



सत्यमेव जयते

Report of the
Comptroller and Auditor General of India
on
National Projects



Diverted channel around
the reservoir

Canal spot no 2

Velagaleru

Channel originally
proposed by DPR

Canal spot no 1

Image captured using Google Psa (October 2016) for area around Budhem

Union Government
Ministry of Water Resources, River Development
& Ganga Rejuvenation
Report No. 6 of 2018
(Performance Audit)

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Comptroller and Auditor General of India
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Contents		Page
Preface		iii
Executive Summary		v
Introduction		1
Part One	Achievement of Objectives	7
Part Two	Implementation of Projects	19
Factor 1	Deficient Survey and Investigation	21
Factor 2	Delays in Land Acquisition	26
Factor 3	Inefficient Dispensation of R&R Measures	29
Factor 4	Deficient Contract Management	34
Factor 5	Monitoring, Operation and Maintenance of Projects	42
Conclusion and Recommendations		45
Appendices		51-54

Preface

This Report for the year ended March 2017 has been prepared for submission to the President of India under Article 151 of the Constitution of India.

This Report of the Comptroller and Auditor General of India contains the observations of Performance Audit of National Projects for the period 2008-17. The instances mentioned in this Report are those which came to notice in the course of test audit for the period 2008-17 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Report. Matters relating to the period subsequent to 2016-17 have also been included, wherever necessary.

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

Executive Summary

Key Facts	
Number of National Projects	16
Projects under implementation	5
Projects yet to commence	11
Commencement of five projects under implementation	1975-1983
Original cost estimate of the five projects	₹ 3,530 crore
Current cost estimate of the five projects	₹ 86,172.23 crore
Expenditure incurred on the five projects	₹ 13,299.12 crore
Envisaged Irrigation Potential from the five Projects	25.10 lakh Hectare
Envisaged Power generation from the five Projects	1,236.50 Mega Watt
Envisaged creation of reservoir capacity from the five projects	5.412 Million Acre Feet
Envisaged drinking water from the five projects	672.585 Million Cubic Metre
Key Findings	
Shortfall in physical progress of the five projects	8 to 99 per cent
Cost escalation in the five projects	2,341 per cent
Irrigation Potential utilised from the five Projects	5.36 lakh Hectare (21 per cent)
Power generation from the National Projects	Nil
Creation of reservoir capacity from the National Projects	0.53 Million Acre Feet
Drinking water from the National Projects	Nil
Additional cost due to insufficient survey work and resultant delays	₹ 903.67 crore
Additional cost due to inefficient Rehabilitation and Resettlement measures	₹ 1,414.26 crore
Financial implications of poor contract management	₹ 328.83 crore

In February 2008, the Government of India approved a Scheme of National Projects where under it identified 16 major water resource development and irrigation projects that were under the Accelerated Irrigation Benefits Programme (AIBP) but

were languishing due to various constraints and hurdles including land acquisition, inter-State coordination, financial constraints and issues relating to rehabilitation and re-settlement of affected population. The poor implementation of the schemes was adversely impacting strategic national interests. The fundamental objective of the scheme was to ensure coordinated and focussed action to expedite their execution and ensure their early completion. A performance audit of the scheme brought out that this fundamental objective remained unachieved though an expenditure of ₹ 13,299.12 crore had been incurred on the five projects as of March 2017.

Out of the 16 National Projects, only five projects with estimated Irrigation Potential of 25.10 lakh Hectare were under implementation. In these five projects, 14.53 lakh Hectare Irrigation Potential has been created but a mere 5.36 lakh Hectare (37 *per cent*) Irrigation Potential is being utilised. The remaining 11 projects with estimated Irrigation Potential of 10.48 lakh Hectare are yet to commence and are at different stages of approval. The five projects under implementation have not been able to reach a stage where the benefits of power generation, drinking water and reservoir creation can be delivered except for creation of 0.53 Million Acre Feet storage in Gosikhurd project.

The execution of the projects were marked by administrative delays, non-adherence to codal provisions and rules stipulated in the relevant works manuals for execution of such works, poor contract management and lack of effective and timely monitoring. The cost escalation in the five projects before their inclusion in the scheme was ₹ 32,802 crore. However, since their inclusion as National Projects, two projects namely Indira Sagar Polavaram project and Gosikhurd project, have alone registered a cost escalation of ₹ 49,840 crore over the previous escalation. Remaining three projects have already overshoot their approved completion time and none of them is near completion.

The shortfall in terms of physical progress in different components of the project ranged from eight to 99 *per cent* in the five projects under implementation along with an overall cost escalation of 2,341 *per cent* that threatened the economic viability of the projects. The tardy implementation and cost escalation was attributable to management failures and deficiencies in terms of non-adherence to codal provisions relating to survey and investigations that are essential ingredients for preparation of detailed project reports, ensuring statutory clearances for the project sites and administrative delays in land acquisitions, which resulted in additional cost of ₹ 903.67 crore. This was compounded by inefficient Rehabilitation and Resettlement measures that further hindered progress of the projects. This resulted in additional cost of ₹ 1,331.91 crore due to revisions in agreements and ₹ 82.35 crore on account of payment of interest arising from delayed payment of compensation.

Undue delay in processing of proposals, delay in obtaining statutory clearances, non-adherence to codal provisions and rules and poor contract management and enforcement also contributed to cost escalations and delays in execution. The failure of the project authorities to ensure compliance with and enforce contract terms led to non-recovery of ₹ 32.16 crore from defaulting contractors as well as cost escalation of ₹ 224.54 crore. The departmental authorities also released ₹ 72.13 crore to contractors over and above the agreement terms on the ground of urgency or to expedite works. Further, deviation from codal provisions and tender/agreement terms provided no assurance as to the transparency and objectivity of the process of selection of contractors, award of works and their execution.

In none of the five projects under implementation had any proposal for Command Area Development works been sent to Central Water Commission for approval (March 2017). In absence of *pari passu* implementation of Command Area Development works providing last mile connectivity through distributaries, irrigation potential would not be utilized, even if projects are completed.

Lastly, lack of adequate and effective monitoring and timely action to deal with breaches and damages to created infrastructure both contributed to the poor progress of works as well as inadequate maintenance of assets already created.

