

**Report of the  
Comptroller and Auditor General of India  
on  
Implementation of Yettinahole Integrated  
Drinking Water Project**

**Government of Karnataka  
Report No.10 of the year 2025  
(Performance Audit – Commercial)**



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## Preface

The Report of the Comptroller and Auditor General of India has been prepared for submission to the Governor of Karnataka under Article 151(2) of the Constitution of India for laying before the State Legislature.

The Report contains the result of Performance Audit on “Implementation of Yettinahole Integrated Drinking Water Project” covering the period 2012-13 to 2022-23.

The audit was conducted in conformity with the Auditing Standards issued by Comptroller and Auditor General of India.



# Executive Summary



## Executive Summary

### Why we chose this topic?

The State of Karnataka is blessed with major perennial rivers having a total annual water yield of 3440 Thousand Million Cubic (TMC) feet. However, the intensity of the rainfall varies from 400 mm in Eastern and Central areas of Karnataka to 6500 mm in Western Ghats. There are also several districts and taluks which fall under rain shadow area, where there is acute drinking water shortage. The worst affected districts are Chikkaballapura and Kolar where no dedicated scheme is available for supplying drinking water. Though the West flowing rivers constitute a major portion of the yield in the entire river systems of Karnataka, due to the narrow coastal belt, major portion of the water goes unutilised into the sea. In view of the above, Government of Karnataka (GoK), proposed for diversion of water from Sakaleshpura in Hassan District (in the West) to Chikkaballapura/Kolar districts (in the East) during the peak monsoon months (June to November) and approved (July 2012) the “Yettinahole Integrated Drinking Water Project” at an estimated cost of ₹8323.50 crore. The Project envisaged to divert 24.01 TMC water from Yettinahole stream and its tributaries which originated close to Sakaleshpura in Hassan district to Chikkaballapura and Kolar districts. The Project initially implemented through Karnataka Neeravari Nigam Limited, was transferred (November 2016) to Visvesvaraya Jala Nigam Limited (VJNL) since its formation.

A Performance Audit on “Implementation of Yettinahole Integrated Drinking Water Project” was conducted during the period from June to October 2023 to ascertain whether i) assessment of availability of water was done correctly, budgeting, timelines were realistic and whether effective plans were prepared for all components of works; ii) various components of the project were executed economically and efficiently and creation of infrastructure for storage and canal network were co-ordinated and synchronised iii) adequate monitoring and control system was in place and (iv) supply of drinking water to the targeted beneficiaries was achieved as envisaged.

### What did we find?

#### Planning and Financial Management

The Detailed Project Report (DPR) of the Yettinahole Integrated Drinking Water Project (Project) was revised twice, *i.e.*, from the originally approved (July 2012) ₹8,323.50 crore to ₹12,912.36 crore in February 2014 and again to ₹23,251.66 crore in January 2023. The works were taken up since March 2014 in various packages to be executed in two phases. However, Project works are still under progress and far from completion and intended benefit delivery. Surprisingly, none of the DPRs envisaged targeted date of completion of the project. Based on audit observation, the Board of

Directors of VJNL decided (October 2023) to fix the target date of completion of the Project as 01 November 2026.

Audit observed that the location of the Balancing Reservoir, which was essential component of the Project to provide continuous supply of water during summer months, was changed twice and its capacity was substantially reduced from the initially proposed ten TMC to two TMC. This will require increased pumping during monsoon months and the consequent design changes resulted in additional cost of ₹621.45 crore to the Project.

The rainfall data obtained from the private gauge stations, which was adopted for projection of available water yield for the Project, was found to be on the higher side when compared with the available rainfall data of Government gauge stations located in and around the catchment area. The comparison of actual recorded flow data of the eight weirs constructed across Yettinahole and its tributaries for five years from 2018 to 2023 revealed that available volume of water in the weirs ranged from 7.20 TMC to 24.70 TMC as against the estimated volume of 32.15 TMC considered in the DPR.

The Project suffered from financial constraints as the Government provided only 25 to 54 *per cent* of the budget requirements for the Project during the period 2018-19 to 2022-23. The request of VJNL (June 2023) for availing fresh loans required for completing the remaining works of Project was awaiting approval from the Government (March 2024). Resultantly, as of March 2024, VJNL faces financial uncertainty regarding the ₹7,954.63 crore required for completing the Project.

### **Project Implementation**

The Project was taken up in two phases consisting of lifting components and electro-mechanical works in Phase-I and Gravity/Feeder canal works in Phase-II for conveying the lifted water to Kolar and Chikaballapura districts. The civil works including construction of MS Raising Main (pipeline) under Phase-I, awarded in March 2014, have been completed as of March 2019. However, in respect of Phase-II works, the executing divisions of VJNL started submitting proposals for land acquisition (February 2015) after a delay of more than one year and the award of Social Impact Assessment (SIA) works commenced (July 2016) after two years of approval of DPR-II (February 2014) and commencement of Phase-I works (March 2014). This had a cascading effect on further land acquisition stages for Phase-II works which were awarded only after December 2017 and the works were under progress (March 2024). The absence of synchronisation amongst the works of Phase-I and II resulted in disjointed execution and consequent creation of infrastructure in patches. The assets created under Phase-I (₹2,965.77 crore) could not be put to use due to non-completion of the Gravity Canal for conveying the lifted water to the beneficiary districts. The electro-mechanical equipment such as pumps/motors could not be tested/commissioned and were kept idle consuming significant portion of their useful life.

The execution of Gravity Canal works under Phase-II was commenced (between December 2017 and March 2023) at an awarded cost of ₹8609.23 crore before acquiring land. The works remained incomplete (ranging from 4 to 92 *per cent*) due to non-acquisition of land and farmers' protest (March 2024). The work of construction of Balancing Reservoir awarded (February 2018) at the tendered cost of ₹592.35 crore could not be commenced (March 2024) due to non-availability of required land. Since the completion of Gravity Canal and Balancing Reservoir was essential for conveying the lifted water to Kolar and Chikkaballapura districts, the assets which were created under Phase-I (₹2965.77 crore) were lying idle (March 2024).

For the construction of Gravity Canal and feeder canal work (Phase-II), there was delay of more than three years and five years respectively in awarding of works. These works were yet to be completed (December 2023).

In Contract Management of the Project, Audit noticed deficiencies in tendering process such as non-adoption of standard tender document, non-assessment of bid capacity of contractors and insufficient bidding time for high value contracts ranging from ₹ 87.08 crore to ₹1,135.03 crore. Eighty *per cent* of the works were awarded to the contractors without evaluating the financial capability, bid capacity and work experience. This posed the risk of non-completion of the work on time. Further, sixty-seven *per cent* of the works (₹14,805.80 crore) were awarded to only seven contractors and one contractor was awarded 11 contracts amounting to ₹5,216.58 crore. Failure of VJNL to forfeit the EMD was an undue favour extended to the Contractor.

Audit also observed instances of undue favours to Contractors such as non-recovery of excess provision of pipe materials, additional payment for works which were part of turn-key contract, untimely release of retention money/performance security, irregular advance payments for supply of pipes and non-recovery of benefits accrued to the contractors due to implementation of Goods and Services Tax Act.

### **Monitoring**

GoK/VJNL did not prescribe any monitoring system/policy for the Project by fixing specific periodicity/schedule of inspections by various level of its officers and reporting to ensure timely completion of the Project. In the absence of an effective monitoring system, the bottlenecks in implementation of the Project could not be resolved.

Though GoK directed (February 2005) for conducting third-party inspection of works, the work order for third-party inspection was awarded (March 2018) after a delay of four years from the date of award of the five packages in Phase-I works, by which time, almost 64 *per cent* of physical progress consisting of the work of laying of MS Raising Main pipes had already been achieved. Thus, tests such as ultrasonic tests, dye penetration test and radiography test on these laid pipes could not be carried out.

In respect of Phase-II works, the measurements were recorded in loose excel spread sheets, instead of utilising the facility provided in the contract management module of e-procurement platform. These editable excel sheets were susceptible to modifications.

Thus, the Yettinahole Integrated Drinking water Project envisaged to provide drinking water to the drought prone districts of Kolar and Chikaballapura was lingering for more than 12 years with the Government unable to fix a deadline for completion. Only in October 2023, the Board of Directors of VJNL decided to fix the target date of completion of the project as 01 November 2026. The Project suffered from deficiencies such as inordinate delay in finalising the location and capacity of Balancing Reservoir, uncertainty regarding the source of funding, long delays in acquiring the required land and non-timely resolution of the various bottlenecks during implementation. As a result, despite very large expenditure of ₹15,297 crore over 12 years, the envisaged objective of providing drinking water facility to Chikaballapura and Kolar districts remained unattained.

### **What do we recommend?**

#### **Planning and Financial Management**

*VJNL should adhere to the fixed timeline (i.e., 01 November 2026) for completion of the Project and work in a mission mode to achieve the same. VJNL should also prioritise the construction of Balancing Reservoir so that the assets already created can be put to use. VJNL should make use of reliable data for the calculation of flow and availability of yield while planning a project. Government needs to take timely decision regarding the provision of required funds for completion of the Project within the stipulated timeline.*

#### **Project Implementation**

*VJNL should complete the Phase-II works urgently to avoid the idling of assets already created. VJNL should follow the provisions of Karnataka Transparency in Public Procurements Act and recover excess payments made to contractors in a time bound manner.*

#### **Monitoring**

*An effective monitoring system should be constituted at Government level and VJNL should strengthen monitoring of the Project through third party inspection as well as conduct of prescribed review meetings.*

# Chapter I

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## Introduction



## Chapter-I

### Introduction

#### 1.1 Introduction

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<sup>1</sup> of 3440 TMC<sup>2</sup> 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<sup>3</sup> 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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<sup>1</sup> Amount of freshwater derived from unregulated flow measurements for a given geographic area over a defined period.

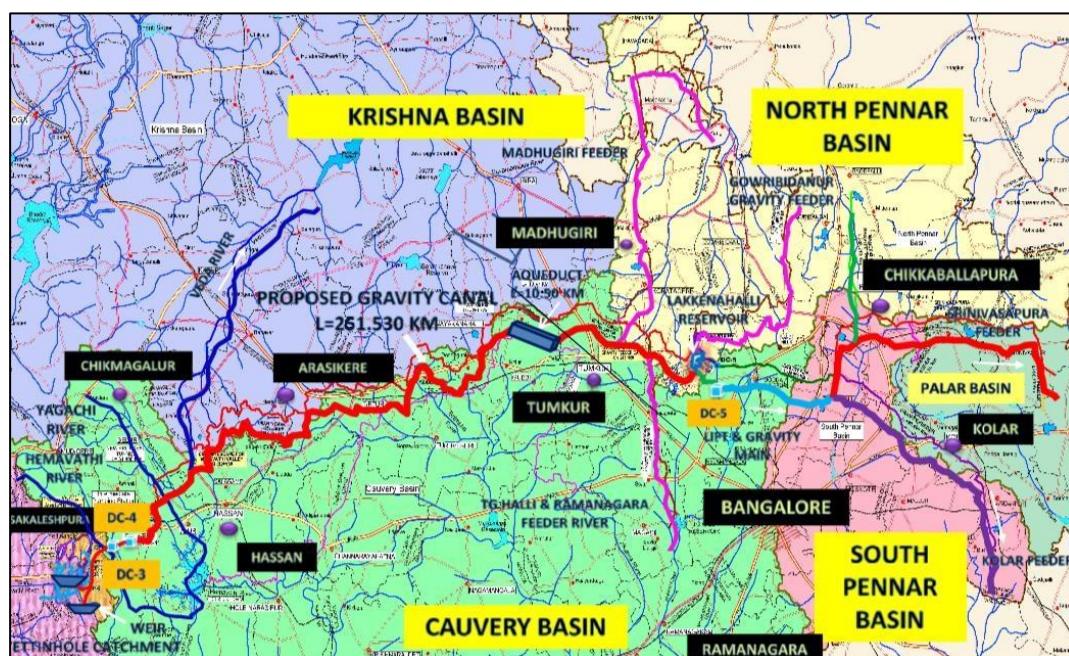
<sup>2</sup> Thousand Million Cubic Feet

<sup>3</sup> 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<sup>4</sup> 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.

<sup>4</sup> 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<sup>5</sup>, 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**

<b>Phase-I</b>	<ul style="list-style-type: none"> <li>• Lift Component works-construction of jackwell cum pumphouse<sup>6</sup></li> <li>• Construction of M.S Raising Main<sup>7</sup></li> <li>• Construction of electrical substation and transmission lines</li> </ul>
<b>Phase-II</b>	<ul style="list-style-type: none"> <li>• Gravity Main Canal<sup>8</sup> (length 261 Kms.)</li> <li>• Construction of Balancing Reservoir</li> <li>• Major Feeder Canals <ul style="list-style-type: none"> <li>1. Madhugiri Feeder Canal</li> <li>2. T.G Halli &amp; Ramanagara Feeder Canal.</li> <li>3. Gowribidanur Feeder Canal.</li> <li>4. Srinivasapura Feeder Canal.</li> <li>5. Kolar Feeder Canal.</li> </ul> </li> </ul>

## 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:

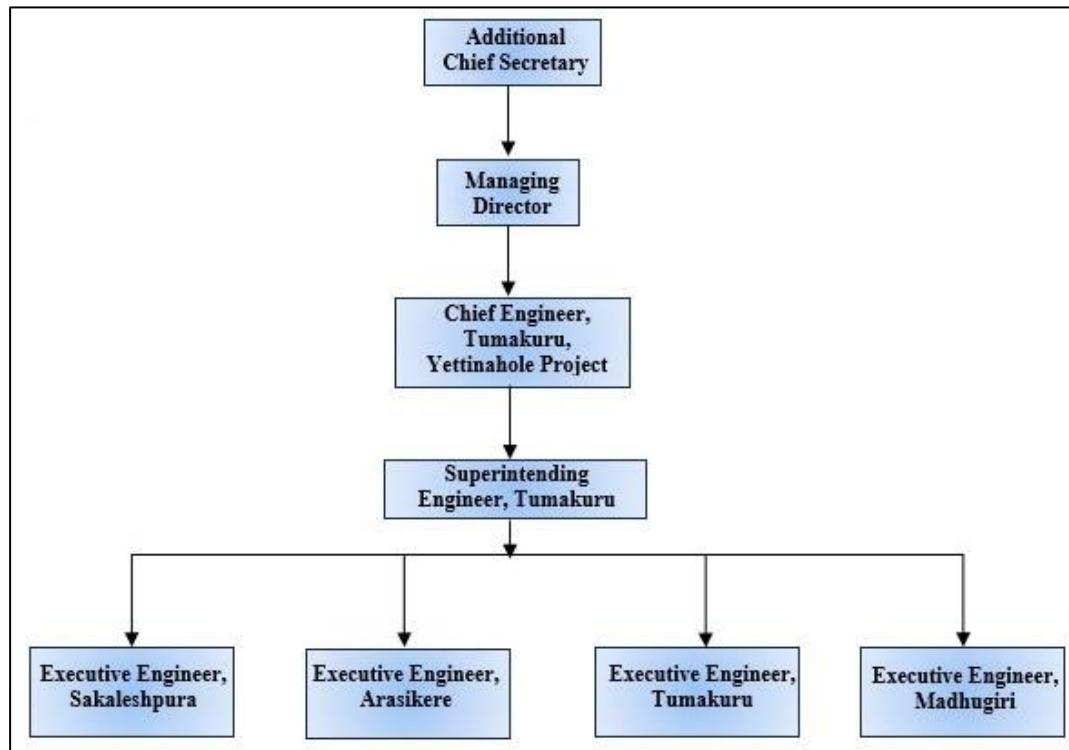
<sup>5</sup> A barrier built across river or stream to control the flow of water.

