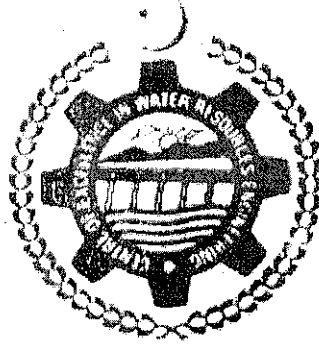


**THESIS**

**IMPACT OF THE ALTERNATIVE LINING OF THE  
WATERCOURSE ON THE COST AND EFFICIENCY**



By

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## ABSTRACT

In Pakistan lining has been very limited due to high cost and the lower water rates charged to the cultivators. Watercourse lining is expensive but inevitable to enhance the conveyance efficiency. The study was aimed to compare the performance and cost of various lining methods practiced in Pakistan. The study area was selected in the Kasur and Shiekhupura, where four watercourses were selected; two each with Brick Lining (Shiekhupura District) and Pre Cast Parabolic (PCP) lining (Kasur District).

Two watercourses of different lengths were selected with each type of lining. The watercourses with similar discharges were selected to ease the comparison. The detailed cost of materials and labor of watercourse lining was calculated for Brick and Pre Cast Parabolic (PCP) lining. The comparison of the both types of lining was performed on the basis of average cost per meter. Moreover the efficiency before and after lining was also compared for both types of lining.

The result shows that the average cost of the PCP lined watercourses is 22 % more than the cost of the Brick lined watercourses. The average conveyance efficiency of the PCP lined watercourses is 27% more than the efficiency of the Brick lined watercourses. The PCP lining may be introduced to increase the efficiency of watercourse. The cost is higher because there is few numbers of factories; which are producing PCP segments in Punjab.