

Exam CT4410 Irrigation and Drainage June 2009

Questions related to: Noor Ul Hassan Zardari and Ian Cordery 2009 Estimating effectiveness of a rotational irrigation delivery system: a case study from Pakistan.
Irrigation and Drainage

1. Draw a graph of a typical delivery schedule for a farmer in the warabandi system.
2. The potential advantage of the warabandi system is the clear definition of water rights, the potential disadvantage according to the paper is waste of scarce resources and/or over-irrigation. Do you agree these are the main potential advantage and disadvantage, and how do they relate?
3. Which important factor is not mentioned as part of the survey? Explain how this factor could be estimated with other factors included in the survey.
4. Explain why performance of the main system under warabandi arrangements does not potentially differ much from other types of arrangement in other main systems. Why does warabandi indeed potentially yield different results on the lower levels compared to other arrangements?
5. The results of table III are more detailed than the results of the irrigation game played in the course, but several data can be compared. Discuss the two systems in terms of water and income, and compare the patterns found in the results.
6. Is there a typical head-tail in this irrigation system?
7. The paper seems to suggest an automatic relation between payment of canal water fees, improved maintenance and better performance. This relation is based on the farmers' willingness to invest in groundwater. What crucial difference between canal irrigation and groundwater irrigation might explain this willingness and may also explain why extra payment for canal water will not yield results?
8. The authors blame the warabandi concept for the problems found and suggest solutions. Do you agree with their conclusion about warabandi and what would your preferred solutions look like?