<sup>6</sup> Structure used for accumulating water and housing the pumps to lift the water to a higher level.

<sup>7</sup> Pipeline made of Mild Steel that carries water under pressure from lower to a higher level.

<sup>8</sup> 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<sup>9</sup> and three related Special Land Acquisition Offices<sup>10</sup> 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

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<sup>9</sup> Arasikere, Madhugiri, Sakaleshpura and Tumakuru

<sup>10</sup> Doddaballapura, Hassan and Tumakuru



## **Chapter II**

**Planning and Financial  
Management**



## Chapter-II

### Planning and Financial Management

The Detailed Project Report of the Yettinahole Integrated Drinking Water Project (Project) was revised twice, *i.e.*, from the originally approved ₹8,323.50 crore in July 2012 to ₹12,912.36 crore during February 2014 and to ₹23,251.66 crore during January 2023. None of the DPRs mentioned a definite completion period for the Project. The works were taken up in packages in a disjointed manner without achieving the Project objective even after 12 years of conception.

The DPR envisaged construction of Balancing Reservoir to store water diverted from Yettinahole and provide continuous supply of water to Kolar and Chikkaballapura during summer months. However, the location of the Balancing Reservoir was changed twice in the DPRs. The capacity of the Balancing Reservoir was also substantially reduced from the originally proposed 10 TMC to two TMC finally. These resultant changes in design increased the cost of the Project by ₹621.45 crore.

The rainfall data adopted for calculation of available yield of water for the Project was on the higher side compared with the rainfall data of Government gauge stations located in and around the catchment area of the Project. The comparison of actual recorded flow data of the eight weirs constructed across Yettinahole revealed that available volume of water in the weirs ranged from 7.20 TMC to 24.70 TMC as against the estimated volume of 32.15 TMC considered in the DPR.

The Project suffered from financial constraints as the Government provided only 25 to 54 *per cent* of the budget requirements during 2018-19 to 2022-23. The request of VJNL for availing fresh loans for completing the Project was yet (May 2024) to be approved by the Government. Consequently, VJNL faces a shortage of ₹7,954.63 crore as of March 2024 for completing the Project.

#### 2.1 Planning and Designing of the Project

GoK accorded (July 2012) administrative approval for the Yettinahole Integrated Drinking Water Project (Project) based on the Schedule of Rates (SR) of WRD for the year 2011-12 at a cost of ₹8,323.50 crore. The Project envisaged construction of eight weirs across the selected streams<sup>11</sup> and providing lifting arrangements to convey around 24.01 TMC at 50 *per cent* dependability<sup>12</sup> and 20.58 TMC at 90 *per cent* dependability to Chikkaballapura and Kolar districts. Out of 24.01 TMC divertible yield<sup>13</sup>, 15.029 TMC was dedicated for drinking water and balance

<sup>11</sup> Yettinahole, Kadumanehole, Kerihole and Hongadahalla

<sup>12</sup> Means availability of minimum yield for the half of the period considered (say 5 years out of 10 years)

<sup>13</sup> The annual yields likely to be available from the reservoirs as per simulation studies. It is the net yield available for diversion after deducting the committed downstream requirement.

8.981TMC was for ground water recharge. As per the first DPR (July 2012) the works to be taken up were broadly divided into two phases, which included the following:

**Phase-I :** (₹3269.50 crore)

- Construction of weirs at the selected locations<sup>14</sup> across the streams
- Construction of jackwell cum pump house at all the lifting locations
- Construction of Raising Mains (pipeline) to convey the water to the Delivery Chambers (DC) crossing the Western Ghats.

**Phase-II :** (₹5054 crore)

- Construction of Gravity Canal of length 233.00 KM to convey water to the Balancing Reservoir
- Construction of the Balancing Reservoir of 10 TMC capacity near Devarayanadurga, Tumakuru Taluk.
- Construction of Raising Mains (pipeline) from Balancing Reservoir towards Chikkaballapura and Kolar districts.

However, the above approved project report was revised twice incorporating the design and alignment changes as detailed in **Table 2.1**:

**Table 2.1: Details of revision of DPR of the Project**

	Date of administrative approval	Cost approved (₹in crore)	Major revisions
<b>First revision (DPR-II) based on SR 2012-13</b>	February 2014	12,912.36 (Phase-I: 3,527.17 and Phase-II: 9,385.19)	<ul style="list-style-type: none"> <li>• The Balancing Reservoir of 10 TMC capacity proposed at Devarayanadurga taluk involved submergence of forest land to the extent of 578 hectares, major roads, two villages and one historical place. Due to the above reasons, the location of the Balancing Reservoir was changed to Bhairagondlu village, Korategere taluk with reduced capacity of 5.78 TMC. The reasons for reduction in capacity of Balancing Reservoir were not mentioned in the DPR-II.</li> <li>• Increase in length of Gravity Canal from 233 KM to 273 KM.</li> <li>• Construction of Feeder Canals to supply water to the beneficiary areas.</li> <li>• Construction of storage reservoirs for drinking water in beneficiary Taluks.</li> </ul>

<sup>14</sup> Hongadahalla, Kadumanehole and its tributary, Kerihole, Yettinahole and its three tributaries

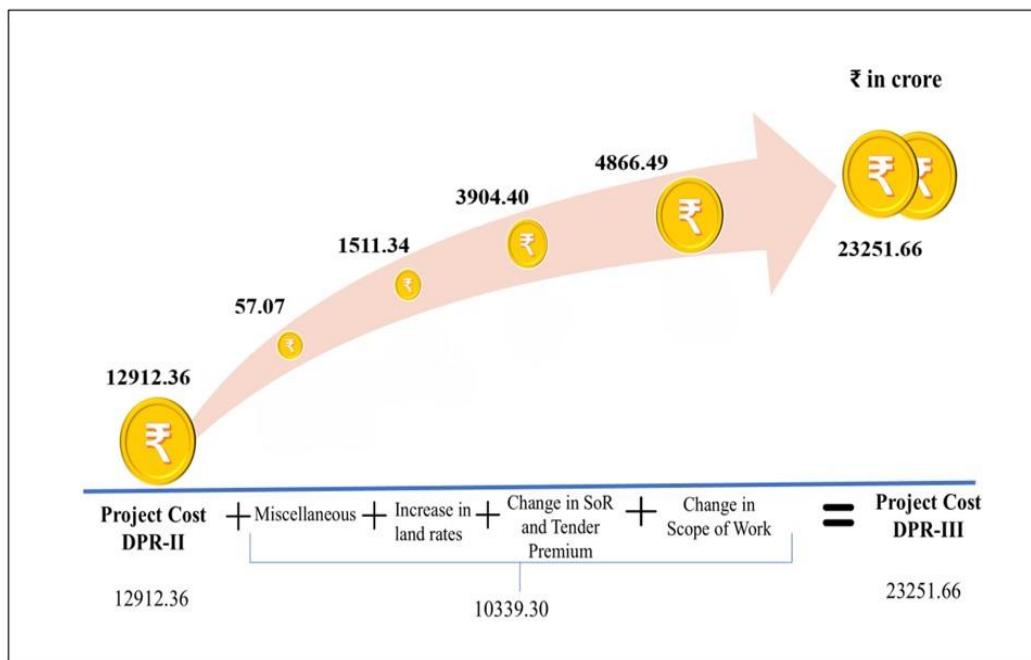
	Date of administrative approval	Cost approved (₹in crore)	Major revisions
<b>Second revision (DPR-III) based on SR 2018-19</b>	January 2023	23,251.66 (Phase-I: 4,711.45 Phase-II: 18,540.21)	<ul style="list-style-type: none"> <li>• The location of Balancing Reservoir was again changed from Bhairagondlu to Lakkennahalli village, Doddaballapura Taluk citing the reason that the reservoir at Bhairagondlu would involve submergence of five villages in Korategere Taluk and two villages in Doddaballapura Taluk. Also, the affected farmers in both taluks objected to the land acquisition demanding uniform rate for land acquired. Hence it was decided to restrict the capacity of Balancing Reservoir to two TMC which involved submergence of only three villages in Doddaballapura taluk.</li> <li>• The storage reservoirs proposed in DPR-II were dispensed with and the water pumped during June to November was proposed to be stored in Minor Irrigation tanks identified by user departments ( Rural Water Supply and Karnataka Urban Water Supply and Drainage Board).</li> <li>• Reduction in length of Gravity Canal <i>i.e.</i>, to 261 KM.</li> <li>• Increase in size of Raising Mains (pipeline), gravity pipes, pump heads <i>etc.</i>, (for Feeder Canals) due to change of capacity of the reservoir.</li> <li>• Change in method of conveyance from open canal to closed conduit in case of feeders.</li> </ul>

**Source: Approved DPRs**

The effect of the above revisions was that there was three-fold escalation in project cost from ₹8,323.50 crore to ₹23,251.66 crore *i.e.*, an increase of ₹14,928.19 crore. The project which was initially approved during July 2012 was still under progress (December 2024).

The **Chart 2.1** below indicates component wise cost overrun from DPR-II to DPR-III that resulted in huge escalation of the project cost:

**Chart 2.1: Component wise increase in project cost**



**Source: Approved DPR-II and DPR-III**

As illustrated above, the major factor in escalation of the project cost was change in scope of works due to revision of project design and alignment as explained in **Paragraph 2.1.2**. The other contributing factors were revision in Schedule of Rates and increased cost of land due to the delay in its acquisition.

Government replied (March 2024) that the design changes were due to the reduction in capacity of the Balancing Reservoir to two TMC. This was necessitated due to the construction of separate dedicated storage space for drinking water within the existing Minor Irrigation tanks to be undertaken by the user departments such as RWS, KUWSDB and BWSSB. The availability of the above storage locations obviated the necessity for construction of Balancing Reservoir with higher capacity.

The reply was not acceptable since in DPR-II, there was provision for construction of storage tanks for drinking water under the Project itself, even when the capacity of the envisaged Balancing Reservoir was 5.78 TMC. In DPR-III, the above storage tanks were dispensed with, and the drinking water was envisaged to be stored in dedicated storage spaces within Minor Irrigation tanks by the user departments. Hence the above justification offered for reduction in capacity of Balancing Reservoir was not acceptable as the provision for storage tanks was available in both the DPRs.

Audit observed the following lapses in planning of the project as detailed below:

### **2.1.1 Non-specification of the completion period in DPRs**

Project Implementation Manual<sup>15</sup> released (June 2010) by Ministry of Statistics and Programme Implementation, Government of India prescribes that DPR should contain complete breakdown of all components of a project with specific time schedule and firmed up costs which can be used as an instrument for controlling and monitoring the physical and financial progress of the project. However, Audit observed that timeline for the completion of the Project and delivery of intended benefit of drinking water was neither decided by GoK nor committed by the VJNL. None of the DPRs stipulated the date of completion of the Project. Audit observed that the works of Phase-I and Phase-II are being executed in packages without any synchronisation. This major lacuna in planning resulted in non-prioritisation of work components leading to disjointed execution of works and creation of infrastructure in patches. The Project could not be made operational even after 12 years of conception.

Government replied (March 2024) that drawing timelines in the DPR for such a complex project which involved construction of major structures and construction of canal over a length of 273 KM and land acquisition of around 9141 acres was difficult. This involved various components of the project such as collection of required data (topographical sheets, demarcation of catchment area, identification of suitable locations for the construction of diversion structures, pump house, Raising Main (pipeline), etc.,) as well as clearance of Ministry of Environment and Forest and hence, it was not possible/practical to provide the probable date of completion in DPR. The Government further submitted that deadlines for completion of project is now fixed and project would be completed by 01 November 2026.

Reply cannot be accepted as non-specification of completion period in the DPRs contravened the norms prescribed by the Project Implementation Manual. As seen from the submission of the Government, the Project was commenced without specifying timelines for completion of various components and execution was on *ad-hoc* basis. In the absence of a specified timeline for completion of the project, co-ordination and synchronisation of the different components was not possible; it also led to long delays in finalising the design/alignment, inadequate allocation of financial resources and creation of infrastructure in disjointed patches during execution resulting in non-achievement of the intended objective even after 12 years of inception of the Project.

### **2.1.2 Inordinate delay in finalisation of the location of storage reservoir**

The construction of Balancing Reservoir is a critical component of the Project as water sourced from Western Ghats during monsoon months need to be stored to

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<sup>15</sup> Guidelines for implementation of major projects under Central and State sector funding

ensure continuous supply of drinking water to Chikkaballapur and Kolar districts during summer months. Audit observed that the Government/VJNL failed to firm up the location of Balancing Reservoir which was changed twice (February 2014 and January 2023) from what was originally envisaged in 2012. The initial proposal for construction of Balancing Reservoir of 10 TMC capacity (DPR-I/ July 2012) at Devarayanadurga was abandoned due to concerns regarding submergence of 1428.27 acres of forest land, major roads and a historical place. Subsequently, in DPR-II (Feb 2014), it was proposed to construct Balancing Reservoir with reduced capacity of 5.78 TMC at Bhairagondlu. This required acquisition of 5078 acres of private land (2388 acres in Doddaballapur taluk and 2690 acres in Korategere taluk). In view of large difference in guidance value of land in the villages of the two taluks, the farmers demanded payment at uniform rates for the land of all the villages by considering it as a single unit. Even though, the VJNL sent (September 2019) a proposal to the Government for payment of uniform rates for all villages, the Government did not convey its approval for the same. Thus, thereafter in DPR-III (January 2023), it was proposed to construct Balancing Reservoir at Lakkennahalli village, Doddaballapur Taluk with a capacity of only two TMC, which involved submergence of 1200.50 acres in three villages of Doddaballapur taluk.