Introduction

The Government of India noted that there were a number of major water resource development/irrigation projects that were languishing due to various reasons including difficult terrain, non-availability of funds and inter-State disputes. These projects had not received adequate financial and technical support from the Central Government as they had not been assigned any importance from a national perspective thereby also adversely impacting strategic national interests. Considering this, the then Ministry of Water Resources proposed the concept of a 'National Project' to be accorded high priority by the Central Government in terms of technical and financial support to ensure their early implementation and completion.

Accordingly, Union Cabinet approved a scheme of National Projects in February 2008 for expediting a select group of irrigation projects with well-defined deliverables. The justification for various projects outlined by the Government were as below:

Projects governed by International Treaty having international ramification and projects of strategic importance

Teesta project in West Bengal
Shahpur Kandi and 2nd Ravi projects in Punjab
Bursar and Ujh projects in Jammu & Kashmir
Gyspa project in Himachal Pradesh

Projects of Yamuna Basin, important from environmental, drinking water and Commonwealth games consideration

Lakhwar and Kishau projects in Uttarakhand
Renuka project in Himachal Pradesh

Projects on the international rivers in North Eastern States

Noah Dihing and Upper Siang projects in Arunachal Pradesh
Kulsi project in Assam

Major projects having big irrigation potential and drinking water component

Gosikhurd project in Maharashtra

River inter-linking project

Ken Betwa project in Madhya Pradesh

Projects later added as National Projects

Saryu project in Uttar Pradesh (August 2012)
Indira Sagar Polavaram project* in Andhra Pradesh (March 2014)

* Since 2014 nomenclature of Polavaram Irrigation Project is being used instead of Indira Sagar Polavaram Project

The scheme was to be implemented during the XI Plan period (2007-12). Subsequently in September 2013, the Cabinet approved the continuation of scheme in the XII Plan (2012-17).

The scheme initially included 14 water resource development and irrigation projects. The Saryu project and Indira Sagar Polavaram project were included in the scheme in 2012 and 2014 respectively. From September 2012 onwards, Extension, Renovation and Modernization (ERM) projects envisaging restoration of lost irrigation potential of two lakh hectares or more became eligible for inclusion as a National Project subject to certain conditions¹. In 2015-16, the National Projects were included in the Pradhan Mantri Krishi Sinchayee Yojana launched by the Ministry of Water Resources, River Development and Ganga Rejuvenation (MoWR,RD&GR).

Of the 16 National Projects, only five projects were under implementation while the remaining 11 were at various stages of appraisal or approval as brought out in Table 1 below:

Table 1: Details of 16 National Projects

Sr. No.	Name of project	Irrigation Potential (lakh Ha)	Proposed Power (MW)	Creation of Reservoir (MAF)	Drinking water (MCM)	Current status of the Project
1.	Gosikhurd project	2.51	3	0.93	8.83485	Under execution
2.	Teesta project	5.27	67.50	-	-	Under execution
3.	Saryu project	14.04	-	-	-	Under execution
4.	Indira Sagar Polavaram project	2.91	960	4.47	663.75	Under execution
5.	Shahpur Kandi project	0.37	206	0.012	-	Under execution
6.	Lakhwar Project	0.34	300	0.267	39.42	Investment Clearance granted in February 2016. However, the inter-State agreement has not been finalized and Central Assistance has not been released.
7.	Renuka Dam Project	-	40	0.404	0.000023	Investment Clearance is yet to be granted due to pending Forest Clearance.
8.	Kishau Project	0.97	660	1.48	17.47	The Detailed Project Report (DPR) of the

¹ As per CWC response, Command Area Development and Water Management (CAD&WM) works shall be ensured in the entire command area of the ERM project; shall be taken up simultaneously with the ERM works; management of command area system by Water User's Association (WUA's) after the ERM works; and project should achieve the benchmark water use efficiency in practice.

Sr. No.	Name of project	Irrigation Potential (lakh Ha)	Proposed Power (MW)	Creation of Reservoir (MAF)	Drinking water (MCM)	Current status of the Project
						project is under appraisal in CWC.
9.	Ujh Project	0.32	212	0.82	0.0000057	Modified DPR is awaited from the State Government.
10.	Ken Betwa Project	6.35	78	2.18	11.75	Investment clearance granted in June 2017, subject to forest clearance.
11.	Kulsi dam Project	0.21	55	0.28	-	Project is under appraisal in CWC.
12.	Noah Dihing Project	0.04	71	0.26	-	Project is under appraisal in CWC.
13.	Bursar HE Project	1.74	800	0.50	0.0015	Project is under appraisal in CWC.
14.	Gyspa HE Project	0.50	300	0.74	-	DPR is under preparation by the State Government.
15.	2nd Ravi Project	-	-	0.58	-	Project is in pre-feasibility stage.
16.	Upper Siang Project	-	9,750	1.44	-	DPR is under preparation by the State Government.
Total		35.57	13,502.50	14.363	741.23	

As on 31st March 2017, these 16 National Projects had an estimated cost of ₹ 1,42,681.78 crore with the overall objective of creation of Irrigation Potential (IP) of 35.57 lakh hectares (Ha). In addition, the scheme also envisaged generation of 13,503 MW of power, creation of additional reservoir capacity of 14.363 MAF² and drinking water facility of 741.23 MCM³.

In case of the five National Projects under implementation, expenditure of ₹ 13,299.12 crore constituting 15.43 per cent of their estimated cost (₹ 86,172.23 crore⁴) had been incurred up to March 2017.

One of the primary objectives of National Projects is to enhance agricultural productivity by creating IP and water availability in covered areas. This objective is in alignment with Sustainable Development Goal- 6 which deals with sustainable management of water. The details of the agencies involved in National Projects is given in **Appendix 1**.

² Million Acre Feet

³ Million Cubic Metre

⁴ Latest cost estimate for Gosikhurd project and Indira Sagar project are yet to be accepted by CWC.

Funding Pattern for the National Projects

National Projects were eligible for 90 *per cent* grants of the balance project cost⁵ of irrigation and drinking water components of the project. From September 2013, central assistance is provided as 75 *per cent* and 90 *per cent* of the balance cost for projects of Non-Special Category States and Special Category States (eight North Eastern States and three Himalayan States: Himachal Pradesh, Jammu & Kashmir and Uttarakhand) respectively. However, in case of Indira Sagar Polavaram project (Andhra Pradesh), central assistance up to 100 *per cent* has been provisioned.

