

LOW-COST EFFICIENT IRRIGATION SYSTEM (EIS) PILOT INITIATIVE IN THARPARKAR AND UMERKOT DISTRICTS

(Monitoring Report)



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INTRODUCTION¹

1. A RSPN Monitoring Mission², visited the Thardeep Rural Development Project (TRDP) from 2 to 6 April 2008 for the monitoring of the Low-Cost Efficient Irrigation System (EIS)-a pilot project funded by RSPN. The Mission was briefed on the progress on the first day at Mitti by the CEO TRDP, management and field staff of the micro-drip company (A subsidiary of TRDP). From April 3-5 the Mission visited Umerkot and Naga parker and interacted with farmers who use the drip irrigation technology, learned about the various activities undertaken, crops grown, costs and benefits of the drip irrigation technology to the farmers. A wrap-up meeting was held on 19th in Mitti with the CEO of TRDP and COO of RSPN.

PROJECT PROGRESS & ACHIEVEMENT

General

2. Financial records were found to be reasonably maintained and the financial report of the project (starting from 31-07-06 to 30-03-07) has been already submitted to finance section RSPN. A significant proportion of the pilot fund were however utilized on operational costs, which could otherwise should be used on the Programme side.

Financial and Physical Progress

3. A total of 22 demonstration plots were initiated on a total of 22 acres of land. Majority of the demo plots (14 out of 22) according to TRDP management could not sustain the EIS system after first harvest. Farmer abandoning the use of EIS is TRDP's indicator of demonstration plots failure. An additional 3 farmers continue to cultivate on the same pilot plots while 5 farmers from the pilot phase extended the demonstration plots from a total of 5 acres to cultivating on 16 acres of land with same EIS technology.
4. Reportedly, by the end of the March 2008, despite failure of EIS on 14 out of 22 acres of demonstration land, there are 22 new adopters using EIS on a total of 69 acres of land. This is a perverse relationship between high failure rate of demonstration plots and high adoption rate by farmers.

MAJOR ISSUES AND PROGRESS

Management of the pilot project

5. The Mission notes that the pilot project is spread out in two districts rather on a concentrated area with focused supervision and technical support from the core technical staff. The wide spread of the demo plots not only increase the operational costs of the project but also led to lack of concentrated approach in terms of project management and technical support.
6. The Mission notes that before spreading the EIS to the formers' field TRDP should have extensively tested different varieties of crops on their own demo plot, and creates a core baseline and follow up data for each crop. On the basis of these results the EIS should be given to the farmers.

Adaptation and Failure of the EIS demos Plots

¹ The Mission wishes to express its appreciation for the excellent cooperation extended by the TRDP and Micro drip management and field staff especially Dr Sono Khangharani, Mr. Saquib and Mr. Kanhai during our visit to TRDP.

² The monitoring mission include: Khaleel Ahmad Tetlay (COO RSPN), Sarmad Khan (MER specialist) and Fazal Ali Saadi (Rural Economist).

7. The major issue the Mission observed is the failure of the nearly two-third of the demo projects and at the same time the TRDP's stress on the expansion of the project to other farmers. The main reason for the failure of the demo plots can be classified into three categories: (i) field selection without prior assessment of the need of the EIS system (ii) farmer's lack of awareness and interest and ability to maintain the EIS (iii) problems/faults with the design/product of the EIS system.
 - Field selection with out prior assessment of the need of the EIS system: The EIS uses water in drop to each plant (therefore efficiently uses the available water and reduces water leakage) through literal. This means that the EIS system needs water available in tanks with every 3 to 4 days. One major reason for the failure of the EIS on some of the demo plots is the wrong site/field selection like demo plots with canal water (according to farmer one can get one minute water per acre after 30 days), and manual water extraction.
 - Farmer's lack of awareness, lack of concentration and inability to maintain the EIS: Another important reason for the failure of the demo plots are observed as at the initial stage the farmer need full awareness about the proper use and benefits of the newly adopted technology and modern agriculture practices. In this regard the farmers may need assistance about different coping mechanism from different crop diseases, techniques about improving the yields. So that the farmer could see a visible incentive in adopting the new technology than traditional one. In addition to this farmer need more hard and concentrated work in EIS as compare to flood irrigation, therefore in case of share cropping the farmer and share cropper both needs equal and concentrated effort in EIS. Finally, the EIS need a handsome amount of investment, initially in the installation of the EIS equipment, then maintenance on continuous basis and then the replacement of equipment after 5 years, which is not possible to bear by the poor farmer or sharecropper.
 - Problems/faults with the design/product of the EIS system: The mission concurs with the observation of the TRDP own assessment about the problems with design of the EIS. For instance the frequently fall out of emitters, and faster wear and tear-off of the grommets. The assessment of the Mission on cost recovery shows that the cost recovery is possible for some crop combination but limited for some crops even with 50-80 percent subsidy on the drip equipment.
8. The Mission notes that the profitability of EIS as an alternate to flood irrigation (from the farmers' perspective) depends on different combination of crops. An assessment of the data gathered from the field by the Mission reveals that EIS as an alternate to flood irrigation is profitable for a combination of growing Chillies with Tomatoes and not for growing a combination of Cotton with Sunflower. With EIS the net present value (NPV) of growing Chillies with Tomatoes is 200 percent higher than with growing Cotton and Sunflower. The benefit-cost ratio (BCR) is also higher for Tomatoes with Chillies (2.8) than for growing Cotton with Sunflower (1.4).
9. Sensitivity analysis shows that with even first-time 80 percent subsidy on EIS equipment growing Cotton with Sunflower is not a profitable venture. Therefore, farmers growing Cotton with Sunflower would require 80 percent subsidy twice; once initially in the installation of the drip equipment and secondly during replacement of EIS equipment in year 3. Sensitivity analysis also shows that in the case of growing Tomatoes and Chillies even with zero level of subsidy for EIS equipment the investment is generating positive incremental benefit streams and a very high BCR of 2.2.

Recommendations:

The Mission makes the following recommendations based on the observation in their interaction with the farmers in the field about EIS and discussion with TRDP and Micro-drip management:

10. Prior to the launching of the EIS system the farmer/farmer fields should be carefully selected with an assessment of the feasibility for the EIS system.

11. The data on the TRDP's experimental farm and demonstration farms should be regularly updated and shared with the farmers
12. TRDP should define a strategy for the day to day maintenance of the EIS equipment and replacement of equipment in year 3, this may be in the form of linking the farmers with any insurance company.
13. More support needs to be given to the participating farmers, particularly in agriculture technology and extension
14. In the future more concentrated approach needs to be adopted to allow for more effective follow ups and more farmer-to-farmer learning
15. A market price information system needs to be developed and put in place for farmer knowledge.
16. Drip irrigation is more likely to be sustainable when used on smaller areas with high value crops.
17. TRDP should develop an advocacy strategy to attract resource from government, and donors for provision of EIS equipment to the poor farmer at a subsidized rate.