

## Executive Summary

- The cost of the Kaleshwaram Project is now likely to exceed ₹1,47,427.41 crore, as against the cost of ₹81,911.01 crore projected to the CWC.
- The Government of Telangana has not accorded administrative approval of the project as a whole and instead it has issued separate approvals i.e. as many as 73 administrative approvals aggregating to ₹1,10,248.48 crore; there are no orders from the Government about the funding pattern for the project.
- Out of the total expenditure of ₹86,788.06 crore incurred on the project (March 2022), an expenditure of ₹55,807.86 crore (*i.e.*, 64.3 per cent) was met from the off-budget borrowings (OBBs) raised by KIPCL.
- The Benefit-Cost Ratio (BCR) of the project was inflated. Even with the understated project cost of ₹81,911.01 crore, BCR works out to 0.75. Considering the latest likely project cost (₹1,47,427.41 crore), the BCR works out to 0.52. This means that every rupee spent on the project would yield only 52 paise. It clearly indicates that the project was, ab-initio, economically unviable.
- The peak energy demand, when all the pumps are operated, is more than the average daily energy availed in the entire State (2021-22). Providing power to lift irrigation schemes will pose a challenge to the State.
- The absence of a comprehensive plan duly spelling out the sources of funds for a project of this scale, which will have a long term impact on the finances of the State, is an indication of improper planning.
- Against targeted new CA of 18.26 lakh acres, the works entrusted so far (March 2022) included development of distributary network for only 14.83 lakh acres. The actual command area created so far was 40,888 acres only (March 2022).
- The Department showed undue haste in award of works. Seventeen works costing ₹25,049.99 crore were awarded even before approval of the DPR.
- In the DPR, water for the project was proposed to be lifted from River Godavari at the rate of 2 TMC per day. The pumping capacity was later increased to 3 TMC per day involving additional cost of ₹28,151 crore.
- Due to re-engineering of the PCSS Project and changes made in the project works, certain portions of works already executed had become redundant, resulting in a loss of ₹767.78 crore.
- Out of the 56 project works, only 12 works were completed, 40 works were ongoing while 4 works have not even commenced, as of March 2022. Lands required for distributary network, *etc.*, are yet to be fully identified.
- The possibility of undue benefit of at least ₹2,684.73 crore to the contractors for supply and commissioning of pumps, motors *etc.*, cannot be ruled out. Further, post tender inclusion of price adjustment clause resulted in avoidable payment of ₹1,342.48 crore.

## Background

In the year 2008, the Government of the erstwhile combined State of Andhra Pradesh took up the Dr. B.R. Ambedkar Pranahitha-Chevella Sujala Sravanthi Lift Irrigation Scheme (PCSS Project) at a cost of ₹38,500 crore. The project proposed to lift 180 thousand million cubic feet (TMC) of water from Pranahitha and Godavari rivers and provide irrigation to a new command area (CA) of 16.40 lakh acres in the Telangana region. Even without approval of the project by the Central Water Commission (CWC), the project works were awarded to different contractors during 2008-2009 and execution of the works commenced. After the re-organisation (June 2014) of the Andhra Pradesh State, the Government of the newly formed Telangana State decided (June 2016) to re-engineer the PCSS project and divided it into two separate projects, viz., the Dr. B.R. Ambedkar Pranahitha Project and the Kaleshwaram Project.

The re-engineering substantially changed the scope and cost of the two projects. Together, the two projects were estimated to cost ₹85,651.81 crore. Together, they were expected to provide irrigation to a new CA of 20.26 lakh acres and, in addition, supplement water to four other existing projects. The projects were being executed by the Irrigation and Command Area Development (I&CAD) Department. As of end of March 2022, an expenditure of ₹1,727.44 crore and ₹86,788.06 crore was incurred on the Pranahitha and Kaleshwaram Projects, respectively.

Audit had earlier reviewed the PCSS project in 2011 as a part of the Performance Audit on Jalayagnam. The results of audit had appeared in the Report of the Comptroller and Auditor General of India on Jalayagnam (Report No: 2 of 2012). Keeping in view the re-engineering of PCSS project into two projects, the huge scale of investment and contemplated benefits involved in the Kaleshwaram and Pranahitha projects, a Performance Audit of these two projects has been taken up. The audit was conducted (April – August 2018 and August 2021 to March 2022) with an objective to seek an assurance as to whether – (i) *Re-engineering of the PCSS project was done scientifically and transparently and addressed the deficiencies of the project;* (ii) *The projects were conceived and planned scientifically with well-defined benefits, sound designs and cost considerations and had received all the statutory approvals in a timely manner;* (iii) *The projects were implemented holistically, timely, economically and have achieved the intended benefits;* (iv) *Financial management in the projects was prudent, economic and effective;* and (v) *Award of works and contract management was transparent and economical.*

## Re-engineering of PCSS Project

The I&CAD Department took up the PCSS Project and commenced the project works in a haphazard manner without properly evaluating and addressing the basic project requirements like availability of water, inter-state issues, storage facilities, etc. that are critical for achieving the intended objectives of the project.

