

More irrigation water and its proper allocation to the land

At present, the allotment of irrigation water per acre of canal irrigated land under cultivation averages between 17 and 22 inches per year. With a winter as well as a summer growing season, this means that there is sufficient water to irrigate only a fraction of the cultivated land at any one time. Since this fraction is somewhat less than one-half, the average depth of water applied to crops is approximately 20 inches. Calculations given in Appendix A.5 indicate the consumptive use values and the estimated amounts of water (from both canals and rainfall) applied to principal crops in the major canal systems of the Former Punjab.

It is evident that crops are inadequately irrigated at present, particularly during the summer (Kharif) season. Some yield increases could be obtained simply by the application of more water to the Kharif crops. Of greater importance, however, is the fact that, on irrigated soils, an amount of water in excess of that required by the crop for evapotranspiration must be leached downward through the soil in order to control salinity. The excess quantity of water needed to maintain a desired level of salinity in the root zone is termed the leaching requirement. This concept is discussed in the next section.

If sufficient water were made available for irrigation, it would also be possible to increase the fraction of the land that is double-cropped, and to cultivate a larger proportion of the culturable land, for example, by reducing or eliminating fallows (the latter will require fertilizer as well as water). In any case, if productivity is to be sustained, the acreage of cropped land must be adjusted so that the need for salinity control can be met.

Water management and salinity control

Because all irrigation and ground waters contain more or less dissolved salts, control of salinity in irrigated areas is intimately related to water management. Not only is it necessary to supply needed water for the growing crop, but it is necessary to control the level of salinity in the soil as well.