

Chapter 8

Irrigation Planning And Command Area Development

8.1 General

Krishna (Srisaillam) - Pennar link lies entirely in Kurnool and Cuddapah districts of Andhra Pradesh. In the initial reaches this scheme is integrated with the ongoing Srisaillam Right Branch Canal and Telugu Ganga Canal. Initially Srisaillam reservoir was planned as a hydro-electric project. Subsequently, Andhra Pradesh State Government made proposals for utilising Krishna waters for benefiting the drought prone areas in Kurnool and Cuddapah districts through Srisaillam Right Branch Canal and Telugu Ganga project. Prior to these schemes, the only major project located in the area is Kurnool-Cuddapah canal (KC canal), which draws water from Tungabhadra river (tributary of Krishna) for utilisation in Kurnool and Cuddapah districts. These three major projects are briefly described in the following paragraphs.

8.2 Kurnool-Cuddapah Canal (KC canal)

Kurnool-Cuddapah canal off-takes from Sunkesula anicut on Tungabhadra River, traverses through Kurnool and Cuddapah districts and finally terminates at Cuddapah. This canal is connected to the natural streams Nippulavagu, Galeru and Kunderu through controlling structures on these streams viz. Lock-In-Sula, Santajatur anicut and Rajoli anicut respectively. As a result, the nearby areas of these streams are benefited by this project. The total ayacut registered originally under this canal is 122200 ha which is reduced to 110482 ha due to foreshore submergence of Srisaillam and urban agglomeration. Out of 110482 ha, Kurnool and Cuddapah districts are having ayacut of 75879 ha and 34603 ha respectively. The water allocated for this project is 1130 Mm³ (39.9 TMC) as per KWDT award. The award also provides for regulated release of 283 Mm³ (10 TMC) from Tungabhadra reservoir subject to availability of 6513 Mm³ (230 TMC) in Tungabhadra reservoir.

8.3 Srisaillam Right Branch Canal

Srisaillam Right Branch Canal envisages utilisation of 538 Mm³ of Krishna water for bringing 76890 ha of land under irrigation which is at present under rainfed cultivation on the Right Bank of the Kunderu valley. Out of

the 76890 ha of total ayacut, 67744 ha is in Kurnool district and 9146 ha is in Cuddapah district.

Srisaillam Right Branch Canal is proposed to utilise Krishna water drawn from Srisaillam reservoir during the flood season through the head regulator at Pothireddipadu. The water thus drawn will be conveyed in an open channel of 125 km length cutting across Krishna-Pennar ridge and stored in Gorakallu and Owk reservoirs, formed by damming up minor streams, to utilise the same during rabi season.

8.4 Telugu Ganga Canal

Telugu Ganga Canal connects Srisaillam reservoir in Andhra Pradesh with Poondi reservoir in Tamil Nadu. The length of the main canal from Srisaillam reservoir to Poondi reservoir is 434 km. The main objectives of this project are, to convey 425 Mm³ of Krishna water to Chennai city for domestic use, 821 Mm³ (29 TMC) of Krishna flood waters to irrigate 111290 ha in Kurnool and Cuddapah districts and 890 Mm³ (31 TMC) of Pennar flood waters to irrigate 123434 ha (As per Telugu Ganga Project Report Vol.I-1983) in Nellore and Chittoor districts. In order to facilitate the storage of flood waters of Krishna and Pennar drawn through Telugu Ganga Canal, balancing reservoirs viz., Velugodu reservoir, Sri Pothuluri Veerabrahmendra Swamy reservoirs between Krishna and Pennar, Somasila on Pennar and Kandaleru reservoir between Somasila and Poondi reservoirs have been proposed.

8.5 Krishna (Srisaillam) - Pennar Link Canal

The entire area in the vicinity of the link proposal is already served/proposed to be served by the existing Kurnool - Cuddapah Canal, ongoing Srisaillam Right Branch Canal and Telugu Ganga Canal. Hence no fresh command area is proposed to be served directly from the waters drawn through Krishna (Srisaillam) - Pennar link canal.

Out of the total diversion of 2310 Mm³ of water through the link canal from Srisaillam reservoir, a quantity of 2095 Mm³ will reach Somasila reservoir, the rest of 215 Mm³ being accounted towards transmission losses. The total quantity of 10743 Mm³ i.e 2095 Mm³ from this link and 8648 Mm³ through Nagarjunasagar - Somasila link would be diverted

further south from Somasila reservoir for use in Pennar and Cauvery basins and also the areas south of Cauvery.

8.6 Topography and Soils

Kurnool district is characterised by rolling topography with scattered hill ranges intermountain valleys and plains. The chief soils of the district are red loamy sands, red sandy loams, red clay and black soils. The surrounding areas of natural streams that form the link canal are covered by geological formations called Kurnool group of rocks.

Cuddapah district is characterised by rolling topography with deep fronted hill ranges and intervening valleys and plains. The chief soils of the district are black clay, black loam, red loam and red sandy. The surrounding areas of natural streams that form the link canal are covered by geological formations called Nandyal shales.

8.7 Groundwater and Drainage

The Kurnool rocks comprise of Banaganapalli quartzites and conglomerates, Narji limestones, Owk shales, plateau and pinnacle quartzites, Koilkuntla limestones and Nandyal shales. The rocks in general have undergone compaction and metamorphism to a considerable extent, which has obliterated the primary porosity and permeability of the rocks. The occurrence and movement of groundwater is therefore controlled by the presence of bedding planes, faults, fissures, solution channels and cavities.

Groundwater is developed by means of dug-cum-bore wells and borewells. The depth of water levels varies from 2.4 to 19.9 m below ground level. The yields of bore wells drilled by CGWB up to depths of 45 to 60 m below ground level vary from 150 to 2000 litres per hour. The quality of water is generally poor and brackish in Nandyal shales. Waters from Banaganapalli sand stones, pinnacle quartz and Owk shales are generally good and suitable for both domestic and irrigation purposes. The Kurnool groups of rocks are less water bearing and less water yielding. The proposed link will help recharge these areas, adding additional availability of water for use.