

Chapter 14

Economic analysis

14.1 Benefits

The proposed Godavari (Inchampalli)-Krishna (Pulichintala) link carries waters to irrigate needy areas in Godavari basin and to augment the command areas under NSLBC and NSRBC through substitution. Besides irrigation, it caters to the municipal & industrial water needs of the command areas and the urban areas lying upto 20 km from the canal. Further, it is proposed to tap the power potential from the drop available on the link canal. The direct benefits from these sources are derived in terms of annual monetary value so as to analyse the project for its economic viability.

14.1.1 Direct benefits

The gross annual benefits from irrigation in terms of monetary value from various crops is worked out for each command based on the likely yield per hectare for respective crop in post irrigation scenario and the prevailing market value of the produce. The input cost of agriculture per hectare is worked out for each command separately. The net benefits from irrigation are worked out suitably considering the dung receipts, input cost, depreciation, share & cash rent and land revenue for both before and after irrigation scenarios. The annual irrigation benefits from the entire command are estimated to be Rs. 135027 lakh.

The power generation at canal fall available on link canal works out to 109.7 MU annually. Adopting Rs. 1.67/unit power, as is the case with the existing schemes in Andhra Pradesh, the total benefits in terms of monetary value works out Rs. 1802 lakh.

The total CCA coming under irrigation is about 445299 ha. The total population in the command area and the adjacent urban areas are provided with municipal & industrial water supply to the tune of 413Mm³. The annual net revenue from the municipal & industrial water supplies adopting the tariff per kilolitre judiciously in post project scenario keeping

in view the current tariff in vogue at Hyderabad is estimated to be Rs. 83338 lakh.

The total direct annual benefits from irrigation, power and water supply are worked out to Rs. 220167 lakh.

14.1.2 Indirect benefits

Apart from the direct benefits, many indirect benefits would accrue from the link project leading to tremendous development in all the socio-economic aspects of the region en route. These indirect benefits could be visualized or quantified in broad perspective only. Some of these likely indirect benefits are listed below.

- (1) Assured irrigation in the region enroute, which is hitherto devoid of any significant irrigation facilities, will create direct employment opportunities for the agricultural labourers and for other professionals in this sector and several job opportunities would become available for the local people during the construction of the project.
- (2) With the implementation of the scheme, living standards of the local farmers, in general, would improve because of better yields from their fields and hence higher returns for their work.
- (3) Once the irrigation facilities are developed, agro-based industries, dairy farms, poultry farms, marketing facilities for the agricultural inputs like pesticides and fertilizers etc. are likely to come in the region, leading to general prosperity and economic upliftment of the people of the towns and villages in the en route area.
- (4) The ground water availability in the command area would get enhanced on account of increased recharge to the ground water as apart of the water supplied for irrigation gets percolated into the ground.
- (5) Better communication facilities would become available resulting in better connectivity among the villages.
- (6) Infrastructure facilities would improve due to increased industrial and marketing activity in the en route region.
- (7) Plantation along the canal banks and the proposed afforestation of surrounding areas would enhance environmental status of the region.

14.2 Cost

The cost of the link project is estimated under five main components viz. Unit-I: Head works, Unit-II: Conveyance system, Unit-III: Power component, Unit-IV: Lifting arrangements and Unit-V On farm Development. The total cost of the project is estimated to be Rs. 504608 lakh based on 2003-04 price level. For the purpose of working out the benefit-cost ratio, the annual cost is worked out considering 10% interest, 1% depreciation on project, depreciation at 5.00% of average rate on cost of power & pumping system, annual charges of power for lifting, annual operation & maintenance and maintenance of head works at 1% and maintenance of pump & power houses at 2.0% of its cost. The annual cost is worked out to be Rs. 64657 lakh.

14.3 Benefit-cost ratio (BCR)

The annual benefits and annual cost has been used to compute the benefit-cost ratio. The same has been worked out to be 3.41.

14.4 Internal rate of return (IRR)

The internal rate of return worked out considering the project cost, construction period, and present worth of cost and benefits. The IRR is estimated to be 19.26 %.

14.5 Economic parameters

Various economic parameters are worked out for the link project based on the statistics available. The capital cost and the annual cost of the project for diversion of one cum of water are worked out to Rs. 11.55 and Rs.1.48 respectively. The total direct benefits are worked out to Rs.5.04 per one cum of water proposed to be transferred. The increase in direct benefit from agriculture due to introduction of irrigation through the link project is Rs.17482 per ha of CCA.