

PREFACE

The Godavari-Krishna basins are quite symptomatic of the water resources problems in the presence of interstate riparian issues. Sometimes, full-blown water crisis that the prevailing drought situation in some parts of the region, competition for water is increasing in the co-basin states and threatening to steadily destroy the water system. There is however a higher incidence of augmented water use and at the same time problems of flood and drought are looming large on the basins' economic development, livelihoods and ecosystem. With growing industrialization and urbanization, the displacement also looms large over the inhabitants and offer challenges for future management water quality and quantity. Agriculture remains the largest consumer and plays a key role in the co-basin states.

The phase-I planning of the Mahanadi-Godavari-Krishna-Pennar-Cauvery-Vaigai-Gundar nine link system Under the Peninsular component of National Perspective Plan (NPP) for water resources development envisages to utilize the surplus waters of Godavari basin through the Godavari (Inchampalli/Janampet) - Cauvery (Grand Anicut) link system. The net water availability in Godavari basin between Sriramsagar project (SRSP) and Inchampalli, after deducting all the upstream requirements and the committed downstream requirements is worked out to be 5002 MCM at 75% dependability as per NWDA studies. However, the water available in Godavari basin for planning will be about 9191 MCM considering the unutilized waters of Chhattisgarh for proposed projects in Indrāvati sub-basin.

Out of this, the link system envisages a diversion of 7000 MCM from Godavari to Cauvery. Accommodating the suggestions of the concerned State Govts., three alternate alignments are studied for water transfer from Godavari to Krishna, considering open canal from two proposed barrage locations at Inchampalli and Janampet on Godavari and a pipe line from Janampet. The further two reaches (II & III) from Krishna to Pennar and Pennar to Cauvery are the same as studied by NWDA at the Feasibility stage. The link system proposes to utilize existing reservoirs Nagarjunasagar on Krishna & Somasila on Pennar as balancing reservoirs and Grand Anicut on Cauvery as the tail end structure. The link project traverses through Godavari, Krishna, Pennar, Palar and Cauvery basins and lies in the States of Telangana, Andhra Pradesh and Tamil Nadu.

The proposed barrage at Janampet on Godavari is with FPL 67 m and gross storage 251 MCM. The canal will be 1252 km including 22 km long tunnels from Janampet to Grand Anicut and will benefit a command area of 7.95 lakh ha with annual irrigation of 9.38 lakh ha providing 5608 MCM of water, besides quenching its domestic & industrial water needs of 384 MCM & 521 MCM respectively. The proposal involves pumping of water by 140 m in the main canal requiring energy of 3134 MU. On the other hand, canal head power house of 120 MW is

contemplated apart from canal top/bank solar power generation. The capital cost of the proposal will be Rs. 60361 crore and will yield a B.C. ratio of 1.60 and IRR of 14.60%.

The pipeline proposal from Janampet will be 1211 km including tunnels of about 50 km. The proposal involves pumping of water by 233 m requiring energy of 4534 MU. The benefits in the pipeline proposal are taken to be the same as that from canal proposal from Janampet. The capital cost of the proposal will be Rs. 90563 crores with B.C. ratio of 1.10.

The barrage at Inchampalli is proposed on Godavari (alternate to Janampet) with FPL 87 m and gross storage 450 MCM. The canal proposal from Inchampalli to Grand Anicut is 1211 km including tunnels of about 19 km. The proposal will benefit a command area of 9.34 lakh ha with annual irrigation of 10.09 lakh ha utilizing 5626 MCM of water. In addition, domestic & industrial water needs of 362 MCM & 517 MCM respectively in the command will be met. The proposal involves pumping of water by 129 m in the main canal requiring energy of 3272 MU. On the other hand, two canal head power houses of 60 MW & 120 MW are planned apart from canal top/bank solar power generation. The capital cost of the proposal will be Rs. 73611 crore and will fetch a B.C. ratio of 1.35 and IRR of 12.60%.

The Project Report contains i) **Main DPR [Godavari (Janampet)-Cauvery (Grand Anicut) link system]**, Volume - I, II & III, Report, Annexures & Drawings

Appendix A (Alternate alignment: Inchampalli - Nagarjunasagar link), Volume - IV, V & VI, Report, Annexures & Drawings

In addition, a brief note on the Pipe line alternative from Janampet to Nagarjunasagar is included as **Appendix B**.


The present DPR offers as a contribution of how a comprehensive interlinking framework might be established to support the targets of efficient water use with the immense support from the contributors. In the essence of this, I would like to acknowledge tremendous support provided by the NWDA officials.

At first, I would like to take this opportunity to express my sincere gratefulness and hearty thanks to our respected Director General, NWDA for his unstinted support, valuable guidance from time to time in project evolution giving a new impetus to our work, which helped in timely completion of the DPR.

My deep sense of appreciation is due to Shri R K Jain, CE (HQ), Shri K P Gupta, Director (Tech), Shri Afroz Alam, SE-I, NWDA for critical examination of the DPR and other supporting staff for their immense support.

I would also like to place on record my sincere appreciation to Shri R K Kharbanda, SE (IC), Shri N S R Krishna Reddy & Shri N G Rao, Dy. Directors, Shri K S Naidu, AE, Mrs Ch. Vijayalakshmi, JE, Mrs M. Vijayalakshmi, D'man-Gr-I, Hyderabad, Executive Engineers of Investigation Divisions, Hyderabad, Bengaluru & Chennai and their teams for their untiring efforts in gainfully crystallizing & streamlining the work of the DPR within the stipulated time. It is envisioned that the DPR is expected to eventually promote more comprehensive developments mobilized in the co-basin states and will provide priorities articulated in greater detail.

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