Under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), the proportion of Central share for National Projects has been reduced to 60 *per cent* from 2016-17 onwards except in case of projects in Special Category States which will continue to get 90 *per cent* of the cost as Central Grant. The position of fund release and expenditure incurred up to March 2017 in five projects under execution are indicated in Table 2 below.

Table 2: Details of fund release and expenditure on five projects during 2008-17

(₹ in crore)

Sr. No.	Project	State	Cost	CFA released	State share released	Total availability	Total Expenditure
(1)	(2)	(3)	(4)	(5)	(6)	(5)+(6)	(7)
1.	Indira Sagar Polavaram Project	Andhra Pradesh	55,132.92	3,349.70	-	3,349.70	4,007.99
2.	Gosikhurd Irrigation Project	Maharashtra	18,494.57	2,987.94	3,579.51	6,567.45	5,870.73
3.	Shahpur Kandi Dam Project	Punjab	2,285.81	26.04	-	26.04	26.04
4.	Saryu Nahar Pariyojna	Uttar Pradesh	7,270.32	1402.10	1,706.54	3,108.64	3,108.64
5.	Teesta Barrage Project	West Bengal	2,988.61	200.13	85.59	285.72	285.72
Total			86,172.23	7,965.91	5,371.64	13,337.55	13,299.12

Source: Central Water Commission and data from State Governments

⁵ Balance project cost refers to cost of remaining work in the project at the time of inclusion under the scheme of National Projects.

Audit Objectives

Considering the national importance of the projects, the huge allocation of financial resources and thrust of the Government to improving agricultural production and other associated benefits, we undertook a performance audit of the National Projects to ascertain the status of their implementation and assess the reasons for delays and the achievement of intended benefits in terms of creation and augmentation of irrigation potential, power generation and drinking water. The audit objectives were to examine whether:

1. National Projects were planned in accordance with the guidelines approved by the Ministry;
2. Availability of funds for the project from the Centre as well as States was adequate and timely;
3. National Projects were executed in an economic and efficient manner and the extent of achievement of the intended benefits; and
4. Monitoring mechanism was adequate and effective.

Audit Criteria

The audit criteria were derived from the following:

- i. Guidelines for National Projects;
- ii. State Irrigation Manual;
- iii. State Public Work Department Manual;
- iv. Forest Conservation Act, 1980;
- v. Land Acquisition Act, 1894 and subsequent orders;
- vi. Government Resolutions and Instructions/Orders relating to the works; and
- vii. CVC guidelines/General Financial Rules

Audit scope and methodology

The performance audit covered the period from April 2008 to March 2017. For the purpose of the audit, we examined the records and documents at MoWR, RD&GR and the Central Water Commission (CWC) as well as in the States of Maharashtra, Punjab, West Bengal, Uttar Pradesh and Andhra Pradesh. We also visited selected sites for joint inspection to arrive at our conclusions.

We held entry meeting with the Ministry on 12 April 2017 in which we explained the audit objectives, scope and methodology. The audit observations were issued to the Ministry on 22 November 2017 and its comments were received on 11 January 2018. We held an exit conference with the Ministry on 15 February 2018.

We have structured this report in two broad segments: **Part 1**, 'Achievement of Objectives' which covers the current status of these projects and **Part 2** 'Implementation of Projects' which analyses the progress of implementation and the reasons for delays and slippages.

Part One
Achievement of Objectives

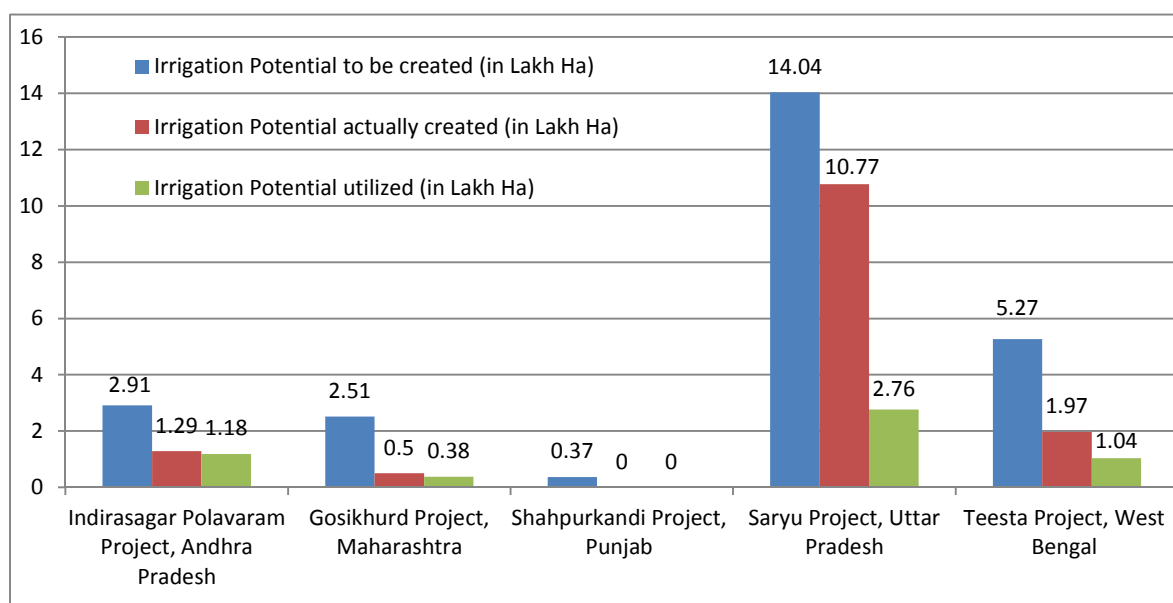
Achievement of Objectives

1.1 Creation and Utilisation of Irrigation Potential

Target of creation of Irrigation Potential from 16 National Projects	35.58 lakh Ha
Target of creation of Irrigation Potential from five National Projects under implementation	25.10 lakh Ha
Total Irrigation Potential created from the five National Projects	14.53 lakh Ha
Total Irrigation Potential utilised from the five National Projects	5.36 lakh Ha

As of March 2017, only five out of 16 National projects with estimated Irrigation Potential (IP) of 25.10 lakh Ha were under implementation. The remaining 11 projects with estimated IP of 10.48 lakh Ha are yet to start. In the five projects under implementation, while 14.53 lakh Ha IP has been created, a mere 5.36 lakh Ha (37 per cent) IP is being utilised. The position of creation and utilization of Irrigation Potential in five running projects is indicated in Chart 1 below:

Chart 1: Status of Irrigation Potential for five projects (envisaged, created, utilised)



Thus, the Saryu Project alone accounts for 74 *per cent* of the total irrigation potential actually created and it is negligible in the remaining four projects under implementation. Further, no project except the Indira Sagar Polavaram project in Andhra Pradesh has been able to utilise more than 20 *per cent* of the envisaged IP. The utilisation of created potential was low due to gaps in structures and connectivity of the projects and absence of *pari passu* implementation of Command Area Development work for creation of final distributaries to ensure supply of water in the fields.

