A second theme implicit throughout the Panel report was *integration*—the hydrological problems of the Indus Plain can best be handled on a unitary or "systems" basis. Three kinds of integration are involved.

1) The Plain as a whole and its water supply must be considered as a unit. What is done to irrigate farm fields in former Punjab and Bahawalpur profoundly affects former Khairpur and Sind. The total water *requirement* for given cropping patterns and intensities in areas of given size throughout the Plain depends primarily on the potential evapotranspiration in these areas. It must be entered in any budget of irrigation water. But more important, because water in the Indus Plain is scarcer than arable land, is the total water *supply* from rivers and rain, and from surface and underground storage. We want to know the supplies (from both irrigation and effective rainfall), that can be made available during each month in each area at given levels of development of water structures. Comparisons need to be made of the social and economic costs and benefits of water developments in the Northern and Southern regions and their sub-regions. For each sub-region, with any given cropping pattern and intensity, the available water supplies will determine the size of the cropped area. The ultimate potential water supply for irrigation in the Plain as a whole is particularly significant, because it will fix the ultimate dimensions of the gross sown area, that is, the product of the cropping intensity times the net cultivated area. This must be the primary boundary condition in long range planning for agricultural development. The degree and speed of approach to this boundary condition are crucial for shorter range planning.

2) Irrigation water supplies from rivers and surface storage and from the underground reservoir should be managed as a single system. There is a marked seasonal variation in river flows, and a lack of concordance between these flows and the crop water requirements. At the same time, the unit costs of surface storage are high, and good reservoir sites are scarce. Consequently, the proportion of river waters effectively usable for irrigation can be raised near to its potential level only if sufficient underground water supplies are also available, at the right times. Conversely, the full potential of the underground reservoir can be realized, and a high percentage of recovery of the seepage from canals, water courses, and field percolation attained, only if river waters are available at the right times and places for mixing with relatively salty or sodium-rich underground waters.

3) Supply and drainage of irrigation water should be closely integrated. To maintain soil salinity and alkalinity control, a substantial fraction of the irrigation water applied to the fields must be drained off, either in conveyance channels or by percolation into the ground, and hence cannot be used consump-