Audit further observed that though the VJNL has finalised the new location for construction of Balancing Reservoir as per DPR-III in January 2023, the necessary process for acquisition of required land such as preliminary/final notification and fixation of award *etc.*, has not been initiated by VJNL till date. (December 2024).

The analysis of DPRs and related records revealed the following:

- The reasons stated in DPR-II for non-suitability of land at Devarayanadurga for construction of 10 TMC reservoir was not justifiable as these were known facts and should have been identified at the feasibility study stage. This indicates lack of due diligence in framing of DPR-I as it is apparent that it was prepared without care and accuracy in survey and collection of information.
- In DPR-II, out of 24.01 TMC of water to end users, the quantity of water allotted for Chikkaballapur and Kolar districts was 12.33 TMC. Out of the above, 6.66 TMC (54 *per cent*) of water was planned to be pumped during monsoon season (June to October) and balance 5.73 TMC (46 *per cent*) during November to February as the Balancing Reservoir could store 5.78 TMC. Since the storage capacity of the Balancing Reservoir was reduced to two TMC in DPR-III, 10.30 TMC (84 *per cent*) of the water was required to be pumped during monsoon season from June to October. This requires enhancing the capacity of pumps and size of Raising Mains (pipeline) to pump the increased quantity of water to the identified Minor Irrigation tanks.
- In DPR-III, the reason cited for reduction in capacity of Balancing Reservoir (from 5.78 to 2 TMC) and change of location of Balancing Reservoir was the

farmers demand for uniform rate for land to be acquired in villages coming under two taluks of Doddaballapura and Korategere. As per guidance value of 2017, the compensation payable for the lands in the Doddaballapura taluk and Korategere Taluk was ₹32.00 lakh and ₹20.00 lakh *per* acre respectively. Accordingly, VJNL submitted the proposal (September 2019) to the Government with an additional financial implication of ₹319.47 crore for payment of uniform rates to both the taluks. Audit observed that the financial impact of newly proposed Balancing Reservoir at Lakkennahalli village in DPR-III (January 2023) amounted to ₹940.92 crore owing to changes in scope of work *i.e.*, increase in pumping capacity, additional length of 3.6 KM Gravity Canal, additional carrying capacity of Gravity Feeder Canal as well as revision of Schedule of Rates. Thus, inaction on the part of the Government in finalising the proposal for Balancing Reservoir at Doddaballapura and Korategere taluks resulted in additional cost of ₹621.45 crore (₹940.92 crore - ₹319.47 crore) due to changes in scope as discussed above.

- Had a decision to acquire land at Doddaballapura and Korategere taluks been taken expeditiously by the GoK, the work of Balancing Reservoir was expected to have been completed within 18 months of land acquisition at much lower cost with higher capacity of 5.78 TMC, thereby enhancing the utility of the Project.

The above facts indicate failure to identify and acquire required land for construction of the Balancing Reservoir as well as lack of forethought on the part of GoK as evidenced by withholding of approval for land acquisition. This resulted in frequent changes of alignment and design of the project leading to cost overruns on account of scope changes and revision of Schedule of Rates besides non-completion of the Project.

In response (March 2024), the Government did not submit any specific reply in respect of audit observations relating to DPR-I and DPR-II. In respect of reasons for changes in DPR-III, the Government stated that the provisions of Land Acquisition Act, 2013 did not provide for payment of uniform rate for land acquired in two different taluks and any such payment would become a precedence for other irrigation projects.

The reply cannot be accepted for the following reasons:

- i) Land Acquisition Act, 2013 did not prohibit the payment of uniform rate as stated.
- ii) In the instant case, the Deputy Commissioner of Tumakuru District who was the Chairman of price fixation committee and BoD of VJNL also recommended the payment of uniform rate for these two taluks.

iii) VJNL had already made payment at uniform rate for purchasing land measuring 448 acres in 22 villages of Sakaleshpura Taluk for Phase-I works of this Project.

### **2.1.3 Inaccurate calculation of available yield**

Yield was a critical parameter for planning and designing of the Project. KNNL took up (September 2010) the feasibility study of the Project through M/s EI Technologies Pvt. Ltd., Bangalore (Consultant) in which eight streams were identified for diversion of water. The divertible water was estimated to be about 24.01 TMC at 50 *per cent* dependability. Audit observed that the methodology adopted for calculation of the yield in the study report suffered from the following deficiencies:

#### **2.1.3.1 Inaccuracies in collating data for calculation of yield**

- The Consultant utilised past 12 to 15 years rainfall data of private landowners' gauge station situated within/near the catchment area (Kottanahalli, Hongadahalla and Kadumane Estate) of the weirs to arrive at the average rainfall data. There was no independent verification of the authenticity of data sourced from private gauge stations. The consultants did not utilise the rainfall data available with Government rain gauge stations situated at Maranahalli and Harley within the proposed catchment area of weirs and three rain gauge stations (Hethur, Yeslur and Banagere) situated very close to the catchment area.
- The Consultant with the help of data accessed from private rain gauge stations had arrived at annual rainfall of 6280 mm. The same annual average rainfall was taken uniformly for the entire catchment area of 176.74 sq. km. However, Audit noticed from the annual reports published (during 2011-2018 excluding 2013) by the Department of Economics and Statistics of Karnataka that annual rainfall in and around the catchment area varied with the change in location. The details are given in **Table 2.2:**

**Table 2.2: Details showing rainfall recorded in gauge stations around the catchment areas of weir**

Rain gauge Station	Rainfall recorded (in mm)							Variation Range (mm)	Average (in mm)
	2011	2012	2014	2015	2016	2017	2018		
Maranahalli	5135	5238	4733	3677	4022	3347	6605	3347 to 6605	4680
Yeslur	2447	1995	2565	2057	1981	2121	3435	1981 to 3435	2372
Hethur	4267	3280	3841	2837	2577	2833	5124	2577 to 5124	3537
Banagere	4855	3845	4632	3086	3703	3762	7480	3086 to 7480	4480
Harley	3389	2995	3730	2387	1670	1990	4144	1670 to 4144	2901

**Source: Reports published by Department of Economics and Statistics**

Thus, the rainfall measured in government gauge stations located in and around the catchment area was much lower compared to the annual rainfall

data collated from the private gauge stations which was used for runoff calculations at each weir in the DPR.

- During 2009, Karnataka Power Corporation Limited (KPCL)<sup>16</sup> had installed three water flow gauge stations (Bidalli, Mukanamane and Maranahalli) in the neighbourhood of the proposed weirs. The Consultant arrived at average catchment flow per square kilometer based on four years (2009-12) data available at the above gauge stations. The flow and the catchment area of the above gauge stations were compared with the available flow data at Bantwal gauge station of Central Water Commission (CWC) located downstream to derive the co-relation between the same. Based on the above co-relation, flow data for 37 years *i.e.*, from 1971 to 2007 was arrived at for each weir which was considered in the DPR. However, Audit is of the opinion that extrapolation of flow data for 37 years based on only four years actual flow data was not a reasonable assessment.

The Government in its reply (March 2024) stated that calculation of flow data was based on Irrigation Manual which provides for adopting average of 35 years of yearly rainfall. The reduction in rainfall recorded at KPCL gauge stations was considered and the divertible yield was arrived at 22.14 TMC as against 24.01 TMC. Government also contended that rainfall data of Government gauge stations mentioned (by Audit) in **Table 2.2** was not available at the time of preparation of DPR-II. Government further stated that Audit considered rainfall data on a yearly basis, instead of data pertaining to June to November. The reply also mentioned that opinion of experts in the field of hydrology, National Institute of Hydrology (NIH), CWC and National Green Tribunal (NGT) was obtained to confirm the divertible yield.

The reply is not acceptable, as it does not address the audit observation which was regarding adoption of rainfall data from private gauge stations which projected uniform rainfall data of 6280 mm for the whole project area without considering the variation from place to place within the catchment area. The reply also did not justify the adoption of 24.01 TMC as divertible yield in the DPR even though the yield calculated using extrapolated data for 37 years was only 22.14 TMC. Reply of the Government regarding non-availability of rainfall data in respect of Government rain gauge stations mentioned in **Table 2.2** is not acceptable, as Audit observed that the rainfall data for the above stations was available for the period from 1976 onwards. It is further submitted that the Audit compared the rainfall data on yearly basis (instead of June to November), similar to the Consultant, who also adopted annual rainfall data of 6280 mm in respect of private rain gauge stations. Regarding opinion of NIH, CWC and NGT, Audit observed that while CWC and NGT had not made independent comments regarding the availability of yield as per the DPR, the

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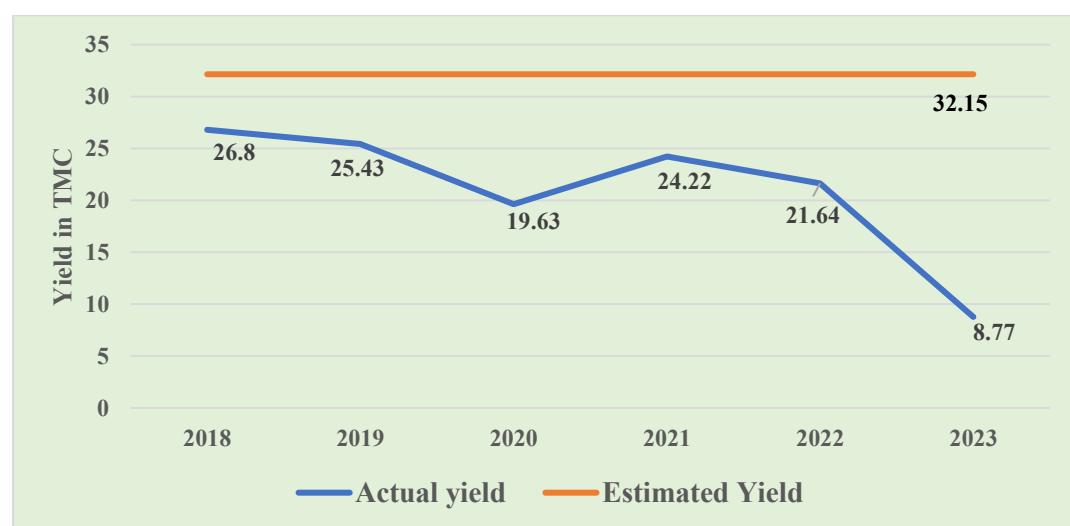
<sup>16</sup> A power generation company owned by GoK

reports of NIH indicated available yield of 22.48 to 23.41 TMC as against 31.54 TMC (at 50 *per cent* dependability) projected in the DPR as detailed in **Paragraph 2.1.3.2**

### **2.1.3.2 Non-achievement of expected yield as per actual flow data**

The Consultants had proposed a divertible yield of 24.01 TMC at 50 *per cent* dependability out of average available inflow of 32.15 TMC<sup>17</sup> across eight weirs identified. In 2018 and 2019, the VJNL installed gauges at all eight weirs as per the orders of the National Green Tribunal (NGT) and Karnataka Forest Department. The recorded flow data was available for six years from 2018 to 2023, which was provided to Audit. Based on the recorded flow data of these gauges, Audit calculated the available yield for each weir as detailed in the **Chart 2.2** below:

**Chart 2.2: Estimated Yield (DPR) Vs Actual Yield (recorded data at weirs)**



**Source:** Flow data provided by VJNL (The data was updated till 17 October 2023. Actual yield for 2018 does not include the flow data of weir 3 which was installed only in 2019)

Results suggest that during 2018-23, maximum yield (in the year 2018 & 2019), was less than the estimated yield (32.15 TMC) as per the DPR. Highest available volume of 26.80 TMC was in the year 2018 and lowest was 8.77 TMC in the year 2023.

Audit further observed that the Ministry of Environment, Forest, and Climate Change in its order dated 06 January 2016 stipulated that VJNL shall provide an undertaking on restricting the pumping operation under the project from June 15 to October 31 for maintaining ecological balance in the region. This provided a window of only 139 days for pumping the water as against the estimated 183 days (From June to November) considered in the DPR. Audit calculated the available flow for 139 days with the help of gauge data provided for all the weirs and results are indicated in **Table 2.3**:

<sup>17</sup> 31.54 TMC at 50 *per cent* dependability

Table 2.3: Flow data for 139 days (from 15 June to 31 October) at the weirs

Year	Weir 1	Weir 2	Weir 3	Weir 4	Weir 5	Weir 6	Weir 7	Weir 8	Total
2018	4.29	0.82	NA	1.47	3.02	3.61	5.65	5.82	24.70
2019	4.39	0.81	1.33	1.15	1.51	2.88	5.98	5.48	23.54
2020	2.68	0.01	1.40	1.14	2.16	2.22	7.04	1.15	17.80
2021	3.70	0.47	1.60	1.00	2.26	2.87	7.40	1.59	20.90
2022	4.50	0.56	1.25	1.60	2.65	2.00	5.70	1.48	19.75
2023	1.60	0.34	0.94	0.90	1.70	0.29	0.59	0.84	7.20
50 <i>per cent</i> dependable flow	4.00	0.51	1.33	1.14	2.21	2.54	5.84	1.53	19.12

Source: Flow data provided by VJNL

From **Table 2.3**, it can be observed that for a period of 139 days, the available volume of water in the eight weirs ranged between 7.20 TMC to 24.7 TMC as against the estimated volume of 32.15 TMC in DPR. Adopting the calculation methodology in the DPR, 50 *per cent* dependable volume comes to 19.12<sup>18</sup>TMC as against the estimated 31.54 TMC and the divertible yield was 14.55<sup>19</sup> TMC as against 24.01 TMC. This indicated the possibility of non-availability of the estimated quantity of water as projected in the DPRs.

The audit contention was strengthened by the opinion provided by National Institute of Hydrology (NIH) after studying the yield data as per the request of KNNL. The report (March 2015) furnished by the NIH provided that the 50 *per cent* dependable yield at all the weirs combined was 22.48 TMC using SWAT<sup>20</sup> model and 23.41 TMC using ARNO<sup>21</sup> model as against estimated 31.54 TMC. NIH utilized the annual rainfall data of Marenahalli rain gauge station for the period 1993 to 2012 which was 4880 mm and in consonance with the audit contention.