The position of 11 projects which are at different stages of approval is given in Table 3 below:

Table 3: Details of 11 projects at different stages of approval (March 2017)

Sl. No.	Name of project	Concerned States (River)	Irrigation Potential (lakh Ha)	Estimated Cost of the Project (₹ in crore)	Current status of the Project
1.	Lakhwar Project	Uttarakhand, Himachal Pradesh (Yamuna)	0.34	3,966.51	Investment Clearance granted in February 2016. CA is yet to be released as inter-State agreement is not finalized
2.	Ken-Betwa Project	Madhya Pradesh, Uttar Pradesh (Ken Betwa, Yamuna)	6.35	18,057.08	Investment clearance granted in June 2017 subject to forest clearance.
3.	Renuka Dam Project	Himachal Pradesh (Giri & Yamuna)	-	4,596.76	Investment Clearance is yet to be granted due to pending Forest Clearance.
4.	Kulsi dam Project	Assam (Kulsi)	0.21	1,139.27	The DPR of the project is under appraisal in CWC since June 2014.
5.	Noa Dihing Project	Arunachal Pradesh (Noa-Dihing)	0.04	1,086.06	The DPR of the project is under appraisal in CWC since October 2014.
6.	Bursar HE Project	Jammu & Kashmir (Chenab & Indus)	1.74	16,839.90	The DPR of the project is under appraisal in CWC since January 2017.
7.	Kishau Project	Uttarakhand (Tons & Yamuna)	0.97	7,193.24	The DPR of the project is under appraisal in CWC since October 2010 as Kishau Corporation Ltd has

Sl. No.	Name of project	Concerned States (River)	Irrigation Potential (lakh Ha)	Estimated Cost of the Project (₹ in crore)	Current status of the Project
					not responded to CWC queries raised during 2010-11.
8.	Ujh Project	Jammu & Kashmir (Ujh & Ravi)	0.32	3,630.73	The DPR was initially sent to CWC in 2013 however due to deficiencies noticed, it was sent back to State. Modified DPR is still awaited from the State Government.
9.	Gyspa HE Project	Himachal Pradesh (Bhaga , Chenab)	0.50	NA	DPR is under preparation by State Government
10.	Upper Siang Project	Arunachal Pradesh (Siang)	-	NA	DPR is under preparation by State Government.
11.	2nd Ravi Project	Punjab (Ravi Beas Link)	-	NA	Project is in pre-feasibility stage

As can be seen from above, though investment clearance has been granted in two projects (Lakhwar and Ken Betwa), the funding for the projects has yet to be approved due to lack of an agreement between concerned States defining benefit sharing and financial burden. In one project (Renuka), the Detailed Project Report (DPR) has been finalised but investment clearance is pending due to lack of forest clearance. In three projects (Kulsi, Noa Dihing and Bursar), DPR is under scrutiny with CWC for up to three years as on March 2017. Remaining five projects (Kishau, Ujh, Gyspa, Upper Siang and 2nd Ravi) are pending with States for submission to CWC. Thus, all 11 projects with irrigation potential of 10.47 lakh Ha are yet to commence.

1.2 Realisation of benefits of Power, Drinking Water and Reservoir

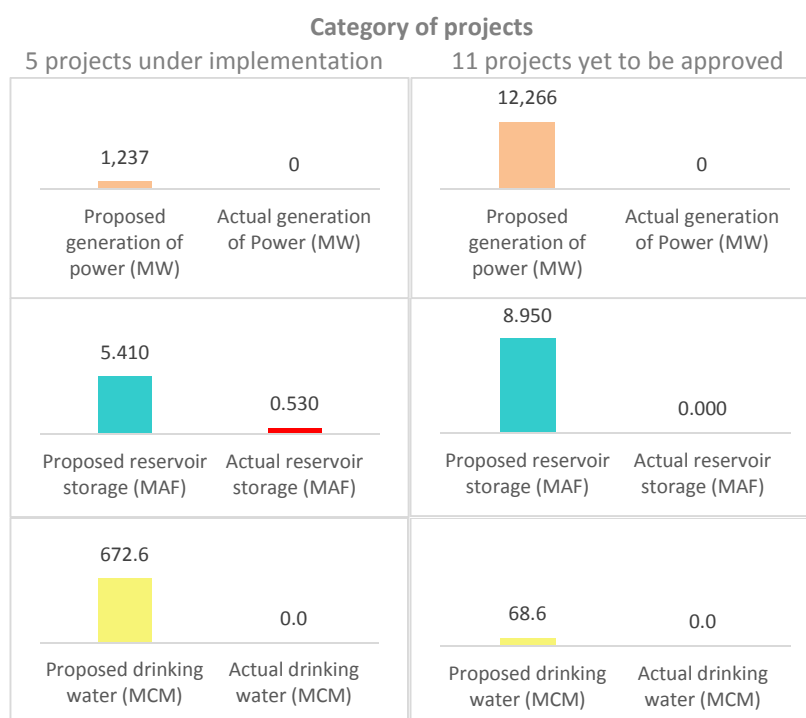
In addition to creation of IP, it was envisaged that the National Projects would also result in addition of reservoir capacity of 14.363 MAF⁶ and augmentation of drinking water by 741.23 MCM⁷ and power generation by 13,503 MW⁸. Chart 2 indicates the details of targets and achievements in respect of all the 16 projects.

⁶ Million Acre Feet

⁷ Million Cubic Metre

⁸ Mega Watt

Chart 2: Details of targets and achievements in 16 projects



As may be seen, none of these envisaged benefits are being delivered by these 16 projects as of March 2017 except creation of 0.53 MAF reservoir capacity in Gosikhurd project.

