Executive Summary

Long distance inter-basin transfer of water from water surplus basins to water deficit basins has been mooted in our country in order to reduce the imbalances in the water availability between various regions. A National Perspective Plan (NPP) was formulated in the year 1980 by the then Union Ministry of Irrigation (now Ministry of Water Resources) and the Central Water Commission identifying a number of inter-basin water transfer links in respect of both Peninsular Rivers and Himalayan Rivers of the country. The Peninsular Rivers Development and the Himalayan Rivers Development Components put together were expected to create an additional irrigation potential of 35 million hectares besides hydropower potential and other benefits.

The inter-linking system of Mahanadi-Godavari-Krishna-Pennar-Cauvery-Vaigai is one of the four parts of the Peninsular Rivers Development Component of the NPP. Amongst the Peninsular rivers, the Mahanadi and the Godavari rivers will have sizeable surpluses after meeting the existing and projected requirements within the basins. It is, therefore, proposed to divert the surplus waters of the Mahanadi and the Godavari to the water-short river basins viz., the Krishna, the Pennar, the Cauvery and the Vaigai. Diversion has been proposed from Mahanadi to Godavari through Mahanadi (Manibhadra) – Godavari (Dowlaiswaram) link. Three links have been proposed connecting Godavari and Krishna. They are: (i) Godavari (Inchampalli) -Krishna (Nagarjunasagar), (ii) Godavari (Inchampalli)-Krishna (Pulichintala), and (iii) Godavari (Polavaram) - Krishna (Vijayawada). Three links connecting Krishna and Pennar have been proposed for effecting further diversion. They are: (i) Krishna (Almatti) - Pennar, (ii) Krishna (Srisailam)-Pennar and (iii) Krishna (Nagarjunasagar) - Pennar (Somasila). This report deals with the feasibility of Krishna (Srisailam) - Pennar link i.e diversion of a part of Krishna waters from Srisailam reservoir to the Pennar river in partial exchange to the surplus water of Mahanadi and Godavari rivers proposed to be brought to Krishna river.

The objective of preparation of the feasibility report is mainly to facilitate firming up of the proposals and for discussions among the concerned States to arrive at broad agreements on the quantum of diversion and utilisation of water, sharing of cost and benefits, etc.

The conveyance system of the project will be 203.618 km long which includes 3.4 km of existing approach channel, 16.338 km of ongoing Srisailam Right Main Canal, 3.56 km escape channel and 180.32 km of natural streams of Nippulavagu, Galeru and Kunderu. The link is proposed to take off from the foreshore of the existing Srisailam reservoir and the diversion is envisaged through the Srisailam Right Main Canal up to Banakacherla cross regulator where from the water will be let-off into Nippulavagu stream through an existing escape channel. The water will reach the Pennar River through natural streams viz. Nippulavagu, Galeru and Kunderu. The link canal is proposed to be operated during six months from July to December every year.

No enroute irrigation is proposed as the area in the vicinity is being served/ proposed to be served by the existing Kurnool-Cuddapah canal, ongoing Srisailam Right Branch Canal and Mylavaram North Canal. A quantum of 2095 Mm^3 of water, after accounting a quantity of 215 Mm^3 as transmission losses, will reach Pennar for further utilisation in Pennar delta and beyond through Pennar (Somasila)-Cauvery (Grand Anicut) link.

The water is being diverted through the natural river stream as such no adverse environmental impact is anticipated. Employment opportunities will be created during construction of the project which will enhance the living standard of the people in the area.

Four mini hydel schemes are proposed enroute of the conveyance system utilising the natural falls of the streams Nippulavagu, Galeru and Kunderu. The total installed capacity of the four hydel schemes is 17 MW. The estimated annual energy that could be generated from all the four powerhouses is 74.784 MU.

The total cost of the four mini powerhouses is Rs. 76.94 crore. The annual net revenue from power generation is estimated to be Rs. 26.15 crore. The financial return of the power component works out to 33.99%.

The overall cost of the link project is estimated to be Rs. 81.29 crore based on 1998-99 schedule of rates. The benefit-cost ratio of the whole project by cost-benefit method has been worked out considering the power benefits and cost of the mini hydel schemes and link canal. This is found to be 2.5. The internal rate of return of the whole project considering with and without distributional and employment effect works out to 29.35 % and 25.57 % respectively.