In view of the above, the possibility of the actual availability of water being less than the estimated yield as per the DPR cannot be denied. The pumping capacity of 85 cumecs<sup>22</sup> was planned for pumping divertible yield of 24.01 TMC in 93 days. However, if the divertible yield gets reduced to 14.55 TMC as per audit calculation, the pumping capacity can be reduced to 52 cumecs. In this scenario, the possibility of installed capacity of machinery and structures to pump and carry the diverted water to the beneficiary area being in excess of requirement, cannot be ruled out. Government replied (March 2024) that flow assessment carried out in DPR was for a longer period of more than 30 years as compared to the flow data of six years

<sup>18</sup> 50 *per cent* dependable flow has been arrived by using percentile function

<sup>19</sup> The divertible yield at 50 *per cent* dependability is arrived at by using the same ratio, used in the DPR to arrive at the divertible yield of 24.01 TMC.

<sup>20</sup> SWAT model is a long term, continuous and simulation watershed rainfall-runoff model.

<sup>21</sup> ARNO model is a conceptual precipitation-run off model that simulates discharges using a daily time step.

<sup>22</sup> Cubic meters per second

adopted by Audit. The pumping capacity of 85 cumecs was decided based on the above hydrological studies. Further it was replied that the excess water available during years of heavy rainfall can be diverted only if higher pumping capacity was maintained.

The reply cannot be accepted as flow data at the weirs for 37 years arrived through corelation between flow data recorded at KPCL weirs and the Bantwal gauge stations based on live data for only four years (2009-12) as described in **Paragraph 2.1.3.1** above. The Government contention that pumps of higher capacity was required during seasons of heavy rainfall was also not justifiable in view of the reduction in size of the Balancing Reservoir and the limit in pumping capacity (38 cumecs) provided at the tail end of the Balancing Reservoir.

## **2.2 Financial Management**

The project is being funded by the State Government through the capital grants apart from borrowings by VJNL from commercial banks based on Government guarantee. The abstract of budget allocation, releases (including borrowings) and expenditure for the project is depicted in **Table 2.5** below:

**Table 2.5: Budget allocation and expenditure under the project**

**(₹ in crore)**

Year	Budget proposed by VJNL	Budget Allocation/Releases			Short Release	Percentage of short release	Expenditure incurred
		GoK	Borrowings	Total			
Up to 2017-18		2909.26	206.69	3115.95			3115.95
2018-19	2882.61	783.26	767.69	1550.95	1331.66	46	1550.95
2019-20	5000.00	1357.80	640.43	1998.23	3001.77	60	1998.23
2020-21	7939.15	1717.39	228.39	1945.78	5993.37	75	1945.78
2021-22	5637.63	1951.44	181.63	2133.07	3504.56	62	2133.07
2022-23	8700.00	2567.44	542.83	3110.27	5589.73	64	3110.27
2023-24	5000.00	1249.00	Nil	1442.78	3557.22	71	1442.78
<b>Total</b>	<b>35159.39</b>	<b>12535.59</b>	<b>2567.66</b>	<b>15297.03</b>			<b>15297.03</b>

Source: Information furnished by VJNL

The audit observations are detailed below:

### **2.2.1 Allocation of budgetary grants by Government on ad-hoc basis.**

As observed in **Table 2.5**, the release of funds by the State Government under the Project was deficient with respect to the budget requirements proposed by VJNL. The percentage of shortage varied from 46 to 75 *per cent* during the period 2018-19 to 2023-24. VJNL has spent the entire amount of ₹15,297.03 crore (GoK grants- ₹12,535.59 crore and borrowings - ₹2,567.66 crore) released for the project.

The Government replied (March 2024) that VJNL was allotted 26 *per cent* of the funds allocated to Water Resources Department in the annual budget and with the

available resources VJNL had to plan for spill over works and new works under the Project.

This shows that the requirement/demand placed by the VJNL for the project was not a criterion and the allotment of budget was made on *ad hoc* basis without any linkage with the actual requirement for the project.

### **2.2.2 Uncertainty in raising finances for project completion**

VJNL revised the DPR for the second time during January 2023 and the latest project cost was estimated at ₹23,251.66 crore. Thus, VJNL requires balance amount of ₹7,954.63 crore<sup>23</sup> for completion of the Project as per the latest DPR. Audit observed from the communications from the banks that henceforth, they would not be funding the project as VJNL was not generating any revenue out of the project and was dependent on releases from GoK for repayment.

In view of the above, VJNL proposed to avail long term loan from the Power Finance Corporation (PFC) and Rural Electrification Corporation Limited (REC) for completion of the project and both had sanctioned loans at the interest rate of 9.50 and 9.65 *per cent*, respectively. Since the terms of sanction of loan stipulated provision of guarantee by the GoK, the matter was referred to Government for providing guarantee during June 2023.

However, GoK has not taken any decision on the request of VJNL for availing fresh loans for completing the Project. As a result, VJNL faces a shortage of ₹7,954.63 crore as of March 2024 to complete the project.

In reply, VJNL stated (March 2024) that the proposal for availing the loan from the proposed financers is pending with Government and on receipt of suitable directions, necessary action would be taken. Finance Department, GoK replied (May 2024) that the proposal of VJNL for availing loan from PFC and REC was still under scrutiny.

As such there is lack of clarity of the source of funds to finance the balance works of the Project.

### **Audit Recommendations**

***Recommendation 1: VJNL should adhere to the fixed timeline of 01 November 2026 for completion of the Project and work in a mission mode to achieve the same.***

***Recommendation 2: VJNL should prioritise the construction of Balancing Reservoir so that the assets already created can be put to use.***

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<sup>23</sup> ₹23251.66 - ₹15297.03 = ₹7954.63 crore

***Recommendation 3: VJNL should make use of reliable data for the calculation of flow and availability of yield while planning a Project.***

***Recommendation 4: Government needs to take timely decision regarding the provision of required funds for completion of the Project within the stipulated timeline.***

# Chapter III

## Project Implementation



## Chapter III

### Project Implementation

The works under Phase-I of the Project (Lifting Components) were awarded during March 2014 and the civil works including construction of MS Raising Main (pipeline) have been completed as of March 2019. The executing divisions of VJNL started submitting proposals (February 2015) for land acquisition in respect of Phase-II works after a delay of more than one year and the award of Social Impact Assessment studies commenced (July 2016) after two years of approval of DPR-II and commencement of Phase-I works. This resulted in cascading delay for other stages of land acquisition and corresponding delay of more than three years in awarding of works under Phase II. The assets created under Phase-I at the cost of ₹2,965.77 crore could not be put to use due to non-completion of the Gravity Canal for conveying the lifted water to the beneficiary districts. The electro-mechanical equipment such as pumps/motors installed under Phase I works could not be tested/commissioned and were kept idle consuming significant portion of their useful life. The lack of synchronisation between works taken up under Phase-I and Phase-II resulted in creation of infrastructure in patches leading to idling of assets and non-achievement of the objective of the Project

In Contract Management of the Project, Audit noticed deficiencies in tendering process such as non-adoption of standard tender document, non-assessment of bid capacity of contractors, insufficient bidding time for high value contracts *etc.* Audit also observed instances of grant of undue favours extended to Contractors such as non-recovery of excess provision of pipe materials, additional payment for works which were part of turn-key contract, untimely release of retention money/performance security, irregular advance payment for supply of pipes and non-recovery of benefits to the contractors due to implementation of Goods and Services Tax Act.

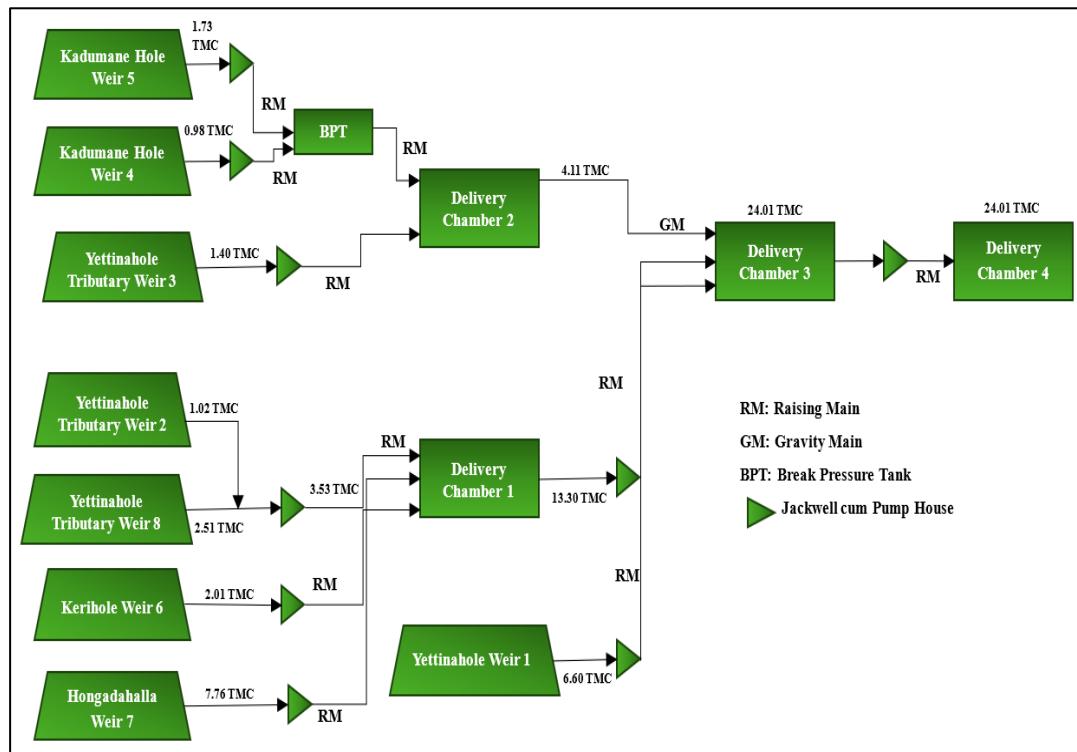
#### 3.1 Non-synchronisation of the works under the Project

The Project was taken up under two phases. Under Phase-I, 24.01 TMC of water was to be diverted from eight west flowing streams<sup>24</sup> by constructing eight diversion weirs having suitable lifting arrangements like jackwell cum pump house and conveying the water to the identified delivery chambers through MS Raising Mains (pipeline) as indicated in the **Chart 3.1** below:

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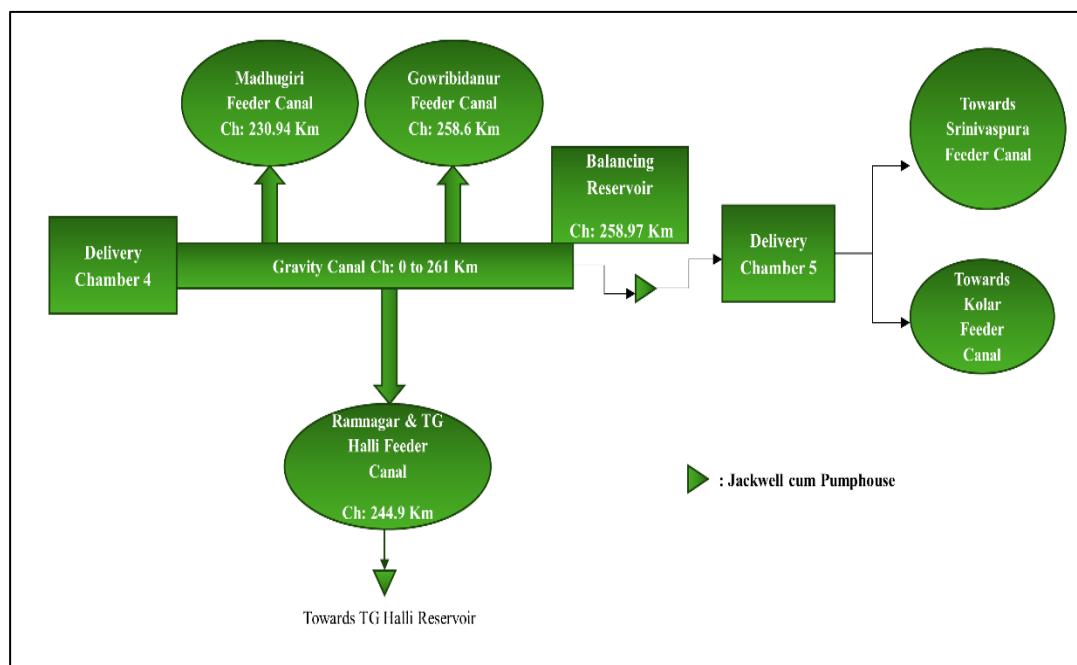
<sup>24</sup> Hongadahalla, Kadumanehole and its tributary, Kerihole, Yettinahole and its three tributaries

**Chart 3.1: Components of Phase-I work**



Phase-II of the Project involved works related to conveyance system for carrying water beyond Delivery Chamber 4 through Gravity Canal up to the foreshore of the Balancing Reservoir and then pumped to Delivery Chamber 5. Water was then to be delivered by Feeder Canals to Kolar and Chikkaballapura districts. The components of Phase-II work are indicated in the **Chart 3.2** below:

**Chart 3.2: Components of Phase-II works**



The physical progress under various components of the Project as of 31 March 2023 indicated in **Table 3.1**:

**Table 3.1: Statement showing the physical progress under various components as of 31 March 2024**

Phase-I works					
Components			Completed	Balance	Percentage of completion
Weirs (No.)	8	8	0	100	
Jackwell-cum-pumphouse (No.)	9	9	0	100	
Delivery Chamber (No.)	4	4	0	100	
MS Raising Main (KM)	126.801	125.849	0.952	99	
Electrical Stations	KPTCL (400/220 KV) Sub-Station	2	2	0	100
	Consumer Sub-Station	8	7	1	88
220KV/66 KV lines (KM)*	52.66	37.22	15.86	70	
Phase-II works					
Gravity Canal (KM)	252.54	143.05	109.49	57	
Balancing Reservoir at Lakkennahalli	Work awarded in March 2018 was yet to commence due to non-acquisition of land (1200 acres)				
Feeder Canals (KM)	256.81	211.55	45.26	82	

\* The balance electrical works at weir 3 and drawing of overhead electric lines between towers is yet to be completed.

