Chapter I

Introduction

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The National Water Policy, 2012 enunciating the basic principles on water resources, *inter alia*, states that safe drinking water for drinking and sanitation should be considered as pre-emptive needs followed by high priority allocation to other basic domestic needs, achieving food security, supporting sustenance agriculture, *etc*. The water supply should be preferably from surface water in conjunction with ground and rainwater. The Karnataka State Water Policy of 2002 envisages to provide drinking water at the rate of 55 litres per person per day in the rural areas, 70 litres per person per day in towns and 100 litres per person per day in the Municipal Council areas and 135 litres per person per day in City Corporation areas.

The State of Karnataka covers an area of 1,91,976 sq. kms and is the eighth largest State by area and with a population of 6.11 crore inhabitants (Census, 2011). The State is blessed with major perennial rivers with a total annual water yield[1] of 3440 TMC[2] which are broadly classified in seven river systems in the State *viz.*, Krishna, Cauvery, Godavari, West Flowing Rivers, North Pennar, South Pennar and Palar. The intensity of the rainfall varies from 400 mm in Eastern and Central areas of Karnataka to 6500 mm in Western Ghats. The rainfall is erratic and there are several districts and taluks which fall under rain shadow[3] area where there is acute drinking water shortage. The worst affected districts are Chikkaballapura and Kolar where average annual rainfall was 677 mm and 622 mm respectively. Moreover, these two districts did not have a dedicated scheme for supplying drinking water to a population of 2.7 million. The large-scale exploitation of the ground water in these districts has resulted in ground water table reaching below 2000 feet. The quality of ground water was also poor due to Arsenic and Fluoride contamination. Government of Karnataka (GoK), therefore, identified an alternate and reliable source through diversion of flood water from Sakaleshpura (West) to Eastern districts (Chikkaballapura/Kolar) during the peak monsoon months (from June to November).

The West flowing rivers constitute a major portion of the yield in the entire river systems of Karnataka accounting for nearly 2000 TMC out of 3440 TMC (58 *per cent*) annually. Due to the narrow coastal belt, major portion of the water goes unutilised into the sea. GoK identified the streams which originated close to

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1 Amount of freshwater derived from unregulated flow measurements for a given geographic area over a defined period.

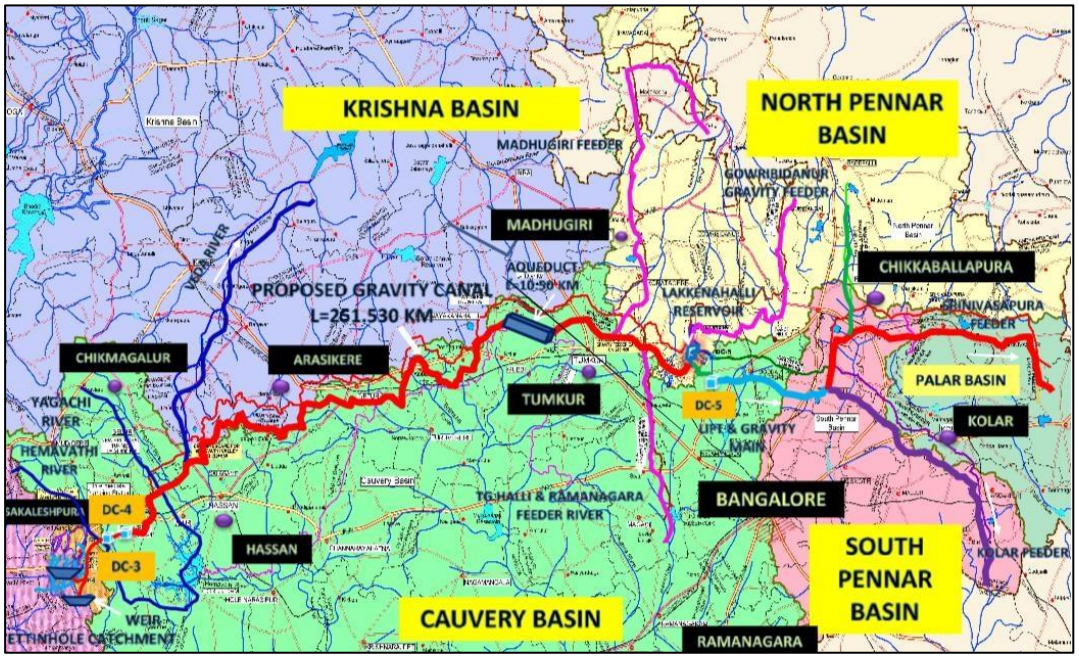
2 Thousand Million Cubic Feet

3 A region having less rainfall due to its geographic position on the down-wind side of a mountain range

Sakaleshpura in the Western Ghats *i.e.,* Yettinahole and its tributaries, Kadumanehole, Kerihole and Hongadahalla and proposed to divert 24.01 TMC, majority of which, will be allocated to Chikkaballapura and Kolar districts. The water source identified was reliable and sustainable, as well as, free from the jurisdiction of River Tribunal, as it was well within the geographical jurisdiction of Karnataka.

