Agriculture and Forestry in Pakistan (2)

Part 2: Irrigation farming on the Punjab-Sind Plain

The Punjab-Sind plain has a very old tradition of irrigation farming. The main water sources for irrigation in this area are the Indus and its tributaries.These mostly originate in the mountains, which means that there are characteristically significant seasonal changes in water levels. The most commonly used irrigation scheme in former times was the employment of simple watercourses cut through the riverbanks, into which water would flow only when the water level of the river was sufficiently high. The use of such watercourses was restricted by season and it was possible only in limited areas close to the river.

Later, irrigation in areas away from the river also became possible by controlling water flows with dams and by leading watercourses through the highlands. The main irrigation facilities in the Indus river basin include 16 barrages and 43 sets of irrigation channels, and the total length of main channels are as long as 64,000 km. Moreover, there are some 100,000 joints which connect the main watercourses to their branches, and the total length up to the very ends of the branches including channels into each farm amounts to 1.6 million km, covering 16.8 million ha of irrigation land in total. The main agricultural products from this area are wheat, rice, cotton, sugarcane and forage. The contribution made by irrigation farming here is significant not only in terms of food production but also as a source of supply of raw materials to domestic industries, especially the cotton industry.

Dam in Taunsa

Main irrigation channel

The end of the line for a branch channel

As the Punjab-Sind plain hosts mainly alluvial soil, irrigation channels constructed on the plain are made of soil which absorbs a large quantity of water. This, coupled with other problems such as the wearing out of dams and channel joints, and the lack of funds for their maintenance, is said to have resulted in an efficiency rate for the irrigation system that is less than 40% today. The loss of water from the irrigation channels themselves poses a significant limit to the development of agricultural productivity, as it causes not only a great loss of irrigation water but also causes other problems such as unnecessary and excessive waterlogging and salt damage. Therefore, the most important strategies for agricultural development in this area include prevention of waterlogging, salt damage and floods, as well as the rehabilitation of existing irrigation and drainage systems, and achieving an increase in the efficiency of water management schemes. In the 1960s the Salinity Control and Reclamation Project (SCARP) and more recently the National Drainage Programme was started at the national level. SCARP is an irrigation and drainage management project, which aims at protecting farmlands and increasing agricultural productivity by controlling groundwater levels with tube-wells. The tube-wells not only serve to lower the groundwater level to a harmless point, but the pumped water is also added to irrigation water, thus contributing to an increase in cultivation areas. Technical support has been provided by Japan in various related fields here, such as the establishment of groundwater control and irrigation facilities to increase irrigation areas, water management projects (especially canal lining at the individual farm level) and the rehabilitation of worn-out barrages. Damage to the irrigation systems caused by floods, due to seasonal increases in water, from the mountain areas has also been a serious problem especially on the right-hand bank, and some river basin management projects have been carried out in the flood-ridden area as well