**Source: Information furnished by VJNL**

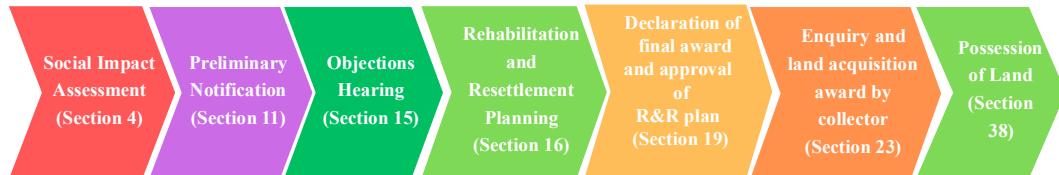
VJNL awarded the lifting components of Phase-I works during March 2014 with a scheduled period of completion of three years (March 2017). As observed in the **Table 3.1** above, under Phase-I, civil works such as construction of weirs, jackwell cum pumphouses, MS Raising Main(pipeline) etc., have been completed as of March 2019. The balance works to be completed were construction of one consumer sub-station and the testing and commissioning of the lifting component/equipment. The reason for holding back the testing/commissioning was non-completion of the Gravity Canal (taken up under Phase-II of the Project) for further conveyance of lifted water to Kolar and Chikaballapura. The reasons for delay in completion of Phase-II works and the resultant impact on the Project is discussed below:

### 3.1.1 Delay in land acquisition

As per Section 135 of Karnataka Public Works Departmental Code 2014 (Code), calling for tenders for works for which lands are not acquired shall be avoided. In rare cases, when tenders for works are accepted but the lands required for the purpose is still to be acquired, then action should be taken on war footing to initiate acquisition proceedings. Further, the Code also stipulate that after technical sanction, acquisition proceedings should be initiated, if funds are earmarked for the work. Calling for tenders in all such cases shall be only after the entire lands are taken possession including obtaining clearances wherever necessary.

Land acquisition by Government entities is a long drawn out and complex process. The various stages involved in land acquisition as per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (hereinafter referred to as LA Act) which came into effect on 01 January 2014 are as indicated in the **Chart 3.3** below:

**Chart 3.3: Process flow for land acquisition as per LA Act**



As per the Section 4 of LA Act, whenever the appropriate Government intends to acquire land for a public purpose, it shall consult the concerned Panchayat, Municipality or Municipal Corporation as the case may be and carry out a Social Impact Assessment (SIA) study under the notification of the Government. Further, Section 7 provides for appraisal of the SIA report by a multi-disciplinary expert group appointed by the Government. The SIA study was to be completed within a period of six months from the date of its commencement. On completion, the SIA report was to be submitted to the Government for approval and thereafter the preliminary notification under Section 11 of the LA Act would be issued by the Special Land Acquisition Office (SLAO) concerned.

The first revised project report (DPR-II) of the Project was approved by the Government in February 2014 and execution of Phase-I works commenced in five packages. The work orders for all the five packages were issued in March 2014. The land required for Phase-I works totalling to 485<sup>25</sup> acres was acquired either through direct purchase or right of use agreement with the landowners. All those works of Phase-I were stipulated to be completed by February 2017.

The requirement of land for works under Phase-II was assessed in DPR-II at 10,164 acres for Gravity and Feeder Canals (in three districts Hassan, Tumakuru and Bengaluru Rural). In view of the mandatory requirement of SIA followed by time consuming actual process of land acquisition viz. issue of preliminary notification, negotiation, final notification and award of land as required under LA Act, the VJNL was required to initiate the process of SIA immediately after the approval of DPR-II and commencement of works under Phase-I.

As per the approved alignment for the Gravity Main Canal under Phase-II, 100 villages in four taluks under the jurisdiction of SLAO, Hassan and 197 villages in eight taluks under SLAO, Tumakuru, were affected by the proposed acquisition of 2,763.44 acres and 3,150.75 acres, respectively.

<sup>25</sup> 449 acres through direct purchase and 36 acres through Right of Use Agreement

Audit test checked a few records relating to land acquisition process in 15 out of 100 villages in Hassan and 26 out of 197 villages in Tumakuru and observed the following:

- Though the requirement of land was determined in February 2014 (date of approval of DPR-II), the executing divisions started submission of proposals to SLAO Hassan and Tumakuru after a delay of more than one year. In test checked cases, the period of submission was between February 2015 to May 2018. The earliest proposal submitted by executing Divisions to SLAO, Hassan was on 04 February 2015 and to SLAO, Tumakuru on 06 July 2015. Audit further observed that land acquisition proposals continued to be submitted to the SLAOs till May 2018 with a delay of more than four years from the initial assessment of land required for acquisition.
- Despite receipt of requests from executing Divisions, the work orders for the SIA studies were issued by SLAO Hassan between July 2016 and October 2018, whereas in Tumakuru the SLAO issued the work orders between October 2016 to January 2017, *i.e.*, with a delay of more than a year to three years.
- Though the SIA studies were required to be completed within six months, it was observed that there was inordinate delay in submission of SIA reports. Further delay was also observed in approval from the Government to those SIA studies as detailed in **Table 3.2** below.

The overall position of SIA studies conducted and the resultant impact on the delay in issue of preliminary notification for land acquisition for Phase-II under Section 11 of the LA Act is as under:

**Table 3.2: Delay in conducting SIA and issuing preliminary notification.**

Special Land Acquisition Office	Date of award of SIA work	No. of SIA Reports	Date of submission of SIA Report to Government	Date of approval of SIA report by Government	Date of earliest preliminary notification
Hassan	15.07.2016 to 14.10.2018	3	29.10.2018 to 21.02.2019	21.01.2019 to 25.02.2019	28.02.2019
Tumakuru	28.10.2016 to 16.01.2017	4	17.05.2017 to 31.05.2018	31.08.2017 to 03.08.2018	07.12.2017

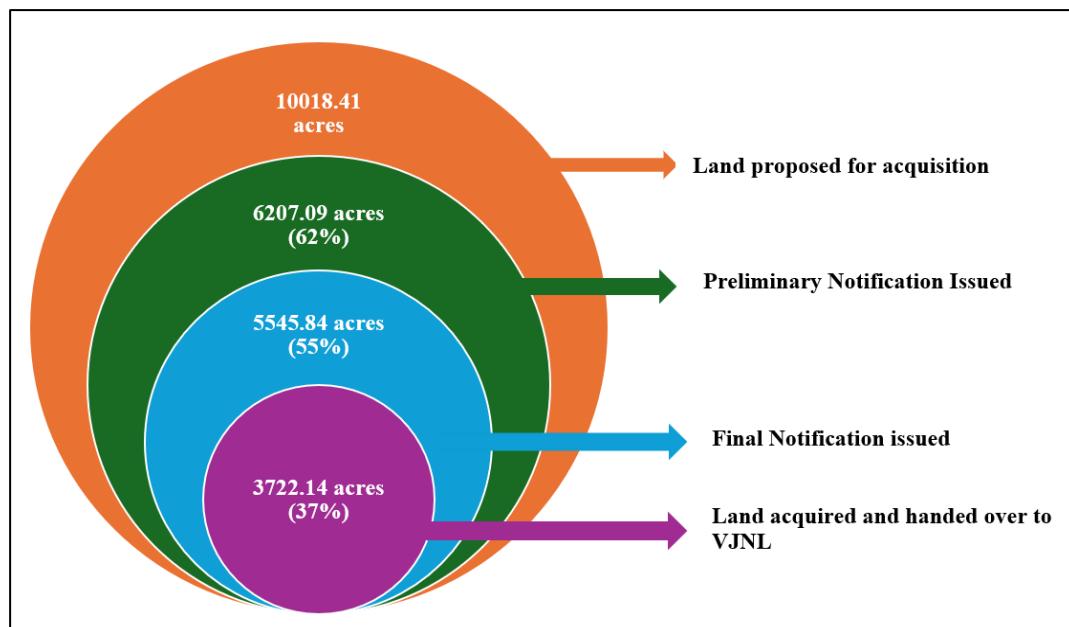
**Source: Information furnished by Land Acquisition Offices**

The delay of more than two years in award of SIA studies further delayed the other stages of land acquisition. The SLAO, Tumakuru and Hassan started issuing preliminary notifications in December 2017 and February 2019, respectively, for the land to be acquired for Gravity Canal works (Phase-II).

Audit thus observed that there was inordinate delay in submission of proposals to land acquiring authorities concerned and initiation of SIA works which subsequently resulted in furtherance of delay in land acquisition process.

The progress in land acquisition for Phase-II works of the Project as of March 2024 is detailed in **Chart 3.4** below:

**Chart 3.4: Progress in land acquisition for Phase-II works**



**Source: Information furnished by Land Acquisition Offices**

Out of the total proposed land for acquisition totalling 10,018.41 acres, an extent of 3722.14 acres (37 *per cent*) has been acquired as of 31 March 2024. In respect of balance 6,296.27 acres, preliminary notification under Section 11 was still pending in respect of 3,811.32 acres (38 *per cent*). This included land required for Balancing Reservoir admeasuring 1200 acres, as VJNL could not finalise the location of Balancing Reservoir till the approval of second revised DPR (January 2023). In order to ascertain the reasons for delays at various levels, the Audit requested for the records relating to the submission of all proposals by executing Divisions and further action taken at the level of SLAOs concerned; however, the same was awaited (January 2025).

### **3.1.2 Idling of assets costing ₹2965.77 crore due to delay in completion of Phase-II works**

The execution of Gravity Canal works under Phase-II was commenced (between December 2017 and March 2023) in 34 packages with an awarded cost of ₹8609.23 crore pending land acquisition. The earliest preliminary notification for land acquisition in respect of Phase-II works was issued by SLAO on 07 December 2017. However, tender notification for seven works were issued by VJNL in May and November 2017 itself *i.e.*, prior to issue of preliminary notification. In remaining 27

packages, the works were tendered after issue of preliminary notification but pending completion of remaining stages of land acquisition process. Audit observed that as on March 2024, there were 27 package works that remained incomplete (physical progress ranged from 4 to 92 *per cent*) for various reasons such as non-acquisition of land, farmers' protest, COVID-19 *etc.* Apart from Gravity Canal works, the work of construction of Balancing Reservoir awarded (February 2018) at the tendered cost of ₹592.35 crore could not be commenced (March 2024), for want of availability of required land. Since the completion of Gravity Canal and Balancing Reservoir was essential for conveying the lifted water to Kolar and Chikkaballapura districts, the assets which were created under Phase-I at an expenditure of ₹2965.77 crore by March 2019 were lying idle and could not be put to use till date (March 2024). The impact of non-synchronisation of works under the two phases is given in **Table 3.3 below:**

**Table 3.3: Impact of non-synchronisation of Phase-I and Phase-II works**

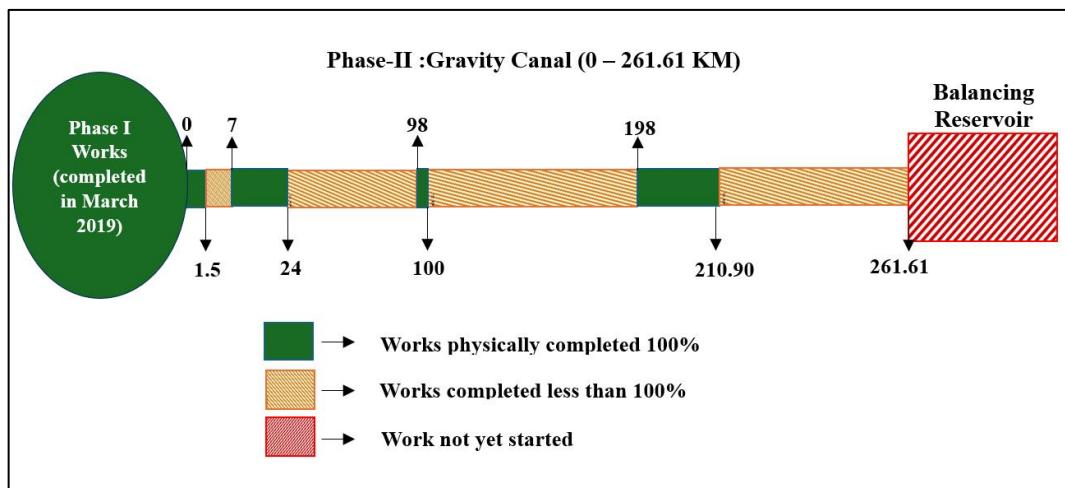
S.No	Phase works	Period of Award	Impact of the non-synchronization of works
1	<u>Phase-I works</u>	March 2014	Blocking up of ₹2965.77 crore since March 2019. The electro-mechanical equipment such as pumps/motors could not be tested and commissioned and were kept idle consuming significant portion of their useful life ( <b>Exhibit 1</b> ).
	i) Lifting Components ii) Electrical Works	July 2017 and March 2018	
2	<u>Phase-II works</u>	December 2017 to March 2023	Delay of more than three years in awarding of works which were yet to be completed (December 2023)
	i) Gravity Canal 0.00 km to 261km	March 2019 to May 2023	Delay of more than five years in awarding of Feeder Canal works.
	ii) Feeder canal works iii) Balancing Reservoir	February 2018	The work is yet to be commenced (December 2023) due to non-initiation of land acquisition process

**Source: Information furnished by VJNL**



Moreover, the execution of works under Phase-II in disjointed manner, depending on the availability of land, resulted in creation of infrastructure in patches as visualised in the **Chart 3.5** below:

**Chart 3.5: Progress of Phase-II works as of March 2024**



**Source: Information furnished by VJNL**

Government replied (March 2024) that various stages of the Project could not be synchronised due to the delays in completing various stages/ requisites mandated in the LA Act. The Phase-II works suffered from bottlenecks such as unyielding terrain, delay in completion of mandatory SIA and other land acquisition issues, delay in obtaining necessary clearances from various authorities *etc*. The works were executed at stretches where land required for the Project had been acquired to avoid cost escalation.

The reply of the Government is not acceptable, as after award of works of Phase-I in March 2014, the mandatory SIA studies for land acquisition for Phase-II works could have been taken up immediately. However, the delay in commencement as well as completion of SIA studies in turn delayed the commencement of Phase-II works by more than three and half years. Thus, the Project was executed in an *ad hoc* manner wherever land was available resulting in creation of infrastructure in patches leading to idling of assets as well as non-achievement of the objective of the Project.