In the Report on Jalayagnam, Audit had pointed out deficiencies in the PCSS Project like – non-establishment of availability of water for the project, awarding of project works even before preparation/approval of Detailed Project Report (DPR) and non-settlement of inter-state issues with Maharashtra regarding submergence areas. The same issues which were pointed out by Audit had contributed to the need for re-engineering of the PCSS Project. While scrutinizing the DPR of the PCSS Project, the CWC had in March 2015, stated that adequate water would not be available at the proposed source location (Tummidihetti barrage) and suggested to review the water availability as well as the storages proposed in the project.

Consequently, during re-engineering, the first Link of the PCSS project was separated and re-named as the Dr. B.R.Ambedkar Pranahitha Project. This project proposes to draw 20 TMC of water from the River Pranahitha near Tummidihetti and to provide irrigation to two lakh acres of new CA.

The remaining Links of the PCSS project, with some changes, were brought under the newly named Kaleshwaram Project. The source of water for this project was shifted further downstream to Medigadda, about 20 Km downstream of Kaleshwaram village, where the River Pranahitha joins Mid-Godavari. Three barrages and 17 reservoirs were newly proposed to increase the storage capacity of the project. The Kaleshwaram Project proposes to create new CA of 18.26 lakh acres and to supplement water to 4.71 lakh acres of existing CA under other projects.

During re-engineering, the Kaleshwaram and Pranahitha Projects together were estimated to cost ₹85,651.81 crore as against the project cost of ₹38,500 crore of the earlier PCSS Project. While the combined project cost increased by 122 *per cent* due to re-engineering, the targeted CA increased by only 52.22 *per cent*. Even after the initial re-engineering, further additions and changes were made in the scope of Kaleshwaram Project works taking the present likely project cost to ₹1,47,427.41 crore (including the interest during construction), while there is no further increase in the envisaged benefits. Thus, the combined project cost of the two projects now stands at ₹1,51,168.21 crore. This may increase further as the DPR of Pranahitha Project is not yet prepared (March 2022) and its cost is yet to be worked out.

After re-engineering, the annual energy requirement for operation of lifts has increased by 5,643.39 million units (MU) and the cost on electricity has increased by ₹3,555.34 crore per annum, as compared to that of PCSS Project. Due to re-engineering of the PCSS Project and changes made in the project works, certain portions of works already executed had become redundant, resulting in a loss of ₹767.78 crore.

## Planning for Kaleshwaram Project

The I&CAD Department entrusted the work of preparation of the Detailed Project Report (DPR) for Kaleshwaram Project to M/s Water and Power Consultants Ltd. (WAPCOS) despite several deficiencies in the earlier work of WAPCOS in preparation of DPR of the PCSS Project, which had led to its re-engineering.

While the earlier PCSS Project envisaged creation of new CA of 2.47 lakh acres in Rangareddy District, this was reduced to 50,000 acres in the Kaleshwaram Project without providing any justification in the DPR. Farmers of the remaining 1.97 lakh acres were denied irrigation benefits as was envisaged in the Project.

As was done in the case of the PCSS Project, the Department showed undue haste in award of works of Kaleshwaram Project works also. The Department awarded 17 works costing ₹25,049.99 crore relating to the project even before approval of the DPR by CWC in June 2018.

Even after approval of DPR, changes have been made in the project works. In the DPR submitted to CWC, water for the project was proposed to be lifted from River Godavari at the rate of 2 TMC per day. The pumping capacity was later increased to 3 TMC per day involving an additional cost of ₹28,151 crore, though not warranted.

The project cost was understated in the DPR due to preparation of estimates at old price levels and non-inclusion of provision for price escalation. This coupled with subsequent changes made in the project works, has resulted in the cost of works increasing from ₹63,352 crore to ₹1,02,267.99 crore as of now. Considering the likely cost on the works yet to be entrusted, land acquisition, rehabilitation and resettlement, interest during construction (IDC), *etc.*, the project cost is now likely to exceed ₹1,47,427.41 crore, as against the cost of ₹81,911.01 crore projected to the CWC. The capital cost of irrigation works out to ₹6.42 lakh per acre.

