

$D_i = D_c \left(1 + \frac{P}{100} \right)$ where P = percentage increase from Table 2.2.

The canal waters of West Pakistan are of relatively high quality. The average salt concentration of the Indus Basin Rivers is about 250 ppm. Thus, from 2 to 9 percent additional water, over and above consumptive use, depending upon the salt tolerance of the crop, is presently required for salinity control. With this low salt concentration, it should be possible to reduce the quantity of irrigation water required per acre by conducting leaching primarily during the winter months, when evapotranspiration is at a minimum.

With saline ground waters, whether used directly for irrigation or mixed with surface waters, greater total amounts of water will be required. For example, if the irrigation water has 1,000 ppm of salt, the required amount is from 11 to 67 percent greater than consumptive use. The water that is not evapotranspired (used consumptively) will percolate back into the soil, and can ultimately be re-used. With a concentration of 2,000 ppm or more in the applied water, it may be economical, in order to keep down pumping costs, to plant only those crops that can tolerate a relatively high concentration in the root zone. Thus, pulses should probably not be grown in the lower central parts of Rechna and Chaj Doabs when, and if, pumped ground water from these areas is used to supplement canal water. The degree of salinity control is the same in all cases if the required increase in irrigation water is used and is leached through the soil. It is evident that the use of salt tolerant crops is an effective way of keeping the quantity of irrigation water required to a minimum.

In Former Sind, the cultivated fields are commonly dispersed in more or less isolated patches. Irrigation water is often carelessly used, and there is no systematic drainage system. As a result, a considerable portion of the irrigation water runs off into fallow or uncultivated land, where it seeps down to the water table. This percolation, rather than canal leakage, appears to be the most important cause for the rising water table in Former Sind.

Water management here could be improved by consolidation of the cultivated fields into large contiguous grids, and by careful control of irrigation supplies so that just enough water is applied to meet the evapotranspiration needs of the crops plus the leaching requirement for maintenance of low soil