption of micro irrigation by farmers of Gujarat,Haryana,Rajasthan ,Andra Pradesh,Karnataka and many other states.

A high powered task force constituted under the Chairmanship of Shri Chandrababu Naidu,the then Chief Minister of Andhra Pradesh had pegged the potential for micro irrigation in the country at around 69.5million hectares .Though the task force had envisaged that around 17million hectares area would be brought under micro irrigation by end of the 11th plan period with a total field outlay of Rs61000Crores.However the actual achievement was only 7million hectares during the same period.

Adoption of micro irrigation was accelerated through central assistance and many of the developed states have recognised the impact of micro irrigation resulting in appreciable state assistance to the farmers.Normally around 50% financial assistance is provided to farmers for adopting micro irrigation system by the state and central governments.In order to further accelerate the adoption of micro irrigation by farmers some of the states extend further assistance which can reduce cost of system by as much as 70 to 80%.



With proper planning and design and crop rotation the cost of the drip system could be recovered in 2to 3years.It has been further seen that farmers adopting micro irrigation are elevated to a higher orbit of agro technology and these farmers start adopting other useful technologies for enhancing quality and quantity of agricultural production including marketing of the produce at a premium.

Since the new government is committed to develop agriculture at a much faster rate,it is hoped that the budget allocation will be good enough to achieve the task force target atleast within a decade.To achieve food security and nutritional targets for the ever increasing population,investment in the micro irrigation sector is an essential requirement.Visionary developments like integrating major irrigation projects with water storage reservoirs and application of the stored water to the field irrigation with sprinkler or drip irrigation must be extensively adopted.Integration of micro irrigation with major irrigation schemes will have the multiple benefit of increasing canal command areas at much lower cost as compared to creation of fresh irrigation projects.Besides stretching the canal command area the crop production will be almost doubled and the reservoirs in the command area will also be used for rain water harvesting and aquaculture.

It is hoped that adequate focus will be given to drip development which can change the face of Indian agriculture and make it monsoon proof.Bold,visionary policy decisions with regard to micro irrigation and related advanced agricultural technologies can make India a super power in agriculture and horticulture production.

*The author has pioneered the introduction of micro irrigation in the country along with a variety of other precision farming applications such as-green house,pond and reservoir lining,water harvesting,nursery bags,mulching,tunnels and post harvesting products.Presently he is a Chief Consultant to the GOI and is a CSR specialist having 40 years of corporate experience.*

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