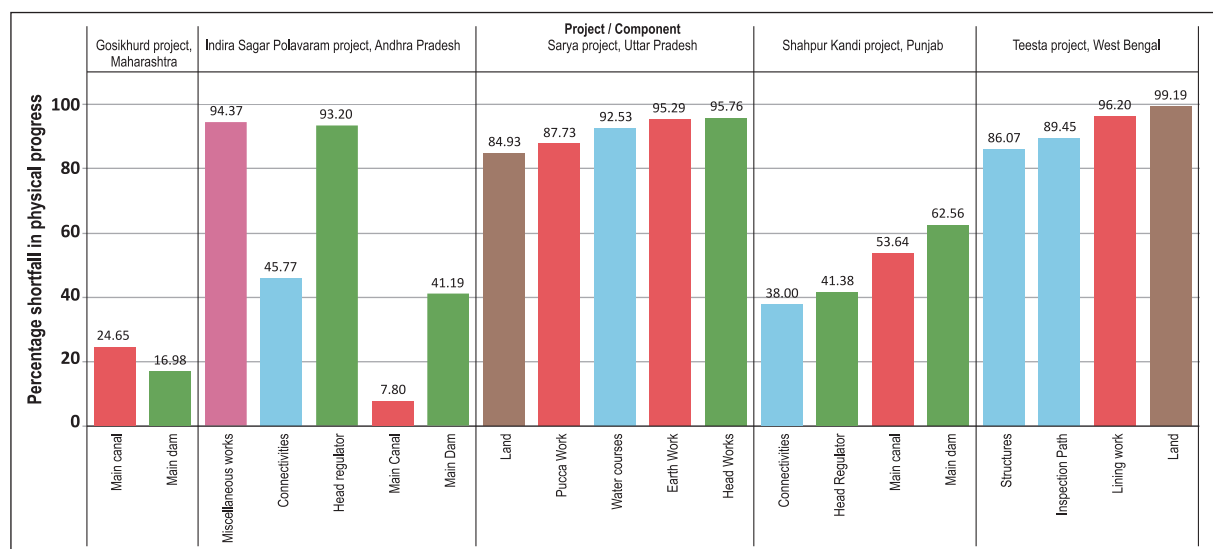
1.3 Physical Progress of five projects under implementation

<u>Project</u>	<u>Timeline for completion</u>
Shahpur Kandi project (Punjab)	March 2015 (Delayed)
Teesta project (West Bengal)	March 2015 (Delayed)
Indira Sagar Polavaram project (Andhra Pradesh)	June 2019
Gosikhurd project (Maharashtra)	December 2019
Saryu project (Uttar Pradesh)	March 2016 (Delayed)

The overall position of the status of the five projects under implementation are as below:

Chart 3 below indicates percentage shortfall in physical progress of different project components of these five projects such as dam, head regulators, canals, connectivity and structures.

Chart 3: Details of shortfall in physical progress in different project components



The shortfall in physical progress in different components of the five projects under implementation ranged from eight to 99 *per cent*. On comparing the physical progress of components with the timelines for completion of these projects, we noticed the following:

- In Gosikhurd project (Maharashtra), there was shortfall ranging between 17 *per cent* in main dam and 25 *per cent* in main canal.
- In Indira Sagar Polavaram project (Andhra Pradesh), shortfall on five components included shortfall of 93 *per cent* in head regulator, 46 *per cent* in connectivity, 41 *per cent* in main dam, 94 *per cent* in miscellaneous works and eight *per cent* in main canal. With 41.19 *per cent* shortfall in main dam and 93.20 *per cent* shortfall in head regulators, it appears that target completion date of June 2019 may be difficult to achieve. Only 7.3 *per cent* viz. ₹ 4,008 crore, of total project cost of ₹ 55,133 crore had been incurred so far.
- In Saryu project (Uttar Pradesh), the shortfall in land, pucca works, water courses, earth work and head work ranged between 85 to 96 *per cent*. With original target of completion by March 2016 already having passed, there was risk of further delay and cost overruns as 43 *per cent* of its cost had been incurred though 85-96 *per cent* of five component works are yet to be completed.

- d) In Shahpur Kandi project (Punjab), the shortfall ranged between 38 to 63 *per cent* in four components of main dam (62.56 *per cent*), main canal (53.64 *per cent*), head regulator of 41.38 *per cent* and connectivity of 38 *per cent*. With original target of completion by March 2015 having passed, 63 *per cent* shortfall on main dam and 54 *per cent* shortfall on main canal not only indicates poor implementation but has the risk of further delay and cost overruns. It is noted that only ₹ 26.04 crore had been spent against total project cost of ₹ 2,285.81 crore as of March 2017.
- e) In Teesta project (West Bengal), the shortfall was 86 to 99 *per cent* in four components of land, lining work, inspection paths and structures. Against project cost of ₹ 2,988.61 crore, expenditure is only ₹ 285.72 crore viz. 9.56 *per cent*.

We also noticed gap between completion of dam work and canal work in case of Gosikhurd project (Maharashtra), Indira Sagar Polavaram project (Andhra Pradesh) and Shahpur Kandi project (Punjab) reflecting lack of synchronization of different project components. The shortfalls in connectivity were mainly attributable to inadequate land acquisition, inefficient Rehabilitation and Resettlement (R&R) measures and lack of monitoring as discussed in detail in part two of the report.