The Benefit-Cost Ratio (BCR) of the project was inflated by overstating the value of project benefits and understating the annual costs. The agricultural benefits were calculated on the assumption that one TMC of water would irrigate 17,668 acres of CA. Data of other projects in the State show that one TMC of water can serve an average of only 10,000 acres. Thus, there is a significant risk that the 169 TMC of water allocated for irrigation under the project will not be sufficient for Kharif season and there is a high risk that no water will be left for irrigation in Rabi season. The revenues from fisheries and from supply of water to industries were also overstated. The annual recurring cost on electricity charges was understated by adopting a lower rate of ₹3/unit whereas the prevailing tariff for lift irrigation schemes was ₹6.40/unit. Even with the understated project cost of ₹81,911.01 crore, the BCR works out to 0.75 (as against 1.51 projected) indicating that the project was, ab-initio, economically unviable. Considering the latest likely project cost (₹1,47,427.41 crore), the BCR works out to 0.52. This means that every rupee spent on the project would yield only 52 paise. The BCR is likely to go much lower considering the possibility of further increase in the cost of works and interest during construction and the likelihood of the actual benefits/revenues from agriculture and industrial/drinking water supply being much lower than those projected by the Department.

The lifts under Kaleshwaram Project require 8,459.10 MW of power, which works out to 46.82 *per cent* of the total installed capacity presently available in the State. The project requires a total of 14,344.39 million units (MU) of energy every year after completion. The peak energy demand, when all the pumps are likely to be operated

simultaneously during pumping season, works out to 203.02 MU per day. This is more than the average daily energy availed (196.06 MU per day) in the entire State in 2021-22. As the State is presently purchasing/importing nearly 60 *per cent* of energy from external sources, providing power to various lift irrigation schemes including Kaleshwaram Project will be a challenge to the State.

The project would require ₹10,374.56 crore towards energy charges every year. In addition, there would also be annual operation and maintenance cost of ₹272.70 crore. Thus, the commitment on the annual operational costs of the project would be ₹10,647.26 crore per annum, which works out to ₹46,364 per acre. In addition, there would be depreciation on project works which works out to ₹2,760.92 crore per annum. In the DPR, it was stated that there were no proposals for water levy at present. Hence, the revenue from water charges can be taken as nil. The revenues from supply of industrial/drinking water and fisheries would also be negligible. Thus, almost the entire operational cost of the project has to be borne by the Government/ Kaleshwaram Irrigation Project Corporation Limited (KIPCL).

The State Government obtained project clearance from CWC and Forest Clearance and Environmental Clearance from the Ministry of Environment and Forests (MoEF) during October 2017 - June 2018. Though the cost of project works has increased from ₹63,352 crore to ₹1,02,267.99 crore, with the major change being the increase in the water drawal capacity from two TMC per day to three TMC per day, the revised DPR is yet to be approved by CWC. The Government also did not communicate the revised scope of project works to MoEF for fresh Environmental Clearance.

Sri Komaravelli Mallanna Sagar is the largest reservoir in the project constructed with a huge capacity of 50 TMC. A preliminary study by the National Geophysical Research Institute (NGRI) revealed that there was a deep-seated vertical fault in the proposed location of the reservoir. However, the Department went ahead and constructed the reservoir with a total expenditure of ₹6,126.80 crore without conducting detailed seismic studies.

## Planning of finances

Though the project cost was estimated at ₹81,911.01 crore, the Government of Telangana has not accorded administrative approval for the project as a whole. Instead, the Government has been issuing separate approvals for individual works on piece meal manner. As of March 2022, as many as 73 administrative approvals aggregating to ₹1,10,248.48 crore have been given. There are no orders from the Government about the funding pattern for the project.

In December 2017, the Department submitted a certificate issued by the Finance Secretary that necessary funds for the project would be provided. This is despite the fact that the Government had already formed (August 2016) the KIPCL to raise loans for funding the project. The KIPCL has so far (March 2022) raised market loans of ₹87,449.15 crore with guarantees provided by State Government. These loans carry interest at the rates ranging from 7.8 *per cent* to 10.9 *per cent* per annum. Out of the

total expenditure of ₹86,788.06 crore incurred on the project as of March 2022, an expenditure of ₹55,807.86 crore (*i.e.*, 64.3 *per cent*) was met from the off-budget borrowings (OBBs) raised by KIPCL. Out of the total expenditure incurred after re-engineering (2016-17), as high as 72.82 *per cent* was met from OBBs and only 27.18 *per cent* was met through budgetary allocations.

