

Yanqing: An Irrigation System Fully Managed By Farmers

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ABSTRACT

YANQING IRRIGATION SYSTEM (YIS) is one of the typical small-sized irrigation systems in South China fully managed by farmers. This paper describes the organization and irrigation management in the Yanqing Scheme. Based on the experiences of the Yanqing Irrigation System, the paper also suggests the ways in which irrigation management transfer of small-sized irrigation systems in China should be oriented.

GENERAL FEATURES OF YANQING IRRIGATION SYSTEM

The Yanqing Irrigation System is situated in the northeast of the Leizhou Peninsula of Guangdong Province. Its water source is one large-sized and some small-sized reservoirs. The designed and actual irrigated areas are 2,133 hectares (ha) and 1,086 ha, respectively. This irrigation system consists of a main canal which is 22 kilometers (km) long, 78 primary and secondary canals with a total length of 125 km, 7 flumes, 30 turnouts, and 6 barrages. There are 7 small reservoirs whose designed total storage capacity is 6 million cubic meters (m³). The beneficial areas are mainly in the vicinity of Tangchuo town, in the Wuchuan County. It has a population of 60,000, of which, 50,000 are in agriculture. Tangchuo town has a population of 34,000. The township enterprises are well developed. The value of the output from these township enterprises was 48.05 million yuan³ in 1993.

The construction of the irrigation system was completed by the fall of 1962. Before its completion, 80 percent of the total cultivated lands were suitable only for dry farming. Because of low yields (below 10 kg/ha), rice was not widely grown at that time. With the completion of the irrigation system, the cultivated areas which were previously planted with dry crops had shifted to rice. Rice yields have increased significantly. In 1993, the total production of rice in the whole irrigated district was 12,500 tons (t) and the average yield per unit area was 7.875 tons per hectare (t/ha).

In recent years, there have been changes in cropping patterns. Besides rice, fruit trees such as orange, mango and banana are planted. Total agricultural output value increased to 43.05 million yuan (US\$5.08 million) in 1993, and the labor productivity is estimated at about 2,000 yuan.

IRRIGATION MANAGEMENT AND ORGANIZATION

YIS is a typical system which is fully managed by farmers. There is one management division under which there are 8 management stations. These professional management organizations have a staff of 33. They are all from the farming community. The administrative affairs of the management division come under the jurisdiction of Tangchuo Government while the professional management work is guided by the Water Resources Bureau of the Wuchuan County. The functions of the professional management organizations include: maintenance, expansion and rehabilitation of irrigation projects; water distribution and regulation; and collection of irrigation service fees.

In addition to the professional management organizations, there is a farmer management organization, i.e., a management association which consists of 105 farmers. The association functions under the administrative control of the management district which is a basic executive branch subordinate to the town government. The professional management work is carried out under the leadership of the Management Division which assigns specified professionals in charge. The members of the association are responsible for the maintenance work, desilting of primary and secondary canals, and water management at the level of the fields canals.

SOURCES OF INCOME FOR IRRIGATION MANAGEMENT

Annually, a sum of about 400,000 yuan (US\$47,200) is required for the management of the YIS. A breakdown of the expenses in 1993 is as follows:

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³In 1994, 1.00 Yuan = US\$0.118.

Salaries of professional managers	=	115,000 yuan (US\$13,570)
Administration fees	=	45,000 yuan (US\$5,310)
Cost of upkeep	=	42,000 yuan (US\$4,956)
Salaries of retired manager, pension fund for staff members and other direct costs	=	54,000 yuan (US\$6,372)
Cost of heavy repairs	=	54,000 yuan (US\$6,732)
Depreciation charge	=	35,000 yuan (US\$4,130)
Welfare funds	=	30,000 yuan (US\$3,545)
TOTAL	=	412,000 yuan (US\$48,161).

The total expenses were financed through 3 sources of income which include:

1. Irrigation service fees

Before 1993, irrigation service fees were charged only for rice cultivation. The amount was paid in kind at the rate of a kilogram per hectare (1kg/ha) of rice. The rice was then sold to local grain shops at negotiated prices. The total sum realized from the sale ranged from 130,000 to 150,000 yuan (US\$15,340 to 17,700). Beginning 1994, a new standard of irrigation service fee at the rate of 0.8 yuan/ha (US\$0.0944/ha) was levied. The yearly income from water fees was estimated to be about 200,000 yuan (US\$23,600).

2. Income from diverse sideline enterprises

Apart from managing irrigation projects, the staff members of the management division also develop sideline enterprises to generate revenue. For instance, they have set up a paper mill, fisheries in the small reservoirs and developed an aquatic products industry. The yearly income from these sources amounted to over 100,000 yuan (US\$11,800) in 1993.

3. Financial support from the town government

The town government diverted some of its income from the township enterprises. In 1993, subsidies provided to the irrigation management government amounted to 82,000 yuan (US\$9,676). Besides direct financial contributions, the town government stipulated that, within the beneficial areas of the irrigation system, every farm and non-farm laborer employed by a township enterprise should contribute 5 to 8 days of work to the system without payment. Those who do not want to perform the task, had to make a cash payment of 8 yuan (US\$0.94) per day.

ORIENTATION OF IRRIGATION MANAGEMENT TRANSFER IN CHINA

The YIS, financially self-sufficient and self-developed, is a farmer managed system. This distinctive style of management reflects the recent trends in irrigation management in China. Experience of this schemes suggest that government subsidies can be greatly reduced and scarce capital resources reinvested to build new irrigation systems, and thereby accelerate the development of irrigation in China.

The approaches to irrigation management in the Yanqing Irrigation System have been successful in arousing farmer enthusiasm to care for their irrigation system and to use water more efficiently. In addition, farmers are now financially independent of the government. This has accelerated local economic development. The experience of the Yanqing Irrigation System shows that when farmers take over the managerial responsibilities they take good care of the system.

The farmers make every effort to prolong the useful lifespan of the irrigation systems and use water more efficiently. When damages occur in the irrigation systems, they realize that cannot wait for others to carry out the repairs and that they have to rehabilitate the systems themselves. The farmers are highly motivated in maintaining their irrigation

systems. In recent years, farmers have invested approximately 50,000 yuan (US\$5,900) and contributed 19,000 man-days each year on the maintenance of primary, secondary and tertiary canals, small reservoirs and so on. Heavy repairs or rehabilitation had been done once in a couple of years. Therefore, they have been able to realize the full potential benefits of the irrigation system.

From the experience of irrigation management transfer of YIS, we can understand that the turnover of responsibility and authority for irrigation management from the higher levels of the government to local farmer organizations is the general orientation of irrigation management transfer in China. However, approaches to the transfer may vary, for example, small-sized systems like the Yanqing Irrigation System may be fully managed by farmers. The sources of income for management may be from collecting irrigation service fees or through other channels like setting up township enterprises and/or raising funds temporarily by farmers. The irrigation management transfer for medium-sized and large-scale irrigation systems, under the present conditions, may be managed by the government or by the local and farmer organizations. The expenses may be recovered mainly by the collection of irrigation service fees, and partially by raising funds from multiple sources. In the irrigation districts located in prosperous areas and where irrigation water supply is partially provided by cities, management of irrigation systems may be directed to the adoption of the joint-stock system, either in the form of a joint-stock company, or in the form of a limited-liability company.