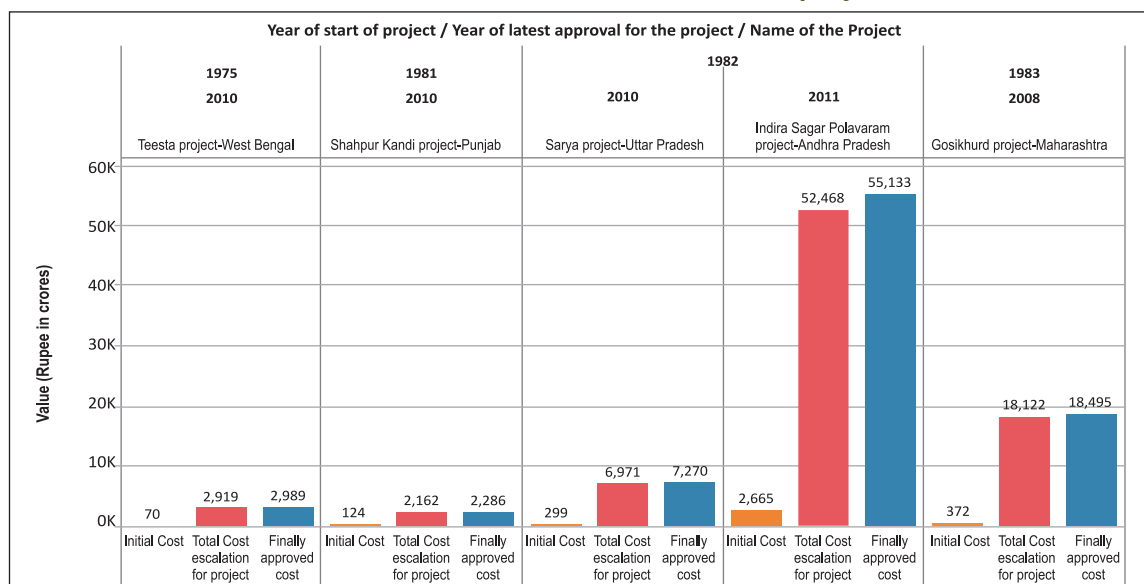
Completion of Command Area Development (CAD) work for last mile of distributaries and connectivity is essential to utilize the irrigation potential created by the project. As per National Project Guidelines (2008), CAD programme need to be implemented *pari passu* with project implementation. Project authorities responsible for CAD works have to submit separate proposal for funding of CAD works under a different scheme of MoWR, RD&GR. We observed that no proposal for CAD works has been sent to CWC in any of the five projects under implementation except Gosikhurd as of March 2017. In absence of *pari passu* implementation of CAD works, IP would not be utilized even if projects are completed and create desired IP.

1.4 Timelines and cost escalation

Initial cost of five projects	₹ 3,530 crore
Current Cost of five projects	₹ 86,172.23 crore
Cost escalation	2,341 <i>per cent</i>

Chart 4 below indicates year of commencement, current revision of the five projects, corresponding cost estimates and resultant cost escalation.

Chart 4: Details of cost escalation in five projects



Final cost of Indira Sagar Polavaram project and Gosikhurd project is yet to be accepted by CWC. Figures are rounded off so may not total.

All the five projects had suffered cost escalations ranging ₹ 2,162 crore to ₹ 52,468 crore indicating an overall cost escalation of 2,341 per cent. The cost has increased over the years while the intended benefits have remained the same.

Increase in the cost without proportionate increase in the benefits adversely affects the economic viability of these projects measured by Benefit Cost Ratio (BCR). The BCR is defined as the ratio of annual additional benefit on account of irrigation to the annual cost⁹ of providing those benefits. The BCR is essential to determine the economic viability of the project and is generally incorporated in the DPRs. As per extant guidelines, projects having minimum BCR of 1 for drought prone area and 1.5 for other area are considered economically viable.

We analyzed changes in BCR of three projects with respect to increase in cost and the same in respect of three projects as indicated in Table 4 below.

⁹ Annual cost includes fixed costs such as depreciation of the project and interest on capital along with running costs such as operations, maintenance and power. Format for calculation of BCR is prescribed by Guidelines for preparation of DPR for irrigation projects (2010).

Table 4: Details of BCR of three projects along with cost revision

Project	Year of sanction	Cost (₹ in crore)	Sanctioned BCR
Indira Sagar Polavaram project	2009	10,151.04	1.73
	2011	16,010.45	1.70
	2017	55,132.92	Yet to be calculated but given increase in cost, BCR would reduce further.
Teesta project	1975	69.72	2.53
	2010	2,988.61	1.52
Gosikhurd project	1983	372.22	1.58
	1999	2,091.13	1.53
	2016	18,494.57	Yet to be calculated but given increase in cost, BCR would reduce further.

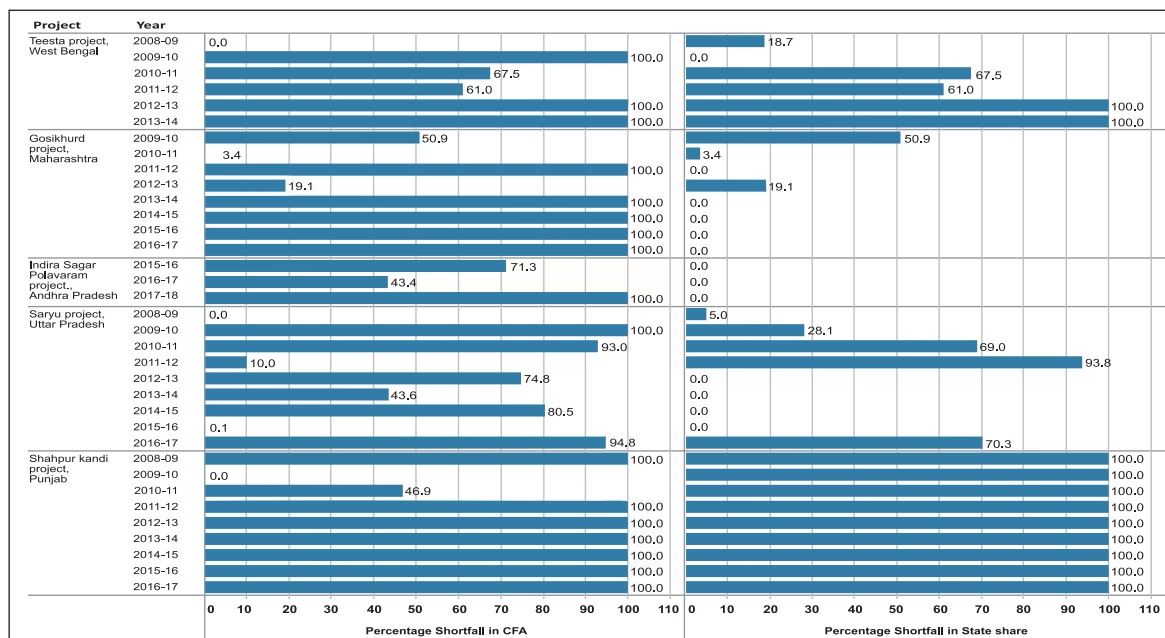
As can be seen from above, the BCR in respect of three projects has reduced over a period of time with revision in cost. In case of Gosikhurd project and Indira Sagar Polavaram project, the current BCR is yet to be calculated by CWC but has the evident risk of further reduction.

