(ii) From the evaporation of irrigation water. Assume that irrigation water contains 250 milligrams of salt per liter, that 2 feet of irrigation water are applied each year, and that a third of the residual salt is deposited in the top five feet of soil. This gives a salt accumulation rate of 0.22 tons per acre year or 0.04 tons per acre foot per year.

(1) Waterlogged areas. Assume that the ground water has a salinity of 500 milligrams per liter, that 0.25 feet per year are evaporated and that the saline residue is deposited in a zone three feet in depth. This gives a salt accumulation rate of 0.6 tons per acre foot per year.

(2) Non-waterlogged areas. Assume that the ground water has a salinity of 500 milligrams per liter, that 0.25 feet per year are evaporated, and that the residue ~~is~~ deposited in a zone five feet in depth. This gives a salt accumulation rate of 0.03 tons per acre foot per year.

In non-waterlogged farmlands that have been irrigated for thirty years the total accumulation would be $2 + 0.04(30) + 0.03(30)=4.1$ tons per acre foot. Hence the final amount of salt is twice the initial amount. In waterlogged regions the total accumulation would be $2 + 0.04(30) + 0.6(30) = 21.2$ tons per acre foot. This amounts to more than 10 times the original quantity with most of the additional salt derived from the ground water. Hence it should be expected that salination will be much more severe in depressed areas in which waterlogging has occurred for many years than in areas where the depth to the water table has been more than (say) five feet.

The use of the underground reservoir is complicated by two constraining factors. Part of the stored water is highly saline and part is in areas of sub-marginal usefulness, such as the inner part of the Thal Desert. At least 6.5 million acres in the Former Punjab is underlain by water with a dissolved salt concentration over 1,750 milligrams per liter. While there are localized areas of better water at shallow depths within the zone of high concentration, their distribution is patchy. Although on the whole the alluvia of the Indus Valley are remarkably homogeneous, the movement of ground water is not entirely uniform because irregularities of the underlying rock and existence of horizontal strata of low permeability. Consequently, the washing and leaching action of the underground flow is very slow in some areas, and stagnant saline zones persist. The effect on water quality of lowering the water table cannot be predicted with certainty. Future salt concentrations will depend on the amount of water pumped, the depth from which it is pumped, the amount of water recirculated and the amount disposed of through drains.

There is some indication that highly saline water underlies the whole of the Indus River basin. If this is true, the depths to this saline water become