### **3.2 Contract Management**

Contract management envisages all actions taken to ensure that a project is conceived and planned carefully, resources and costs are worked out in detail, designs are made economically and accurately according to requisite standards and that the project is executed in the shortest possible time with the minimum cost and time over-runs achieving the desired standards of quality. Selection of proper contractors and contract management is the most important aspect of project implementation. Company executed 55 contract packages (Phase-I: 7 and Phase-II:

48) valued at ₹22,194.02 crore<sup>26</sup> for the project. Audit review of these works revealed following deficiencies in contract management:

### 3.2.1 Tendering Process

The tendering process for the Project was to be carried out strictly as per the provisions of the KTPP Act, 1999 and the rules framed thereunder to ensure that the works undertaken were executed economically and efficiently. The deviations in the tendering process from the prescribed procedures are indicated in **Table 3.4** below:

**Table 3.4: Deviations from the prescribed criteria in tendering process**

S No	Prescribed Criteria	Deviation observed	Impact of the deviation	Government response/ Audit comment
1	GoK prescribed (October 2008) use of Standard Tender Documents (KW-1 to KW-6) discontinuing the use of prevailing tender documents (PWG-65 and PWG-66) <sup>27</sup> to ensure consistency across all procurement entities in the State.	KNNL/VJNL awarded 44 out of 55 works (valuing ₹18,163.44 crore) under the Project during the period 2013-14 to 2022-23 (up to January-2023) by adopting PWG-65 and PWG-66.	It was observed that 44 works (out of 55) <i>i.e.</i> , 80 <i>per cent</i> of the works were awarded to the contractors without evaluation of their capacity in respect of financial capability, bid capacity, work experience <i>etc.</i> , as detailed below.	Government replied (March 2024) that since January 2023, standard tender documents were being adopted for the works taken up under the Project.  Fact remains that the standard tender documents were adopted only after the award of 44 out of 55 packages of the Project
2	As per the Government Order dated 14 October 2008, contracts should be awarded only to the lowest evaluated technically and commercially responsive tenderer, who met the prescribed qualification criteria including bid capacity and past performance. The Clause for assessing the bid capacity of the Contractor was made part of the standard tender documents (KW-1 to KW-6) and the prevailing tender documents (PWG 65 and 66) were discontinued	Out of 44 works for which KNNL/VJNL failed to adopt the standard tender document, 43 works costing ₹16807.31 crore were awarded to the Contractors without assessing their bid capacity.	The non- assessment of bid capacity carries the risk of entrusting works without obtaining reasonable assurance that a particular contractor can execute and complete the work successfully at a given point of time. It was observed that out of 43 works, 29 works, constituting 67 <i>per cent</i> of the works costing ₹14,805.80 crore were awarded to only seven contractors; one contractor <sup>28</sup> was awarded 11 contracts valuing ₹5,216.58 crore as detailed in the <b>Appendix 1</b> .	Government endorsed (March 2024) the reply of the VJNL that the conditions regarding bid capacity was relaxed to encourage more participation of bidders. It was further stated that the condition was scrupulously being followed since 2021.  Reply is not acceptable as KNNL/VJNL awarded major chunk of works under the Project without assessing the bid capacity in violation of the Government orders in this regard

<sup>26</sup> Phase-I: ₹4,115.07 crore (7 packages), Phase-II: ₹18,078.95 crore (48 packages)

<sup>27</sup> The standard tender documents (KW1 to KW6) were prescribed as some of the provisions of prevailing tender documents (PWG 65 and 66) were not conforming to the provisions of KTPP Act 1999.

<sup>28</sup> M/s Shankar Narayana Constructions

<b>S No</b>	<b>Prescribed Criteria</b>	<b>Deviation observed</b>	<b>Impact of the deviation</b>	<b>Government response/ Audit comment</b>
3	Rule 176 (a) (ii) of KPWD Code and Rule 17 of KTPP Rules stipulates that the tender inviting authority shall ensure the minimum bidding time of 30 days for works costing up to ₹ two crore and 60 days for works costing more than ₹ two crore. This condition was amended (September 2019) and the period was reduced from 60 days to 30 days for works costing more than ₹ two crore.	KNNL/VJNL invited short term tenders for 52 out of 55 works which allowed bidding time of 9 to 33 days only on the grounds that the works were related to drinking water supply which were to be completed on priority basis. This included 14 turn-key contracts valuing ₹8,989.09 crore where the bidders had to visit the site and carry out topographical survey/soil investigation, assess the scope of the work, prepare design drawings for estimation of quantities and quote a fixed sum for the work in accordance with the design drawings and specifications.	Audit observed that 52 out of 53 works awarded on short-term tender basis were remaining incomplete as of December 2023. Thus, short term tendering has neither served the intended purpose of early completion of the Project nor ensured adequate competitiveness resulting in unfair bidding process.	Government replied (March 2024) that the short-term tenders were floated with due approval of the competent authority duly adhering to the provisions of the KTPP Act for speedy implementation of the Project in public interest.  Reply is not acceptable as the very purpose of short-term tender <i>i.e.</i> , early completion of the Project, was not served and it may as well have prevented many new eligible bidders from participation, depriving fair competition.
4	As per instructions to the bidder in the tender notification “the evaluation of the technical bid will be done based on the information provided by the contractor. If the employer finds that any certificates/ information furnished is false, such bidders will be disqualified and barred from participation in the bid”. Further, the Judgment of honourable Supreme Court of India <sup>29</sup> directed that “EMD of the contractors submitting false documents shall be forfeited and the contractors shall be blacklisted”.	VJNL neither blacklisted a Contractor <sup>30</sup> nor forfeited his EMD of ₹3.92 crore even though he had uploaded (July 2017) a fake work done certificate while submitting his tenders for package 4. Though the contractor was not successful in securing the contracts, the tender was processed considering the agency as one of the eligible bidders. It was further observed that the said agency was allowed to bid (December 2017 and January 2018) subsequently for two other packages also.	Besides non-compliance to the directives of the Apex Court, the failure of VJNL to forfeit the EMD, was an undue financial favour extended to the Contractor causing financial loss to the Government.	Government replied (March 2024) that punitive action was not taken based on the apology submitted by the Contractor stating that the uploading of fake document was unintentional due to work pressure at the end of the financial year.  Reply cannot be accepted as fake work done certificates were uploaded which amounted to fraud and appropriate action should have been taken as per the tender clause and relevant Supreme Court orders.

<sup>29</sup> Clause 2.00(xii) of judgement on civil appeal 1049 of 2019 (Vidarbha Irrigation Development Corporation Vs Anoj Kumar Garwala)

<sup>30</sup> M/s HES Infra Pvt Ltd

### 3.2.2 Excess payments/Undue favour to the Contractors

#### 3.2.2.1 *Inclusion of area weightage on finished items*

As per item 17 of the General Notes to Schedule of Rates (2012-13) of WRD, an additional weightage for works executed under Malnad Area<sup>31</sup> was allowed. On a review of estimates, Audit observed that area weightage of 12 *per cent* has been added to the basic rates of all the items of the estimates of Phase I works (Lifting components) considering the difficulty of execution in the hilly area. However, in respect of the items of works involving only supply of goods (*viz.*, supply of Metallic Volute pumps / motors) the adoption of area weightage was not justifiable.

The details of the cost of motors in the various packages is as detailed below in **Table 3.5:**

**Table 3.5: Details of quantity and cost of motors in packages of Phase-I**

Packages	Awarded cost of package (₹ in cr)	Cost of motors/electrical works in package (₹ in cr)	Capacity of Pumps adopted in estimate. (in HP)	12% area weightage on Cost / HP (₹)	Amount (₹ in crore)
Package 1	448.57	151.85	70800	1638.18	11.60
Package 2	685.79	140.00	110110	1638.18	18.04
Package 3	1135.03	166.71	94350	1638.18	15.46
Package 4	903.83	162.47	3680	1346.71	0.50
Package 5	543.28	78.33	18240	1639.55	2.99
<b>Total</b>	<b>3716.50</b>	<b>699.36</b>			<b>48.59</b>

**Source: Information furnished by VJNL**

Thus, considering area weightage over and above the basic rates for the above supply items resulted in enhancing the estimates by ₹48.59 crore. Incorrect cost estimates vitiate the tender evaluation process as tender premiums are likely to be suppressed in such cases.

Government replied (March 2024) that, the area weightage was included as per the Schedule of Rates of WRD since the works were being executed in the Malnad area. Further, it was stated that, the finished item of motor and pumps includes unloading, installing, testing and commissioning and hence, area weightage was loaded to the rates of the item.

The reply is not acceptable as the option of bifurcating the supply part and the civil/erection part under the works was not explored resulting in loading of area weightage for the composite rate of the item. It is pertinent to mention that in respect of electrical works under the Project, the estimates have been bifurcated into supply,

<sup>31</sup> Areas proposed under Malnad Development Act

civil and erection portions and the area weightage has been added only for the civil and erection portion and not on the supply portion.

### ***3.2.2.2 Non-recovery of excess provision of length of Mild Steel Pipes***

As per Clause 18 of the General Conditions of contract, “The contractor shall be responsible for the procurement of required quantity of materials like pipes, specials, machinery, electrical items *etc.* Any materials procured for the work, if found excess, due to any reasons after the completion of the works, shall be taken back by the contractor and the employer/engineer shall not be responsible for such excess materials. The amount paid, if any, for such excess materials shall be deducted from any bills payable to the contractor”.

Audit noticed that the total length of Mild Steel (MS) Raising Main (pipeline) executed in five packages of Phase-I was 128.096 KM as against the estimated length of 140.930 KM resulting in short execution of 12.834 KM due to actual site conditions.

Accordingly, the Sakaleshpura Division recovered ₹9.32 crore (MS Raising Main (pipeline) cost ₹7.78 crore and interest of ₹1.54 crore) on account of execution of lesser length as compared to the estimated quantity in respect of package 5. However, the recovery was not carried out in other four packages resulting in excess benefit to the contractors amounting to ₹181.21 crore (as detailed in **Appendix 2**) along with interest thereon.

Government replied (March 2024) that the above works were entrusted on turn-key basis and the Contractor had to execute the increase or decrease in quantities within the contract price for successful commissioning of the Project.

Reply cannot be accepted as Clause 18 of the General Conditions of Contract provided for recovery of excess material like pipes, specials *etc.* from the future bills of the Contractor. Since VJNL had already recovered an amount of ₹9.32 crore under package 5 for excess materials, the recovery needs to be effected for other packages.

### ***3.2.2.3 Unjustified expenditure on works to be executed as part of turn-key contract***

Clause 13 (a) of the tender document which deals with alteration in quantity of work, specification, designs, additional work and deletion of work specified that the Contractor shall execute any additional work of any kind necessary for completion of the works as per the written orders of the Executive Engineer and such alteration shall not in any way vitiate or invalidate the contract.

Audit observed that VJNL incurred extra expenditure of ₹11.52 crore as of June 2023 (awarded cost ₹18.06 crore) in respect of two works, which were executed through separate contracts, though they formed part of the turn-key contract.

- To regulate the accumulation of excess water at the forebay and pumping station of package 2 and to divert the same towards the extreme right edge of the portion of pump house area, it was proposed to construct a RCC ground level trough for conveyance of excess flood water. This would avoid deposition of soil and debris in common pond of weir 1. This requirement cropped up due to realignment of weir 1 and pump house 1 during execution of work. The contractor did not agree to execute the above work, and VJNL took up the above work (**Exhibit 2**) departmentally at an awarded cost of ₹7.30 crore. The expenditure incurred as of June 2023 was ₹4.97 crore.
- Similarly, under package 3 the construction of chute canal from forebay point of pump house 9 to divert the excess water to Hemavathi River was essential to avoid flooding. However, the contractor did not agree for executing the chute canal work and VJNL took up the above work (**Exhibit 3**) departmentally at an awarded cost of ₹10.76 crore. The expenditure incurred as of June 2023 was ₹6.55 crore.

	
<b>Exhibit 2: Ground level trough for conveyance of excess water</b>	<b>Exhibit 3: Chute canal to divert excess water</b>

The requirement for the above works cropped up during execution of a turn-key project and the same were required to be executed by the Contractor being incidental to the main work. However, these works were executed departmentally and VJNL incurred additional expenditure.

While approving the estimates for the above additional works, MD VJNL, directed (June 2021 and July 2021) that the works were chargeable to package 2 and 3 works

of Phase-I and to initiate action as per tender clause of agreement against the contractor for not agreeing to execute the above work.

However, though the work were taken up departmentally, no action was taken to recover the expenditure from the Contractor.

Government accepted the audit observation and stated (March 2024) that the above works were taken up through other agencies under the risk and cost of the original Contractors. Details of recovery made from the original Contractors under the risk and cost clause was awaited (March 2024).

### ***3.2.2.4 Incorrect application of price adjustment clause***

Review of records of the divisions showed that the contract agreements included a price adjustment clause for adjusting increase or decrease in rates and prices of labour, materials, fuel and lubricants. The price adjustment was to be calculated based on the increase/decrease in wholesale price index of the above components as issued from time to time by the Ministry of Commerce and Industries, Government of India. According to Government instructions (February 2016), the months to be adopted for calculating the average price index of the first work done quarter were three consecutive calendar months including the calendar month in which work was started at the first instance.

Audit observed that the Madhugiri Division irregularly adopted current indices of the month of work order and subsequent two months for reckoning the work done quarter instead of the month in which execution of work actually started and two subsequent months. Thus, the adoption of incorrect indices for the calculation of price adjustment resulted in excess payment of ₹27.73 crore in two packages as detailed in the **Table 3.6** below:

**Table 3.6: Details regarding incorrect adoption of work done months for calculation of price adjustment.**

<b>(₹ in crore)</b>					
<b>Name of work</b>	<b>Months considered for first quarter adopting the month of work order</b>	<b>Months to be considered for first quarter as per actual execution</b>	<b>Price Variation paid</b>	<b>Price Variation payable</b>	<b>Excess payment</b>
Madhugiri Gravity Feeder Canal	Sep 19, Oct 19 and Nov 19	Jan 20, Feb 20 and Mar 20	19.54	13.54	6.00
Gowribidanur Gravity Feeder Canal	Oct 19, Nov 19 and Dec 19	Dec 19, Jan 20 and Feb 20	45.46	23.73	21.73
<b>TOTAL</b>			<b>65.00</b>	<b>37.27</b>	<b>27.73</b>

**Source: Measurement Books and RA Bills**

Government accepted (March 2024) the audit observation and stated that the Division was asked to re-calculate the price adjustment as per the prescribed method. As per the recalculation carried out based on the latest running account bills, the Division was liable to pay ₹2.58 crore to the contractor in respect of Madhugiri Gravity Feeder Canal work. In respect of Gowribidanur Gravity Feeder Canal work, Division has to recover an amount of ₹21.73 crore from the contractor.

