

The phrase "potential yield" in the previous paragraph must not be misconstrued: it means merely the yield that would be obtained with fully adequate supplies of water, all other cropping practices remaining the same. The finding that actual yields are almost as great as potential does not imply that the supplies of irrigation water in the Punjab are adequate. It indicates mostly that farmers have responded to the chronic shortage of water by means other than starving the crops planted. Specifically, they have responded by restricting the area sown, particularly in Rabi, by not using water to wash down accumulating salts, and by refraining from profitable, water demanding, practices like fertilization. Thus the water shortage is very costly in terms of crop output and soil condition, though not in terms of yields per acre on lands sown and cropped in accordance with current practices.

A more quantitative appreciation of the effects of increasing the water supply can be obtained by comparing current and potential patterns of land and water use in an area of roughly the size of one of the project areas that we contemplate. To this end, table 5.5 shows current pattern of land and water use, together with some economic results, in a million acre tract typifying conditions that obtain in the districts served by the Lower Chenab Canal. Of the gross geographic extent of a million acres, 915,000 acres are culturable and 730,000 acres are sown in a typical crop year. The cropped acreage is used with an intensity of 118 percent. The gross value of output, valued at 1957-58 prices, is Rs. 15.2 crore: the amount of irrigation water applied (i.e. excluding rainfall) is just about a million acre-feet.

If the same land-use pattern is retained but the irrigation regime is changed to provide the full evapotranspiration requirements to the crops and, in addition, to meet the leaching requirement to prevent the accumulation of salts the irrigation requirement would be increased to 1.4 million acre-feet and the gross value of output to Rs. 16 crore, i.e., scarcely at all. The principal gain resulting from the additional 400,000 acre-feet of water would therefore be the improvement and maintenance of soil condition. These calculations are displayed in Table 5.6.

The tubewell installations contemplated will actually produce far more than 400,000 acre-feet of water per year in a million acre tract. In the first year of operation of SCARP ONE, six of the subareas had substantially their full complement of wells installed and in commission. These 1,014 wells covered a gross geographic area of 616,000 acres and provided a flow of 1,526,000 acre-feet of water (see Table 7.3). Thus, on the average, each well covered a gross area of 608 acres and provided 1,500 acre-feet of water. Taking these results as typical, a million acre tract would be served by 1,650 tubewells providing upwards of 2 million acre-feet of water.