GoK accorded (July 2012) approval to Yettinahole Integrated Drinking Water Project (Project) proposing to divert 24.01 TMC of water from west flowing streams to cater to the drinking water needs in Chikkaballapura and Kolar Districts and other needy areas of Hassan, Chikkamagaluru, Tumakuru, Ramanagara and Bengaluru Rural districts catering to a population of 6.8 million. As this is exclusively a drinking water project, neither irrigation activity nor power generation has been envisaged and command area[4] is also not part of the Project. The location of the Project and its water supply area spread in the different districts is given in **Chart 1.1** below:

Chart 1.1: The Project location map



Initially the Project was handled by Karnataka Neeravari Nigam Limited (KNNL) which prepared (September 2010) the feasibility report and the initial Detailed Project Report (DPR) which was approved in July 2012. Subsequently, a revised DPR was approved by GoK in February 2014. After formation of Visvesvaraya Jala Nigam Limited (VJNL) during August 2016, the Project was transferred (November 2016) to it for speedy implementation.

[4] Area of land that can be reliably irrigated from water source like a dam, canal or other irrigation project.

The scope of the Project included construction of eight weirs[5], lifting of water from weirs, construction of Mild Steel (MS) Raising Main (pipeline), Gravity Main Canal, Feeder Canals and Balancing Reservoir. The work of drinking water distribution system will be implemented by Karnataka Urban Water Supply and Drainage Board (KUWSDB) and associated local bodies comprising Bengaluru Water Supply and Sewerage Board (BWSSB) and Rural Water Supply (RWS) Department. The Project works have been broadly divided into two phases as detailed below in **Table 1.1**:

Table 1.1: Details of works undertaken under the Project

Phase-I	• Lift Component works-construction of jackwell cum pumphouse[6] • Construction of M.S Raising Main[7] • Construction of electrical substation and transmission lines
Phase-II	• Gravity Main Canal[8] (length 261 Kms.) • Construction of Balancing Reservoir • Major Feeder Canals 1. Madhugiri Feeder Canal 2. T.G Halli & Ramanagara Feeder Canal. 3. Gowribidanur Feeder Canal. 4. Srinivasapura Feeder Canal. **5.** Kolar Feeder Canal.