However, VJNL has not submitted the details of adjustments and recovery made in this regard (March 2024).

**3.2.2.5     *Excess expenditure due to inclusion of lining thickness in rate conversion of MS Pipes.***

The estimates for manufacturing, supply and laying of MS pipes rising main included provision for inner and outer lining with concrete. However, Audit observed that while calculating the finished rate for the above pipes, the thicknesses of the inner and outer linings were added to the diameter of the pipe while converting the rate per tonne to rate per running meter. Since, the price for concrete lining (inner and outer) was already included in the rate analysis, inclusion of the thickness of concrete lining material again in the calculation was incorrect. This resulted in excess expenditure amounting to ₹21.02 crore (as detailed in **Appendix 3**).

Government replied (March 2024) that the diameter to be adopted for conversion from rate per tonne to rate per running metre was inclusive of the 15 mm thick cement mortar lining.

Reply was factually incorrect as the calculation provided in the rate analysis of the item in Schedule of Rates provided that only the clear diameter of the pipe was to be considered for rate conversion, since the item of concrete lining was already included in the rate of the finished item of work.

**3.2.2.6     *Irregular release of payments to Contractors***

Audit observed that the Contractors under the Project were provided undue financial favours in violation of agreement conditions/Government instructions in test checked cases as detailed in **Table 3.7** below:

**Table 3.7: Details of irregular release of payments to Contractors**

S No	Agreement terms/ Government instructions violated	Financial Impact of the violations	Government Response/ Audit comment
1	As per Clause 40 of the Agreement, the employer shall retain a portion (five <i>per cent</i> of the civil works executed) of periodic payments made to the Contractor as retention money until completion of the whole	Under package 2 (Phase I), on the request of the Contractor (May 2019), VJNL released (November 2019) the retention money of ₹35.36 crore against a BG despite of the fact that work is yet not	Government replied (March 2024) that since 99 <i>per cent</i> of the work was completed, decision was taken to release a portion of ₹35.36 crore out of the retention amount of ₹66.41 crore as per the directions of the Technical Sub-Committee and

<b>S No</b>	<b>Agreement terms/ Government instructions violated</b>	<b>Financial Impact of the violations</b>	<b>Government Response/ Audit comment</b>
	work. On completion of the work, the Contractor may substitute retention money with a Bank Guarantee (BG) which shall be valid till end of the Operation and Maintenance period of 60 months.	fully completed and Operation and Maintenance has not commenced as per contract. The BG was also returned to the contractor in June 2020. This amounted to undue financial favour to the Contractor and resulted in non-availability of sufficient security for any future financial risks arising out of the non-performance/non-compliance by the contractor.	released the amount on obtaining the BG. Thereafter, in May 2020, based on the request from Contractor quoting GoI notification dated 19 February 2020 in respect of invoking “Force Majeure Clause” (FMC) in the Covid circumstances, VJNL considered to release the BG of ₹35.36 crore.  The reply is not acceptable, as GoI notification <i>ibid</i> is not applicable in the instant case which provides for the termination of contract without any financial repercussions on either side in case of <i>Force Majeure</i> . Further orders issued (July 2020) in this regard by GoK provided only for the release of Performance Security <sup>32</sup> and not the retention money deducted from the Contractor.
2	As per Clause 26 of the General Conditions of Contract (GCC), the Executive Engineer or other competent authority may rescind the contract by forfeiting the security deposit, if the contractor becomes insolvent or any proceedings were commenced to get himself adjudicated as insolvent. Further, the contractor shall not be entitled to recover or be paid for any work performed under the contract.	Out of the five packages in Phase-I, three packages (2,3 and 5) were awarded (March 2014) to a Joint Venture (JV) company wherein M/s IVRCL was either a lead partner or other partner in the JV. State Bank of India (SBI) filed a case against M/s IVRCL under Insolvency and Bankruptcy Code (IBC) 2016, before the National Company Law Tribunal (NCLT), Hyderabad to initiate Corporate Insolvency Resolution Process. Paragraph 20 of the interim order issued by NCLT declared moratorium on transferring, encumbering, alienating or disposing of by the debtor any of its assets or any legal right or beneficial interest therein.  However, VJNL released bank guarantees held as securities relating to works of packages 2, 3 and 5 to M/s. IVRCL amounting ₹64.60	Government replied (March 2024) that, based on the request of the agency and in the interest of VJNL to complete the balance works, the Further Security Deposit (FSD) amount of ₹64.60 crore was released to the Contractor in view of covid relaxation. Further, the pending RA bill amount of ₹27.72 crore was released to the JV partner (M/s. MEIL), after obtaining irrevocable indemnity bond from him.  The reply is not acceptable, as the action of VJNL to release the FSD amount to the Contractor and payment of RA Bill to one of the JV partner, despite specific request from other JV partner not to release the same was irregular and in violation of moratorium declared by the NCLT as well as contrary to the clause 26 of the GCC.

<sup>32</sup> EMD, Performance Security and Additional Performance Security

S No	Agreement terms/ Government instructions violated	Financial Impact of the violations	Government Response/ Audit comment
		<p>crore between October 2020 to April 2021. VJNL also made (April 2023) another payment on account of R.A. Bill amount<sup>33</sup> of ₹27.72 crore to M/s. MEIL<sup>34</sup> who was the JV partner with IVRCL. This has resulted in non-compliance to Clause 26 of GCC and the moratorium declared by NCLT as well as irregular payment of ₹92.32 crore<sup>35</sup> to the Contractor.</p>	
3	<p>As per clause 19.3 of additional conditions of contract, 70 <i>per cent</i> the payment for supplying, jointing, testing and commissioning of MS pipes can be made when the pipes are procured and transported to the work site. However, payment for third and subsequent consignments of pipes should be made only after ensuring that at least 50 <i>per cent</i> of the pipes supplied on previous consignments are laid, jointed and tested to the satisfaction of the Engineer.</p> <p>Clause 2 (e) of General Conditions of Contract (GCC) states that excess/over payments as soon as they are discovered should be adjusted in the next running account bill or from the security deposit of the contractor together with interest at six <i>per cent</i>.</p>	<p>Payments were made for supply of third and subsequent consignments of pipes without ensuring that 50 <i>per cent</i> of the supplies made in earlier consignments were laid and jointed. This resulted in undue financial benefit by making early payment before it became due.</p> <p>VJNL was therefore required to recover interest at six <i>per cent</i> for such payments from the contractor till the date when the condition of 50 <i>per cent</i> of the supplies being laid was satisfied. Audit calculated the interest recoverable from the contractors in five test checked packages at ₹48.83 crore (<b>Appendix 4</b>).</p>	<p>Government replied (March 2024) that payments were released in advance for supply of pipes at the request of the contractor citing reason that huge investments were made for supply and fabrication of pipes at the work site. It was further stated that the amounts were released in the interest of the work and in consideration of the difficult terrain and heavy rainfall in Western Ghat area.</p> <p>The reply is not tenable as the contract conditions were known to the contractor at the time of tendering and any relaxation during execution amounts to undue extension of favour. Further, the estimates had provision for area weightage which compensated for operation in difficult terrain.</p>
4	<p>Before the introduction of GST, the estimates for the works had been worked out considering Value Added Tax at four <i>per cent</i> (composite tax on entire contract price) and Excise Duty at 12.50 <i>per cent</i>. The GST rate applicable for works contract was 12 <i>per cent</i> which was revised to 18 <i>per cent</i> with effect</p>	<p>VJNL engaged (November 2020) Chartered Accountants (CAs) for the work of finalisation and certification of GST on work bills under the Project. The CAs calculated the GST impact and recommended for recovery of an amount of ₹77.38 crore in respect of</p>	<p>Government in its reply (March 2024) assured that the financial benefit to the contractors on account of implementation of GST would be recovered from the retention money/FSD of the contractors after approval of re-formulated Schedule of Rates (based on GST) by Finance Department, GoK.</p>

<sup>33</sup> (Five RA bills of package 3 and 5)

<sup>34</sup> Megha Engineering and Infrastructure Limited

<sup>35</sup> ₹64.60 crore released BGs and ₹27.72 crore RA Bill paid to M/s. MEIL.

<b>S No</b>	<b>Agreement terms/ Government instructions violated</b>	<b>Financial Impact of the violations</b>	<b>Government comment</b>	<b>Response/ Audit</b>
	10 January 2022. Therefore, the contract price was subject to adjustment on account of implementation of GST and the contractor was required to pass on to VJNL the benefit of savings, if any arising from the revision in the rates of indirect taxes leviable	only 17 works pertaining to Phase-II but did not consider five works pertaining to Phase-I, which are still in progress, and have GST transition effect.		

### **3.3 Deficiencies in execution of Project works in private property through Right of Use Agreement**

The diversion of water from Kadumanehole required the construction of the weirs 4 and 5, pump house, electrical substation and Raising Mains (pipeline) within the property of a private company, *viz* Kadumane Estate Company (KEC).. The total estimated land required for the construction of above structures was estimated at 16.51 hectares.

However, KEC requested KNNL to enter into a Right of Use (RoU) Agreement as the purpose and objective of acquisition of the land could be served through such an agreement. The request of the KEC was accepted (March 2015) by KNNL as land acquisition has a long lead time which may cause delay in completion of the Project. Accordingly, a tripartite agreement, with KEC, KNNL and the contract agency (Joint Venture of IVRCL and MEIL) was entered (February 2016) granting the right to use of the said land. In consideration for the Right of Use, VJNL paid ₹50.00 lakh as one time License Fee. The time period specified for completion of works as per the agreement was 30 months (till August 2018). Since VJNL could not complete the works within the validity period, the agreement was renewed four times. The latest extension was up to 31 January 2024. Audit observed the following deficiencies in the execution of works through Right of Use agreement:

- As per the RoU agreement, VJNL had to complete the works by August 2018 for a licence fee of ₹ 50 lakh. Since the works were not completed, KEC demanded (March 2019) additional payment of ₹1.50 crore as license fee for renewing the agreement. The BoD of VJNL agreed (December 2019) for additional payment of ₹30 lakh for extending the period of Right to Use agreement. However, KEC insisted (March 2020) for additional payment of license fee of ₹1.50 crore which KEC subsequently enhanced (February 2023) to ₹2.50 crore.
- Clause 17 provided for registration of the RoU agreement in the jurisdictional sub-registrar office so that the right to use of KEC property by VJNL gets reflected in the RTC (Record of Rights, Tenancy and Crops)

documents. However, the registration was yet to be carried out as KEC insisted for payment of the compensation of ₹2.50 crore as pre-condition for the registration of the agreement. Thus, VJNL did not have legal rights to access the Project area unless the agreement was periodically renewed under the consent of KEC.

- KEC imposed restrictive conditions in the main agreement by prohibiting GoI/GoK/VJNL from initiating any action for acquisition of the identified land in whole or part either during the term of this agreement or thereafter. The above conditions were voidable in nature, as the Government can acquire any land for public purpose as per the Section 2 of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013. Thus, imposing voidable conditions in the agreement would amount to violation of the Section 2 of the *ibid* Act.

Thus, due to delay in completion of the Project works within the original agreed period of 30 months, VJNL may be required to pay an additional license fee of ₹2.50 crore. Further, VJNL has not registered the agreement as per the provisions of Karnataka Stamps Act which would have given permanent legal rights to access the project site located in the KEC premises.

Government replied (March 2024) that adopting the RoU agreement for utilisation of land was beneficial compared to the cost and time involved for land acquisition. It was further stated that action would be taken to register the agreement as per the provisions of Karnataka Stamps Act as and when payment of ₹2.50 crore was made to KEC under the approval of competent authority.

However, the fact remains that the delay in completion of works resulted in additional liability of ₹2.50 crore to VJNL, besides non-registration of the RoU agreement.

#### **Audit Recommendations**

***Recommendation 5: VJNL should complete the Phase-II works within the timeline fixed by VJNL Board to avoid the idling of assets already created and ensure the supply of drinking water to the targeted beneficiaries.***

***Recommendation 6: VJNL should follow the provisions of Karnataka Transparency in Public Procurements Act and recover excess payments in a time bound manner.***



# **Chapter IV**

## **Monitoring**



## Chapter-IV

### Monitoring

The Project suffered from monitoring deficiencies such as absence of monitoring mechanism at Government level, non-conduct of regular monthly multilevel review meetings, non-conduct of third-party inspections for works taken up under Phase-I and other deficiencies in maintenance of work records.

The quality of project work significantly depends on effective supervision and timely monitoring. For completion of projects within the stipulated time and cost with specified quality standards, periodical inspection/evaluation should be done by various level of officers. Periodical monitoring system ensures necessary timely modification of the operations, if any, for improving the performance of execution of the project. The deficiencies noticed in monitoring of the Project are as follows:

#### 4.1 Absence of Monitoring mechanism at Government level

VJNL was monitoring the Project, through the Monthly Multilevel Review (MMR) meeting at various levels *viz.*, Managing Director (MD), Chief Engineer (CE), Superintending Engineer (SE), Executive Engineer (EE) and other field level officers and thereafter at the Government level with the Additional Chief Secretary, Water Resources Department with special emphasis on adverse situation and remedial measures required wherever necessary to ensure progress of the work.

However, Audit observed that the GoK/VJNL did not prescribe any monitoring system/policy for the Project by fixing specific periodicity/schedule of inspections by various level officers such as EE, SE, CE, MD and Government as well as its reporting to ensure timely completion of the Project with quality execution.

In the absence of an effective monitoring system at the Government and various levels, there was no mechanism available to resolve the numerous bottlenecks that cropped up during the implementation of the Project (as discussed in earlier paragraphs) which contributed to the abnormal delay in completion of the Project and non-achievement of the objective of providing drinking water facility to the drought prone districts.

#### **4.2 Non-conducting of regular Monthly Multilevel Review meetings**

VJNL holds Monthly Multilevel Review (MMR) meetings in which progress of all ongoing major works was reviewed, so as to resolve any obstacles / issues faced in execution of projects. On a review of the MMR meeting records of the test checked Divisions, it was observed that the meetings were not being conducted regularly and only 54 meetings were conducted in 108 months during April 2014 to August 2023 *viz.*, 37 meetings at Division level, seven meetings at Circle office level and 10 meetings at Zonal office level.

