

Thus if present cropping patterns persist but irrigation deltas are brought up to the full depths recommended in Chapter 2, a disposable surplus of more than 1.6 million acre-feet of water will remain.

The bulk of the economic value of the tubewell water depends on the use of this disposable surplus since, as we saw above, there is little to be gained, aside from the maintenance of soil condition, from increasing irrigation depths on currently cultivated land. There are two obvious productive uses for this water. In the early years of the project, particularly, much of it can be used to reclaim abandoned land and to increase the productivity of partially salinated lands. Step by step with the progress of this work the water can be used to extend the area under cultivation and to increase the intensity of cultivation of lands in use. Neither of these improvements, however, can be effectuated by water alone. Land reclamation requires, in addition to water, skillful administration and supervision by the project administration. Extension of the area under crops and increase in the intensity of cultivation depends on the cooperation and energy of the farmers under the guidance and stimulation of the agricultural assistants. In short, these desirable and productive results will not occur by themselves even if water is provided at reasonable costs; the additional water will be used efficiently only if accompanied by able and energetic agricultural administration.

In the absence of fine-grained surveys of soil condition, it is not possible to make a reliable estimate of the economic value of reclaiming deteriorated and abandoned lands. The estimate to be presented should therefore be regarded as only suggestive and indicative of an order of magnitude. Consideration of the geological history of Rechna Doab, along the lines of the analysis in Chapter 7, indicates an average salt burden of about 4 tons per acre foot of soil or a salt concentration of 0.2 percent. Table 1.12 shows that about 20 percent of the culturable land in the doab is seriously contaminated, that is, has a salt concentration of 0.3 percent or greater. If we conceive of the frequency distribution of land by salt concentration we see that these two data determine its main characteristics. For example, a Pearson Type III curve with exponent 3 can be scaled to have a mean of about 0.2 and an upper 20-percentile of 0.3, and other frequency curves conforming to these two data will be very similar in shape. We have adopted this Pearsonian curve for purposes of estimation.

The effect of various salt concentrations on the yields of different crops was given in Table 2.6. This information is used in Table 5.7 to compute the actual yields of the land in relation to the yields that could be obtained if the salt