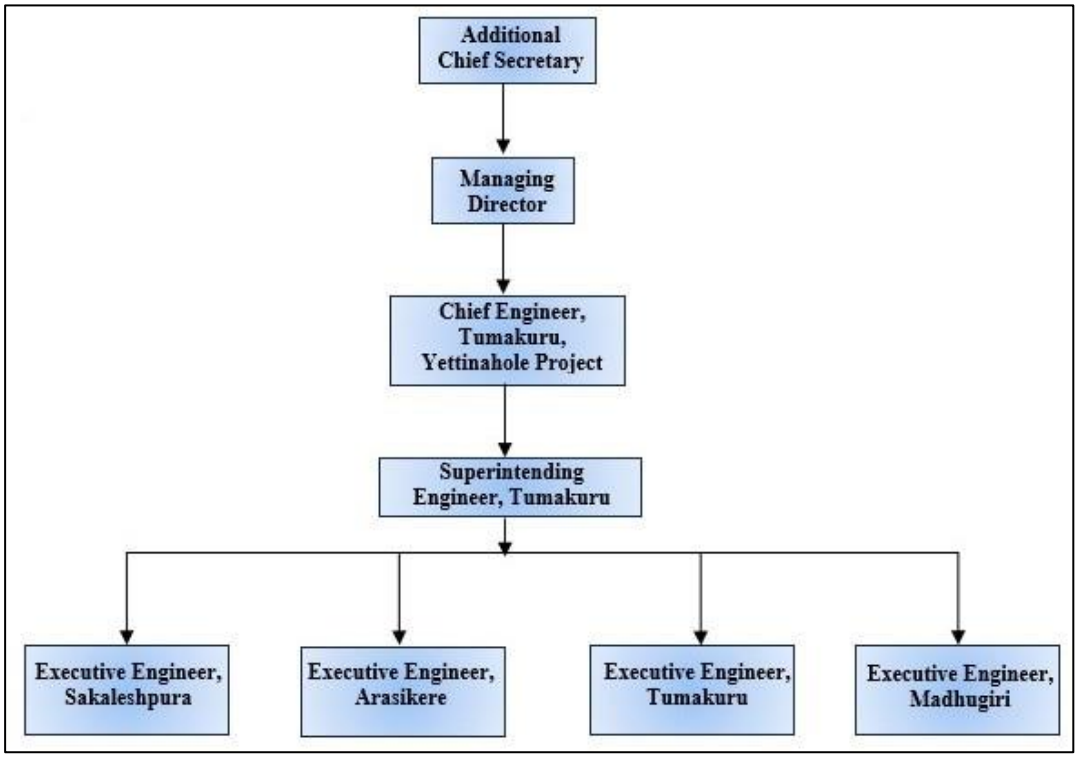
1.2 Organisational Setup

The Chief Minister of Karnataka is the ex-officio Chairman of VJNL and the Minister for Water Resources is the Vice Chairman. The administrative control of VJNL is with the Water Resources Department (WRD), headed by the Additional Chief Secretary (ACS) at Government level.

The VJNL is headed by a Managing Director (MD) who monitors the day-to-day activities relating to Yettinahole Project and Upper Bhadra Project apart from maintenance of Vanivilasa Sagar and Gayathri Reservoirs and Kadur tank filling scheme. He is assisted by the Technical Director at Head Office and three committees *viz.,* Estimates Review Committee, Tender Scrutiny Committee and Technical Sub Committee which deliberates on the projects, technical reports, tenders *etc*., and submits its recommendations to the Board of Directors (BoD) for approval. The responsibility for implementation of Yettinahole Project was vested with the Chief Engineer/Superintending Engineer at Tumakuru and four divisional Executive Engineers at Sakaleshpura, Arasikere, Tumakuru and Madhugiri. The organisation chart for implementation of the Project is detailed below**:**

[5] A barrier built across river or stream to control the flow of water.
[6] Structure used for accumulating water and housing the pumps to lift the water to a higher level.
[7] Pipeline made of Mild Steel that carries water under pressure from lower to a higher level.
[8] A system that uses gravity to move water through canals.

Chart 1.2: Organisation Chart for implementation of the Project



1.3 Audit Objectives

The objective of the Performance Audit was to assess whether:

- assessment of availability of water was done correctly, budgeting, timelines were realistic and whether effective plans were prepared for all components of works;
- various components of the Project were executed economically and efficiently and creation of infrastructure for storage and canal network were co-ordinated and synchronised;
- effective and adequate monitoring and control system was in place; and
- supply of drinking water to the targeted beneficiaries was achieved as envisaged.

1.4 Audit Criteria

The Audit Criteria for the performance audit are derived from the following sources:

- National Water Policy 2012 and Karnataka State Water Policy 2002;
- Central Water Commission (CWC) directives as well as instructions / orders / circulars issued by Government of Karnataka;

- Minutes of meetings of Board of Directors and Technical Sub-committees;
- Karnataka Financial Code 1958, Karnataka Public Works Department Code 2014, Karnataka Transparency in Public Procurement Act 1999;
- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, and
- Detailed Project Reports, Bid documents, Contract Agreements/Memorandum of Understanding with various executing agencies.

1.5 Audit Scope and Methodology

The Performance Audit was conducted during the period from June 2023 to October 2023. The records at the offices of the ACS, WRD, MD, VJNL, Chief Accounts Office, Chitradurga, Chief Engineer / Superintending Engineer, Tumakuru, four Divisional Offices[9] and three related Special Land Acquisition Offices[10] were test-checked for the period up to March 2023 from the date of inception of the project.

The Audit methodology included document analysis, issue of audit observations and obtaining responses, apart from joint inspection of works wherever necessitated. An Entry Conference was held (20 June 2023) with ACS, WRD wherein the scope, audit objectives and criteria of Performance Audit were explained. The results of the Performance Audit were discussed with the ACS, WRD and Secretary, WRD in the Exit Conference held on 20 March 2024. Replies of the State Government received (March 2024) have been suitably incorporated in the Report.

1.6 Acknowledgement

Audit acknowledges the co-operation extended by the Additional Chief Secretary, WRD, Managing Director, VJNL and other officers / officials of WRD/VJNL in conduct of this Performance Audit.

1.7 Chapters

Audit findings are organized into three chapters:

- Planning and Financial Management
- Project Implementation
- Monitoring

[9] Arasikere, Madhugiri, Sakaleshpura and Tumakuru
[10] Doddaballapura, Hassan and Tumakuru