Water Management Scheme at the Upper Talavera River Irrigation System

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Description

The Upper Talavera River Irrigation System (UTRIS) is located approximately 200 km north of Manila, in the province of Nueva Ecija. UTRIS is a zone of District I of the Upper Pampanga River Integrated Irrigation System (UPRIIS). The system is a run-of-the-river type and reservoir independent. It has a service area of 5000 hectares.

Management Structure

Operation and maintenance are integrated. Operational aspects are handled by an Operations Engineer while maintenance aspects are handled by a Maintenance Engineer. Overall supervision and management is entrusted to the District Chief who is responsible to the Operations Manager.

A zone engineer supervises overall irrigation water allocation and minor maintenance work.

The system is subdivided into divisions covering 750-1000 hectares. Each subdivision is under the jurisdiction of an Assistant Water Management Technician (AWMT) who is assisted by ditch tenders.

Planning and Implementation

In UTRIS, planning entails estimating the potential availability of irrigation water and determining appropriate cropping systems to optimize the use of irrigation water and rainfall. In determining appropriate cropping systems, allocation and distribution of water to the entire service area in sufficient quantity and on timely schedule are considered.

The following are considered when planning:

Flow discharges. Historical records of the average flow at the intake gate of the system, expressed in cubic meters per second (cms) or liters per second (lps), are reviewed to determine the expected amount of available water during an operational year. These data together with rainfall and local inflows entering the system are important in planning appropriate strategies in the allocation and distribution of irrigation water to various divisions taking into account alternative cropping patterns.

Irrigation water requirement (IWR). The demand for irrigation water depends on the crop and its growth stage. For rice, 13 mm/day or 1.5 lps/ha of water is used as the IWR. IWR value one-fourth that of rice is used for secondary crops such as onions, garlic, peanut and watermelon.

Cropping system. The speed and progress of rice planting depends on the availability of water. During the wet season when water is sufficient, simultaneous planting within a division is practiced. During the dry season, however, staggered planting is necessary. Usually, the available water at the start of the dry season would permit the planting of wider areas than could be irrigated later in the season, hence a reduction in the area is required.

Farmer-clientele decision. Farmers' willingness to adhere to the plan is a factor that must be considered. NIA personnel and the farmers concerned meet to discuss the plan before it is approved and implemented.

Plan Implementation

During implementation, the prepared plans and programs are the only bases in directing and controlling water allocation and distribution. The plan indicates expected duration of farming activities, areas to be irrigated on a weekly basis and target flows at all flow points.

Although factors considered in the planning are carefully studied and evaluated, deviation from
the target occurs especially on the hydro-meteorological factors and weekly irrigated area. Because of this, an efficient system of water allocation and distribution has to be responsive to the varying field conditions.

If the actual water flows measured at the intake exceeds or fall short of the projected values, a system of rotation in water allocation and distribution is implemented. Distributing water on a rotational basis enables farmers to equally share it especially during the dry season when water shortage occurs. Rotation also offsets the build-up of water stress in farmers’ field since the available supply can be diverted among sections with greater control and precision.

During the wet season, rice is the first crop considered because of sufficient water and no sophisticated water management concept is used. Instead, simultaneous irrigation is practiced.

During the dry season, water supply is limited especially during the later part of the crop growing period, hence rotational method is widely used in the system. The form of rotation depends on the severity of water shortage.

Rotation along sections of laterals is implemented when the actual water supply is less than 70-80% of the expected. Flows in a lateral is diverted to selected turnouts for a few days, then to another set further along the laterals.

The most widely practiced rotation under UTRIS especially from February to April when the expected flows fall short to about 50% is rotation along sections of the main canal. This system of allocation is carried out by diverting water to some laterals for a fixed number of days of the week and later to other laterals. The main canal is divided into three sections; the upstream, middle and downstream portions.

Delivery schedule follows a two day-period for the upper section, two days for the middle and three days for the downstream section. At the start, farmers follow the irrigation schedule, but later on, it is haphazardly followed and conflicts develop. Farmers often open their inlets on the wrong day, close check structures and/or sometimes erect temporary brush. Moreover, upstream farmers who plant secondary crops such as onions do not follow fixed irrigation schedules. If their crop needs irrigation even when it is not their turn, they steal water especially during nighttime.

With these farmers’ attitude, the NIA personnel together with the chairman of the associations agree that ditchtenders will guard and patrol all the checking structures within the day. When illegal checks are found, the stop logs used will be confiscated and returned only on the scheduled turn at the farmers’ means.

Operational Status

In 1988, planted area for UTRIS totalled 1,223.50 hectares, 670 hectares of which were planted to rice and 553.50 hectares to onions.

The total water supply for the entire dry season was 483,751 cms with an average water duty of 1.48 lps/ha.

Based on the average yield of the system, the upstream portion obtained the highest yield at 3.60 t/ha followed by the midstream portion at 3.15 t/ha and lowest at the downstream portion with only 2.25 t/ha.