Thus, non-conducting of envisaged monthly MMR meetings indicated weak monitoring of the progress of the Project which needs to be seen in conjunction with the delay in completion of the Project.

#### **4.3 Deficiencies in inspection and maintenance of work records**

Apart from the deficiencies and shortfall in monitoring of the Project at Government/VJNL level, Audit also observed deficiencies in inspection of works and maintenance of work records as detailed below:

- GoK issued (February 2005) directions for conduct of third-party inspection of works and made it mandatory in respect of all work contracts of estimated value more than ₹ two crore. Audit observed that the work order for third-party inspection was awarded (March 2018) after a delay of four years from the date of award of the five packages in Phase-I works, by which time, almost 64 *per cent* of physical progress consisting of the work of laying of MS Raising Main pipes had already been achieved. Tests such as ultrasonic tests, dye penetration test and radiography test on these laid pipes could not be carried out by the third-party inspection. Thus, delay in appointment of the agencies for third-party inspection resulted in significant portion of Phase-I works being excluded from the purview of such inspections.

Government in its reply (March 2024) stated that since Quality Control Sub-Division under Chief Engineer, Upper Bhadra Project, Chitradurga was functional in VJNL, third party quality supervision consultants were not appointed. Reply is not acceptable as the non-appointment of third-party

inspection agencies was contrary to the GoK directives. The works under the Project were large turn-key contracts involving complex works and substantial cost which required quality supervision through third party specialised agencies. Recognising this, the VJNL themselves appointed third party quality supervision agencies subsequently in March 2018.

- Paragraph 11 of KPWD Code prescribes that for all works carried out by involving acquisition of land/usage of Government land, the Sub-Divisional offices shall maintain a register of lands showing details of all land in possession. All the land documents should be digitised and available in the concerned Sub-Divisional Offices. Audit noticed that none of the Sub-Divisions were maintaining the land register and had digitised the land documents as prescribed though 3722.14 acres of land were acquired for the Project.

Government replied (March 2024) that Sub-Divisional Offices would maintain the land register as instructed, once the land acquisition process was completed and the titles were transferred in the name of VJNL. The digitisation of land records would be carried out under the Karnataka Geographical Information System which was under development phase.

- Karnataka Financial Code prescribes procedure for maintenance of cash book and other accounts in Government offices. Cash book is a subsidiary ledger in which all transactions of receipt and payments will be recorded. Audit noticed that none of the divisions have been maintaining work cash book duly recording all the receipts and payments relating to the works. Non-maintenance of work cash book would amount to weak monitoring controls, where in check of balances by way of reconciliation between cash book and bank book was not possible.

Government in its reply (March 2024) stated that since all payments under the Project were centralised, manual works cash book has been maintained in the Chief Accounts Office, Chitradurga from April 2023 onwards. In exit conference, the Government stated (March 2024) that all Divisional offices would also be directed to maintain the work cash book hereinafter.

- Paragraph 110 of KPWD Code provides detailed instructions regarding issue, recording and storage of measurement books. GoK has also issued (January 2005) detailed guidelines for recording of measurement of works and supplies. Audit observed that for Phase-I works, the detailed measurements for works and supplies were not taken and recorded in the measurement books. Instead, the measurements were being recorded on percentage of completion basis as the works were awarded on turn-key basis. In respect of Phase-II works, the measurements were recorded in loose excel spread sheets instead of utilising the facility provided in the contract management module of *e*-procurement platform. The loose excel spread sheets used for recording the measurements were in editable mode and susceptible to modification.

On being point out, the Government did not submit any reply for the Phase-I works paid prior to February 2022 and further submitted (March 2024) that instructions have been issued (February 2022) to record detailed measurements for all the works executed and directed the Accounts Section not to recommend any bills for payment without detailed measurements. In respect of Phase-II works, reply stated that the measurement books were being maintained in excel spread sheets as per the Government instructions. The reply is not acceptable, as the measurements were still being recorded in loose excel sheets and not in *e*-procurement platform of Contract Management Module, as envisaged in the Government instructions

- As per Clause 13.1 of Section 3: Conditions of Contract, the contractor shall provide necessary insurance in terms approved by the Employer, to cover all risks covering the total contract value which shall be valid till completion of maintenance period. The copies of the polices shall be furnished to the employer within one month from the award of the contract. However, Audit noticed that full insurance cover was not available in three out of five packages of Phase-I works, except for Package-III and Package-V. Thus, VJNL failed to comply with the provisions of contract in this regard, which may prove costly in case of any eventuality.

In reply, the Government stated (March 2024) that even though full insurance cover was not available, VJNL has the right to recover any loss/damage to the property in case of eventuality as per the various provisions of the contract agreement. The reply is not acceptable, as insurance coverage is a specific contractual condition to cover unforeseen losses/damages which cannot be enforced through other contract conditions. Hence, absence of mandated insurance cover may result in huge financial loss to the Government in case of any eventuality.

#### Audit Recommendation

***Recommendation 7: An effective monitoring system should be constituted at the Government level and VJNL should strengthen the Project monitoring through third-party inspection as well as conduct of prescribed review meetings at various levels.***



Bengaluru  
11 December 2025

(Ashok Sinha)  
Principal Accountant General (Audit-II)  
Karnataka

#### Countersigned



New Delhi  
16 December 2025

(K. Sanjay Murthy)  
Comptroller and Auditor General of India



# Appendices



**Appendix 1 (referred to in Paragraph 3.2.1)**  
**Statement showing more than one work awarded to the same contractor.**

S No	Name of Contractor	Number of works awarded	Value of Works (₹ in crore)	No. of works awarded in year				
				2013-14	2017-18	2018-19	2019-20	2021-22
1	DY Uppar & Sons	2	1025.71	-	2	-	-	-
2	G Shankar	7	2349.26	1	4	2	-	-
3	Megha Engineering Infrastructure Ltd.	3	3004.27	2	-	-	1	-
4	Shankar Narayana Constructions (P) Ltd.	11	5216.58	-	4	6	-	1
5	GVPR Engineers Ltd.	2	1036.45	1	1	-	-	-
6	PLR Projects	2	1169.36	-	-	1	1	-
7	BSR Infratech India Ltd.	2	1004.17	-	1	0	1	-
	<b>TOTAL</b>	<b>29</b>	<b>14805.80</b>					

**Appendix 2 (referred to in Paragraph 3.2.2.2)**  
**Statement showing excess provision of length of MS Pipes for Raising Main**

S. No (1)	Package (2)	Length of Raising Main As per agreement (in Metre) (3)	Actual Length of Raising Main (in Metre) (4)	Difference in length of Raising main (in Metre) (5)=(3)-(4)	Rate per Rmt-as per Estimate (in ₹) (6)	Tender Premium (in %) (7)	Rate including Tender Premium (in ₹) (8)=(6)×(7)/100	(+) Excess Payment/(-)To be paid (in ₹) (9)=(5)×(8)
1	I	(W1 to DC-3) 7600*2=15200	7155×2= 14310	890	128956.71	10	141852.38	126248618
2	II	(DC-1 to DC-3) 22800	7300×2 =14600	8200	141692.83	13	160112.9	1312925780
3	III	(DC-3 to DC-4) 8800*4=35200	8342×4 =33368	1832	160398.81	12	179646.67	329112699
4	IV	(W8 to DC-1) 5950	5273	677	93581.64	13	105747.25	71590888
5		(W6 to DC-1) 10000	9438	562	50339.33	13	56883.44	31968493
6		(W7 to DC-1) 11675*2=23350	11538×2 =23076	274	154979.11	13	175126.4	47984634
7	V	(W3 to DC-2) 3910	3885	25	63708.13	13	71990.19	1799755
8		(W4 to DC-2) 4620	(3425+1295 )= 4720	-100	37878.28	13	42802.46	-4280246
9		(W5 to DC-2) 5760	(3225+1295 )= 4520	1240	67009.07	13	75720.25	93893110
10		DC-2 to DC-3 14140	(BPT to DC-2) 14906	-766	140289.93	13	158527.62	-121432157
	<b>Total</b>	<b>140930</b>	<b>128096</b>	<b>12834</b>				<b>1889811574</b>

W-Weir, DC- Delivery Chamber, BPT- Break Pressure Tank

**Amount already recovered = ₹7.78 crore**

**Balance to be recovered = ₹188.98 crore-₹7.78 crore=₹181.20 crore**

**Appendix 3 (referred to in Paragraph 3.2.2.5)**  
**Statement of excess expenditure due to additional provision of lining thickness**

Package (1)	Length of Raising Main as per Agreement (in Metre) (2)	Rate of M.S. pipe considering inner and outer lining of concrete (₹/Rmt) (3)	Rate of M.S pipe without considering lining thickness (₹/Rmt) (4)	Excess rate due to provision of lining- (₹/Rmt) (5)	Excess expenditure (₹) (6)=(2)×(5)	Tender premium (in %) (7)	Excess expenditure including tender premium (₹) (8)=(6)×(7)/100
I	(W1 to DC-3) 15200	128956.71	127636.33	1320.38	20069776	10	22076754
II	(DC-1 to DC-3) 22800	141692.83	140289.93	1402.90	31986120	13	36144316
III	(DC-3 to DC-4) 35200	160398.81	158913.64	1485.17	52277984	12	58551342
IV	(W8 to DC1) 5950	93581.64	92426.31	1155.33	6874214	13	7767862
	(W6 to DC 1) 10000	50339.33	49514.09	825.24	8252400	13	9325212
	(W7 to DC 1) 23350	154979.11	153493.69	1485.42	34684557	13	39193549
V	(W3 to DC 2) 3910	63708.13	62717.85	990.28	3871995	13	4375354
	(W4 to DC 2) 4620	37878.28	37135.57	742.71	3431320	13	3877392
	(W5 to DC 2) 5760	67009.07	66018.79	990.28	5704013	13	6445535
	(DC 2 to DC 3) 14140	140289.93	138887.03	1402.90	19837006	13	22415817
					<b>Total</b>		<b>210173133</b>

W – Weir, DC – Delivery Chamber

**Appendix 4 (referred to in Paragraph 3.2.2.6)**  
**Statement showing the interest to be recovered for advance payments for supply of pipes.**

<b>Package-1</b>				
<b>S.No.</b>	<b>Amount (₹ in crore)</b>	<b>Date of RA Bill</b>	<b>No. of days</b>	<b>Interest@6% (₹ in crore)</b>
RA Bill 3	31.30	28-09-2015	915	4.71
<b>Package-2</b>				
<b>S.No.</b>	<b>Amount</b>	<b>Date of RA Bill</b>	<b>No. of days</b>	<b>Interest@6% (₹ in crore)</b>
RA Bill 3	130.72	31-03-2015	604	12.98
RA Bill 5	28.56	05-02-2016	293	1.38
			<b>Total</b>	<b>14.36</b>
<b>Package-3</b>				
<b>S.No.</b>	<b>Amount</b>	<b>Date of RA Bill</b>	<b>No. of days</b>	<b>Interest @6% (₹ in crore)</b>
RA Bill 3	14.39	31-03-2015	458	1.08
RA Bill 4	256.16	30-09-2015	275	11.58
RA Bill 5	50.52	30-09-2015	275	2.28
RA Bill 6	28.30	11-12-2015	203	0.94
RA Bill 8	0.149	26-04-2016	66	0.0016
			<b>Total</b>	<b>15.88</b>
<b>Package-4</b>				
<b>S.No.</b>	<b>Amount</b>	<b>Date of RA Bill</b>	<b>No. of days</b>	<b>Interest @6% (₹ in crore)</b>
RA Bill 4	54.53	16-03-2016	1284	11.51
<b>Package-5</b>				
<b>S.No.</b>	<b>Amount</b>	<b>Date of RA Bill</b>	<b>No. of days</b>	<b>Interest@6% .P.A (₹ .in crore)</b>
RA Bill 5	12.64	05-10-2015	453	0.94
RA Bill 6	29.92	16-03-2016	290	1.43
			<b>Total</b>	<b>2.37</b>
			<b>Grand Total</b>	<b>48.83</b>

<b>Glossary</b>		
<b>S. No</b>	<b>Abbreviation</b>	<b>Full Form</b>
1	ACS	Additional Chief Secretary
2	BG	Bank Guarantee
3	BoD	Board of Directors
4	BR	Balancing Reservoir
5	BWSSB	Bengaluru Water Supply and Sewerage Board
6	CE	Chief Engineer
7	CIRP	Corporate Insolvency Resolution Process
8	CWC	Central Water Commission
9	DC	Delivery Chambers
10	DPR	Detailed Project Report
11	EE	Executive Engineer
12	EMD	Earnest Money Deposit
13	ERC	Estimates Review Committee
14	FDR	Fixed Deposit Receipt
15	FMC	Force Majeure Clause
16	FSD	Further Security Deposit
17	GCC	General Conditions of Contract
18	GoK	Government of Karnataka
19	IBC	Insolvency and Bankruptcy Code
20	JV	Joint Venture
21	KEC	Kadumane Estate Company
22	KERC	Karnataka Electricity Regulatory Commission
23	KGIS	Karnataka Geographical Information System
24	KNNL	Karnataka Neeravari Nigam Limited
25	KPCL	Karnataka Power Corporation Limited
26	KPTCL	Karnataka Power Transmission Corporation Limited
27	KPWD	Karnataka Public Works Department
28	KTTP	Karnataka Transparency in Public Procurements
29	KUWSDB	Karnataka Urban Water Supply and Drainage Board
30	MD	Managing Director
31	MEIL	Megha Engineering and Infrastructure Limited
32	MI	Minor Irrigation
33	MMR	Monthly Multi-level Review
34	MS	Mild Steel
35	NCLT	National Company Law Tribunal
36	NGT	National Green Tribunal
37	NIH	National Institute of Hydrology
38	O&M	Operations and Maintenance

<b>S. No</b>	<b>Abbreviation</b>	<b>Full Form</b>
39	PFC	Power Finance Corporation
40	RA	Running Account
41	RCC	Reinforced Cement Concrete
42	RoU	Right of Use
43	REC	Rural Electrification Company
44	RWS	Rural Water Supply
45	SBI	State Bank of India
46	SE	Superintending Engineer
47	SIA	Social Impact Assessment
48	SR	Schedule of Rates
49	SWAT	Soil and Water Assessment Tool
50	TSC	Tender Scrutiny Committee
51	VJNL	Visvesvaraya Jala Nigam Limited
52	WRD	Water Resources Department