An analysis of the cost revisions of the two projects where execution of works were underway viz. the Indira Sagar Polavaram project and Gosikhurd project revealed that the cost escalations were mainly attributable to increases in changes in scope of work as well as cost of land acquisition and R&R particularly after the introduction of the Land Acquisition Act, 2013. The Indira Sagar Polavaram project, Andhra Pradesh, was included in the scheme with a cost of ₹ 16,010 crore (2010-11 Price Level) in 2014. Now a revised estimate of ₹ 55,133 crore (2013-14 Price Level) has been approved by the State Government and is pending approval by CWC. This cost escalation of 244 *per cent* is primarily due to increase in R&R cost, land acquisition and increase in scope of work. Similarly, Gosikhurd project in Maharashtra was included in the scheme of National Projects in 2008 at a cost of ₹ 7,778 crore (2005-06 Price Level). Now a revised estimate for ₹ 18,495 crore (2012-13 Price Level) has been approved by State Government and is pending approval by CWC. This cost escalation of 138 *per cent* is also primarily due to increase in cost of work and change in scope of the project.

Thus, cost escalation in five projects up to inclusion in scheme of National Projects was ₹ 32,802 crore. However after inclusion, two projects itself have registered a cost escalation of ₹ 49,840 crore. Remaining three projects have already overshoot their approved completion time and none of them is yet complete and there is a risk that they may also undergo cost escalation in future.

Chart 5 indicates shortfall in release of funds for five projects from centre (Central Assistance) as well as States (Committed Liabilities). Shortfall has been indicated against the proposed release of fund in a year. Only those years are indicated wherein a shortfall was noticed.

Chart 5: Percentage shortfall in release of CFA and State Share



Shortfall in Central Assistance ranging up to 100 per cent was found in 32 instances across all five projects during the period 2008-17. Similarly, shortfall in release of State’s share up to 100 per cent was noticed in 22 cases across four projects during 2008-17. Delay in release of Central Assistance and State’s share affects physical progress of work, acquisition of land and implementation of R&R measures.

Ministry stated (January 2018) that the escalation in cost depends upon a variety of factors including inter-State issues, land acquisition and R&R issues which may not be under control of the implementing authorities. Audit observed that while there may be factors that were beyond the control of the implementing authorities, a significant portion of the delays were attributable to identification of land, delays in progressing land acquisition by the revenue authorities and in finalizing R&R measures that could have been mitigated by better and effective coordination between the different authorities and agencies involved.

Audit Summation

Thus, the benefits envisaged from the implementation of the National Projects had yet to accrue. While 11 of the projects had not even commenced, the five projects under implementation suffered from both cost and time overruns. There was addition of only 14.53 lakh Ha of Irrigation Potential constituting 41 *per cent* of envisaged IP of 16 projects as on March 2017. Further, the utilised IP of 5.36 lakh Ha constituted only about 37 *per cent* of IP created and just 15 *per cent* of total IP envisaged for 16 projects. Most of the irrigation potential created and utilised was accounted for by only the Saryu Project with negligible achievement by the other four projects under implementation. Further, there was also mismatch between creation of dam and canal infrastructure, gaps in connectivity and structures and lack of *pari passu* implementation of CAD works that would subsequently impact utilization of created IP due to absence of distributaries.

Part Two
Implementation of Projects

In light of the delays and cost overruns in the National Projects under implementation, Audit carried out an analysis of the progress of various activities and works to identify the factors that could be addressed by the executing authorities for remedial action. These are discussed in subsequent paragraphs.

Factor 1: Deficient Survey and Investigation

- 2.1** Site surveys and investigation necessary for preparation of Detailed Project Reports (DPR) is a critical initial step in execution of any major works project. All Works Manuals and guidelines envisage carrying out of a proper site survey as a pre-requisite for preparation of DPRs and before grant of administrative and financial sanctions. The site surveys and investigation in the instant scheme are to be carried out by the State Government and approved by Central Water Commission (CWC). The surveys may include geological, seismic, hydrological and meteorological investigations as may be necessary for a project of this scale. Comprehensive and accurate survey and investigation paves the way for timely, adequate and reliable DPRs and is key to efficient and unhindered implementation of projects.
- 2.2** As per the guidelines for appraisal of the projects issued by the CWC in 2010, Detailed Project Reports (DPRs) submitted by State Governments are subject to techno-economic scrutiny by the CWC (**Appendix 2**) which has to complete the appraisal within one year. We observed delay in approval of DPR by CWC in case of six out of a total of 16 projects as given in Table 5 below.

Table 5: Details of projects with delayed approval of DPR

Sl. No.	Name of Project	Date of sending DPR	Date of approval of DPR	Delay in approval as on March 2017 (in months)
1.	Indira Sagar Polavaram Project	October 2005	January 2009	27
2.	Noa- Dihing Dam Project	April 2014	Not approved	24
3.	Kulsi Dam Project	June 2014	Not approved	21
4.	Ken Betwa Link Project	November 2011	June 2016	43
5.	Lakhwar Multipurpose Project	July 2010	December 2012	17
6.	Kishau Multipurpose Project	October 2010	Not approved	65

Thus, the delays ranged from 17 to 65 months in approval of DPRs by CWC from the date of submission by the State Governments. Even after nine years of formulation of scheme, 11 projects are still at various stages of approval. We observed that the delays in approval of projects were largely due to inadequate and inaccurate survey and investigation work by the State agencies. Some illustrative instances are narrated below.

- 2.3** River course and its ecosystem undergo gradual changes over time and require updated survey work for accurate planning of projects. CWC guidelines for appraisal of projects (2010) mandate inclusion of up to date cost and data for the estimates and stipulates that in case of delay by States to provide response to technical issues, the project shall be treated as returned. We observed that survey and investigation conducted 13 to 47 years back were used for preparing DPRs in four out of total 16 projects as mentioned in Table 6 below.

Table 6: Details of projects where redundant survey was used

Sl. No.	Project	Year of submission of DPR/latest revision	Year of survey and investigation	Redundancy (in years)
1.	Kishau Project, Uttarakhand	2010	1993	17
2.	Saryu Project, Uttar Pradesh	2010	1982	28
3.	Teesta Project, West Bengal	2010	1963	47
4.	Shahpur Kandi Project, Punjab	2008	1995	13

We have also observed redundancy of price levels adopted while submitting the revised estimates for approval. In the two cases shown in Table 7 below, three to four year old price levels have been adopted for revised cost estimates. As such, cost estimates were not based on updated figures and were outdated at the time of submission to CWC.

