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FARMERS' PERCEPTION OF THE BENEFITS OF WATERCOURSE IMPROVEMENT

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Adoption of an innovation depends on its relative advantage over the existing practices. Watercourse improvement technology has been introduced in the irrigated parts of Punjab for more than a decade. How farmers perceive the savings in water due to watercourse improvement has been investigated. Water losses have been decreased from three fourth to less than one - fourth. The benefits increased as the location of land irrigated shifted from head to tail. Rat holes remained the only significant source of water losses in the ditches after improvement.

INTRODUCTION

Research on farm water management is of a very recent on gm in Pakistan. Studies conducted in 1970's brought out alarming results with respect to the losses of irrigation water during its delivery from canal to farmers fields (Corey and Clyma, 1973). This early research also led to the discovery of low cost methods of rehabilitating farmer's watercourses and installation of locally fabricated 'Pucca Nakkas' and check structures.

It was very soon realized that the problem of water losses in farmers' ditches was more of a social nature than its basic engineering design. Studies by Radosewich (1975), Mirza and Merrey (1979) Lowdermilk et al. (1978) highlighted that the process of decision making at the farm level is collective in nature, because one watercourse is shared by several farmers who do not operate under any organized system.

One of the important characteristics essential for adoption of an innovation is the perception of its relative 'advantage by its clients. Our farmers are quite rational. They are ready to accept a new idea or practice if it is beneficial for them. It is, therefore, imperative to systematically study the extent to which new things are beneficial for the farmers.

The present study aimed at looking into farmers' perception of imrovement in the water supply to their fields and how according to their judgement water losses have been mitigated as a result of watercourse improvement.

MATERIALS AND METHODS

The study was conducted on three watercourses in SCARP area of District Faisalabad. These watercourses were selected randomly out of those improved for at least three years prior to undertaking the research. Each of them had a water users association of its own registered under the ordinance of 1981.

The number of shareholders on each watercourse was as under:

Watercourse	Shareholder
I	72
11	36
III	56

From each watercourse, 21 farmers were selected randomly stratified equally by their position on watercourse: Head, Middle, and Tail. The data were gathered by means of an interviewing schedule.

The estimates for water losses were measured in terms of farmers' perception in two ways:

(I) Their qualititative judgement of the part of water lost, and

(2) Their estimates of time taken to irrigate one kanal

(1/8 th of an acre) area of a crop before and after improvement of the watercourse.

RESULTSAND DISCUSSION

Table 1 indicates that most of the farmers perceived that losses were very substantial before improvement. All except three claimed that losses after improvement had been reduced to one-fourth or less. Nearly two third of the sample farmers claimed that no water was lost which, even if taken as an exaggeration, is an expression of their complete satisfaction with the improvement activity.

The responses given in Table 1 were then split according to farmers' location of land on their respective watercourses. Percentages calculated out of 21 (total number of farmers on each location) are given in the parentheses.

Table 1. *F/lrmers' estimates* of *Water Losses before and After Improvement*

Extent of water Lost	Before Improvement		After Improvement	
	No./percentage of Farmers			
	No	percent	No	percent
None	0	0.0	41	65.1
25 96	28	44.4	19	30.2
5096	32	50.8	3	4.7
75 96	3	4.7	0	0.0
Total:	63	100.0	63	100.0

From Table 2 it can be gathered that perception of water losses varied with farmers' location of land along the watercourse. Water losses before improvement were perceived as greatest in quantity by the farmers at the Tail. All the farmers thought that at least half of the water was lost by the time it reached their fields. For the farmers at the Head the perception of water losses was the lowest. The gains of improvement seemed to be proportionately quite significant for farmers at all locations.

Most of the farmers thcught that spills, seepage, water in ditches, silting, nakkas, illegal cuts, livestock and vegetation did not contribute' to losses after watercourse improvement. They perceived rat holes as a source of water loss about equally before and after improvement.

Table 3 shows the mean time per kanal for each watercourse before improvement, immediately after, and at present. On all the three watercourses farmers perceived an increase in water available for irrigation after improvement, as the time to irrigate decreased. Largest decline in water supply since improvement was reported by the farmers at watercourse number three. Watercourse number two on the other hand seemed to be the best maintained.

Table 4 shows the mean time required to irrigate one kanal of land at Head, Middle and Tail of watercourses. The Table reveals that the benefits increased as the location shifted from Head to the Tail. Although the irrigation time is still the greatest at the Tail of the watercourses, yet the 'Tail-farmers' have the highest percent of gains in their water supply as a result of watercourse improvement.

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