The KIPCL does not have any sources of revenue and the burden of repayment of the loan and interest is likely to fall on the State Budget. The KIPCL has been paying interest on loans and principal from the funds released by Government in the form of loans/equity. Though repayment of loan in 10 out of the 15 loan agreements was to commence during 2020-21 and 2021-22, KIPCL sought deferment of repayment dates by one-two years in 9 agreements, resulting in an additional interest burden of ₹8,182.44 crore. Loans amounting to ₹1,690.09 crore were diverted/transferred to Government leading to additional interest burden of ₹587.65 crore. Due to failure of Government to provide funds for margin money, the KIPCL diverted the loan amount of ₹4,011.52 crore towards margin money, entailing an additional interest burden of ₹1,381.42 crore. The KIPCL / Government requires a total amount of ₹1,41,544.59 crore (ranging from ₹712.44 crore to ₹14,462.15 crore every year) in the next 14 years for debt servicing. There are no orders from Government regarding the funding pattern for the project, duly indicating the proposed funding from State budget and funding proposed through other sources including market loans. Absence of a comprehensive plan duly spelling out the sources of funds for a project of this scale which will have a long-term impact on the finances of the State, is an indication of improper planning and ad-hocism.

## **Execution of Kaleshwaram Project**

The project was divided into 7 links. The works were awarded under 56 contracts. The progress of project works is slow. Out of the 56 works, only 12 works were completed, 40 works were ongoing with progress ranging from 3 *per cent* to 99 *per cent* while 4 works have not even commenced, as of March 2022. As against the total value of civil works of ₹1,02,267.99 crore, the progress achieved was ₹70,666.48 crore (*i.e.*, 69 *per cent*). The delay in completion of works was mainly due to revisions in the scope of works and delays in finalisation of scope of works/designs/drawing and land acquisition. As against the total of 98,110.33 acres of land to be acquired, only 63,972.16 acres was acquired as of March 2022. Further, the lands required for distributary network and some other works are still being identified. Land acquisition had not been completed in 32 works though the original agreement period is over.

Seven new reservoirs under the project were causing submergence and involve Rehabilitation and Resettlement (R&R) of the Project Displaced Families. However, R&R activities in respect of only three reservoirs were completed and in the remaining four reservoirs, the Department was yet to identify the Project Displaced Families (PDFs) fully and R&R was yet to be taken up.

Though a new CA of 18.26 lakh acres was targeted under the project, the works entrusted so far (March 2022) included development of distributary network for only 14.83 lakh acres, out of which the actual command area created so far was only 40,888 acres. Distributary network for the remaining CA of 3,43,148 acres is yet to be awarded, even after six years since re-engineering. Adequate priority was not given to creation of distributary network as was given to the headworks/main canals. While 57 *per cent* of the main canals were completed only 7 *per cent* of distributaries were completed.

Though the Department expects the project completion by June 2024, with the present status of works and the volume of work yet to be done, completion of the entire project in full shape and achievement of full benefits is likely to take many more years to come.

### Status of Pranahitha Project

In the last four years, there has been no progress in the four works retained under the Pranahitha project after re-engineering. It took more than six years since the decision on re-engineering was taken in June 2016 to identify the barrage location, the targeted CA and the scope of works, and to prepare and submit the DPR to CWC. The State is yet to obtain all the statutory clearances including the CWC clearance and the concurrence of Maharashtra State for the project. No CA has been developed under the project so far (March 2022) and it may take many more years for construction of the project and deriving any irrigation benefits from it.

The expenditure of ₹878.56 crore already incurred on these works remained unproductive.

### Contract Management

The scope of work under 21 contracts, *inter alia*, involved supply and installation of lifts with an aggregate capacity of 8,338.04 MW. The Department provided a total amount of ₹17,653.71 crore towards the cost of pumps, motors and auxiliary equipment in the estimates of these works, without assessing the market rates. Audit verified the actual cost at which the contractors procured the equipment (from M/s Bharat Heavy Electricals Ltd.) in four works and found that amounts (₹7,212.34 crore) provided for this equipment in the estimates was higher by ₹5,525.75 crore than their actual cost (₹1,686.59 crore). Even when 30 *per cent* of the estimated cost is allowed for the items/operations outside the scope of BHEL supply and another 20 *per cent* is allowed towards overheads and contractors' profit, the possibility of undue benefit of at least ₹2,684.73 crore to the contractors of these works cannot be ruled out.

Post tender inclusion of price adjustment clause in five agreements resulted in avoidable payment of price escalation of ₹1,342.48 crore. There were also other cases of inflated rates, undue benefits/excess payments to contractors, *etc.*, to the tune of ₹ 612.51 crore.