Pakistan: Punjab Irrigated Agriculture Productivity Improvement Program Project (PIPIPP)
IDA Credit: US$250 million

**Sector Context:** Despite its declining share of Pakistan’s GDP – estimated at 22% in 2009 - agriculture remains central to the country’s economy. It is the single most important source of employment and exports, accounting for two-thirds of employment and 80% of exports. Most of the poor live in rural areas and tend to be employed mostly as agricultural wage workers. Pakistan’s agriculture sector is almost wholly dependent on irrigation and more than 95% of the country’s water is used for agriculture. However, Pakistan’s water availability is shrinking while demand is increasing. Vast amounts of water are lost due to deteriorating watercourses and wasteful on-farm water use. For example, it is estimated that about 40% of the water is lost in community watercourses and 20-25% of irrigation water is lost during flood irrigation due to uneven fields and poorly designed farms.

**Background on Indus Basin Water System (IBWS):** Pakistan relies on the IBWS - the largest contiguous water system in the world - for basic food security and supply of water for all sectors of the economy. The IBWS consists of the Indus River and its tributaries, three major multi-purpose storage reservoirs, 19 barrages, 12 inter-river link canals, 43 major irrigation canal commands (covering over 14 million hectares), and over 120,000 watercourses. The total length of the canals is about 60,000 km, with communal watercourses, farm channels and field ditches running another 1.8 million km. These canals also serve as the country’s main waterways. Pakistan would have remained largely a desert without the development of this system of canals, dams and hydraulic structures. In addition to providing water for irrigated agriculture, these resources also support the development of major cities, industry, and growth centers. About 60 percent of the area commanded by the IBWS and 70 percent of its cropped area are in Punjab.

**Project Objective:** The main objective is to improve productivity of water use in irrigated agriculture in Punjab. This will be achieved through improved physical delivery efficiency and irrigation practices, crop diversification and effective application of inputs that will translate into greater agricultural output per unit of water used. The project’s objectives would contribute to increased agricultural production, employment and incomes, higher living standards and positive environmental outcomes.

**Project Benefits:** The direct beneficiaries would be about 580,000 farm families or about 4 million people all over Punjab. About 17,500 families would be direct beneficiaries of the High Efficiency Irrigation Systems (HEIS) systems, about 90,000 families of laser leveling system, and about 475,000 families from the watercourse improvement program. A very large population would be indirect beneficiaries. For example, it is estimated that about 13 million additional person days of employment for agricultural operations would be generated. More women farmers are likely to opt for the HEIS as it does not require night irrigation. The HEIS can easily be operated by one person and require just a few hours of water during the day. In contrast, water supply according to the warabandi goes over 24 hour rotation and about half of the shareholders get water at night. With HEIS, the water would be delivered to the ponds and used for a week. Importantly, it is delivered in the early morning and in the evening when heat and evaporation is low. The project will ensure huge efficiency gains in the use of water. The overall irrigation efficiency is currently at around 35 – 45%, while efficiency with drip and sprinkler
irrigation systems is up to 95 percent. Precision land leveling saves up to 30% irrigation water, results in uniform seed germination, and increases fertilizer uptake efficiency which enhances crop yields of up to 20%.

Project Components:

**Component A: Installation of High Efficiency Irrigation Systems.** This will include construction of high efficiency irrigation systems such as drip, bubbler, sprinkler, over an area of about 120,000 acres. Farmers would carry 40% of the cost of material, labor and installation, while the government would finance 60% of such cost and administrative cost of the government for installation of the system. The project will also support provision of precision land leveling equipment for improving land leveling operations and thus improving irrigation application efficiency.

**Component B: Improvement of Community Irrigation Systems.** This will cover improvement of watercourses in canal irrigated areas, as well as in the rain fed areas. The watercourse level water users’ associations will be established and they will receive support to improve about 9,000 watercourses.

**Component C: Improved Agriculture Technology/Practices and Monitoring and Evaluation.** This will support improvement in irrigation agronomy, demonstration of and assistance in improved and modern technologies and methods to increase agriculture production.

**Component D: Project Management, Supervision, Technical Assistance, Training and Strategic Studies.** Support the Government of Punjab’s efforts in project management, construction supervision, checking delivery of works, quality and certification of payments, strategic studies, technical assistance and training to staff, etc.