

## 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 at 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) - Cauvery (Grand Anicut) link system. The net water availability in Godavari basin between Sri Ram Sagar project (SRSP) and Inchampalli, after deducting all the upstream requirements and the committed downstream requirements is worked out to be 5002 Mm<sup>3</sup> at 75% dependability as per NWDA studies. However, the water available in Godavari basin for planning of inter-basin transfer of water will be about 9191 MCM considering the unutilized waters of Chhattisgarh for proposed projects in Indravati sub-basin. Out of this, the link system envisages a diversion of 7000 MCM from Godavari to Cauvery.

The draft DPR was circulated to concerned states in March 2019 for their observations and suggestions. The feasible suggestions of various states are accommodated and the final DPR is prepared. The Link project takes off from the proposed Inchampalli barrage across Godavari and falls into Grand Anicut on river Cauvery after traversing 1211km including 19km long tunnels and gaining a head of 129m through three stages of lift in its initial reach between river Godavari and Krishna. 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 Inchampalli on Godavari is with FPL 87 m and gross storage 450 MCM. The link project will benefit a command area of 8.87 lakh ha with annual irrigation of 9.45 lakh ha providing 5049 MCM of water, besides quenching domestic & industrial water needs of 512 MCM & 944 MCM respectively. The proposal requires energy of 3845 MU. There is provision for hydropower generation of 366 MU from the proposed canal head power houses at Musi and Nagarjunasagar projects apart from the canal top/bank solar power generation. The capital cost of the proposal will be Rs. 85962 crore and will yield a B.C. ratio of 1.24 and IRR of 11.90%.

The project report contains DPR of Godavari (Inchampalli)-Cauvery (Grand Anicut) link system in three volumes **Volume I: Report**, **Volume II: Annexures** and **Volume III: Drawings**. This 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 Muzaffar Ahmed, Director (Tech), Shri R.K. Kharbanda, SE-I, NWDA, S R Mahor, Deputy Director 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 N S R Krishna Reddy Dy. Director, Shri K S Naidu, AE, Mrs Ch. Vijayalakshmi, JE, Mrs M Vijayalakshmi, D'man Gr I Retd, Hyderabad of this office and Shri Ch Y Subrahmanyam, Shri S A Naidu, 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.

March, 2021  
Hyderabad

  
(Dr. R N Sankhua)  
Chief Engineer (South),  
NWDA