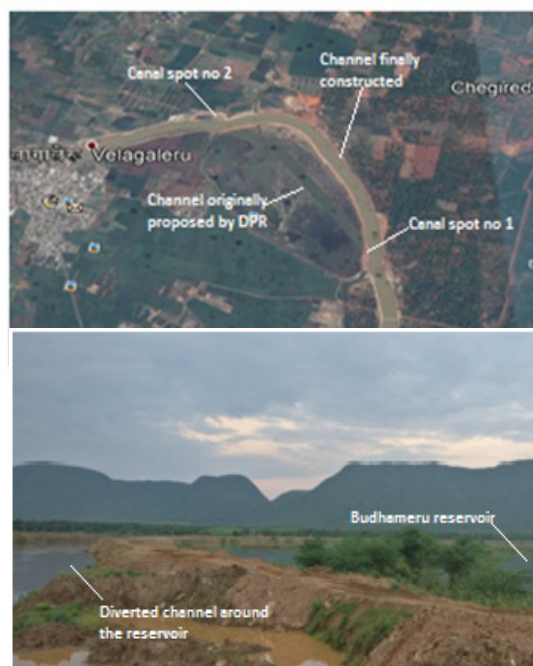
Table 7: Details of projects with redundant price levels in cost estimates

Project	Final approval for revision of cost	Price level
Gosikhurd project- Maharashtra	Yet to be approved	2012-13
Indira Sagar Polavaram project- Andhra Pradesh	Yet to be approved	2013-14

Use of redundant survey and investigation work in DPR of projects has the risk of impacting accurate techno-economic feasibility of the project by CWC.

Ministry agreed (January 2018) that though the topography and geology of the area may not change with passage of time, other parameters like land use of command area, water availability, cropping pattern, crop water requirement, etc. may change over the years. Ministry added (January 2018) that these projects being complex in nature, the entire process of approval of DPR requires more than two years and therefore price levels are usually two years old. The reply does not justify the extent of delay and the old data used while framing the proposals for submission to the CWC. It was evident that the guidelines had not been adhered to in the appraisal process of the projects leading to approval of cost estimates based on redundant inputs.

2.4 As per DPR of Indirasagar Polavaram Project (Andhra Pradesh), an embanked channel was to pass through Budameru reservoir around 169 km to 174 km mark on the right main canal. However, satellite images¹⁰ (November 2016) of the spot indicated that actually two different channels were constructed to connect the same spot of canal viz. one channel passed through the reservoir as provisioned in DPR while another channel diverted around the edge of the reservoir. We found that this latter channel had to be created through a change in plan since the Full Supply Level (FSL) in the reservoir would otherwise had to be reduced and this was opposed by the local people as it may have affected irrigation potential. Therefore, project authority had to create another channel around the edges of the reservoir leading to duplication of work.



Further, canal alignments had to be changed from the configuration approved in DPR at multiple other spots. These changes resulted in an overall variation in the length of the right main canal by 9.67 Kms and left main canal by 5.20 Kms. Audit observed that the topography and lay of the land including the FSL of the reservoir would have been evident in a proper survey and should have been known to the authorities at the planning stage itself.

Ministry agreed (January 2018) that FSL of the reservoir could not be reduced due to opposition of local people and the canal alignment had to be re-routed. Ministry added (January 2018) that change in length of canal was insignificant compared to the total canal length. However, the fact remains that change in overall length indicates insufficiency of original survey work requiring mid-course correction at construction stage.

¹⁰ Satellite image obtained through Google Pro on 27.08.2017 (03:45 PM) and provides the data as on October 2016.

2.5 The Gosikhurd project (Maharashtra) envisaged an ICA¹¹ of 1.90 lakh Ha which was apportioned among various project components. We observed that there were changes in the ICA of project components. The ICA of 11,767 Ha was reduced in Asolamendha Tank component. To compensate for reduction in ICA of the tank, new lift irrigation schemes were proposed in 3rd Revised Administrative Approval (RAA) for 11,767 Ha which led to inter changes in the ICA of project components involving additional cost of ₹ 770.96 crore as shown in the Table 8 below.

Table 8: Change in ICA of project

(Area in Ha and amount in crore)

Sl. No.	Name of component	ICA as per the RAA		Excess/deficit in ICA	Excess in cost
		2 nd	3 rd		
1	Right Bank Canal	48,760	54,479	5,719	80.69
2	Pauni LIS, Sheli LIS and Shivnala LIS	0	6,048	6,048	452.88
3	Mokhabardi LIS	21,390	21,390	-	369.63
4	Ambhora LIS	8,481	8,481	-	36.03
5	Asolamendha Tank	53,342	41,575	(-) 11,767	(-) 168.27
					770.96

The increase in cost was primarily due to creation of three new lift irrigation schemes (Pauni, Sheli and Shivnala). In addition one branch canal (Vadala) was proposed in Mokhabardi LIS due to inter-change in command area. Similarly, a new distributary (Kinhi) was proposed in Ambhora LIS due to inter-change in command area to keep the ICA of the project unchanged.

Thus, deficiencies in preliminary surveys for demarcation of command area of the project components resulted in change in the ICA of project components and additional cost of ₹ 770.96 crore which was yet to be approved by CWC (March 2017).

2.6 In the Bursar project (Jammu and Kashmir), CWC recommended (2008) Hanzal site as most techno-economic feasible site for construction of Bursar project. Accordingly, NHPC (project executing authority) commenced survey and investigation work and incurred ₹ 132.71 crore during 2008-09 to 2012-13. However, the State Government subsequently decided (January 2013) to shift the project site to Pakal as continuation of project at Hanzal site would involve prohibitive cost due to adverse conditions, complexity of design and relatively larger submergence area. The change in site despite being cleared from techno-economic point of view by CWC indicate deficiencies in the scrutiny process as

¹¹ Irrigable Command Area refers to geographical area within the command area, which is to be irrigated through the project.

the constraints realised later such as prohibitive cost, complex design and large submergence area could have been realised at the time of recommending Hanzal site. This resulted in avoidable expenditure of ₹ 132.71 crore other than delay of five years.

Ministry agreed (January 2018) that site was changed due to socio economic aspects but failed to indicate the reasons for not factoring these variables while recommending Hanzal site as techno economically feasible in 2008.

2.7 Audit Summation

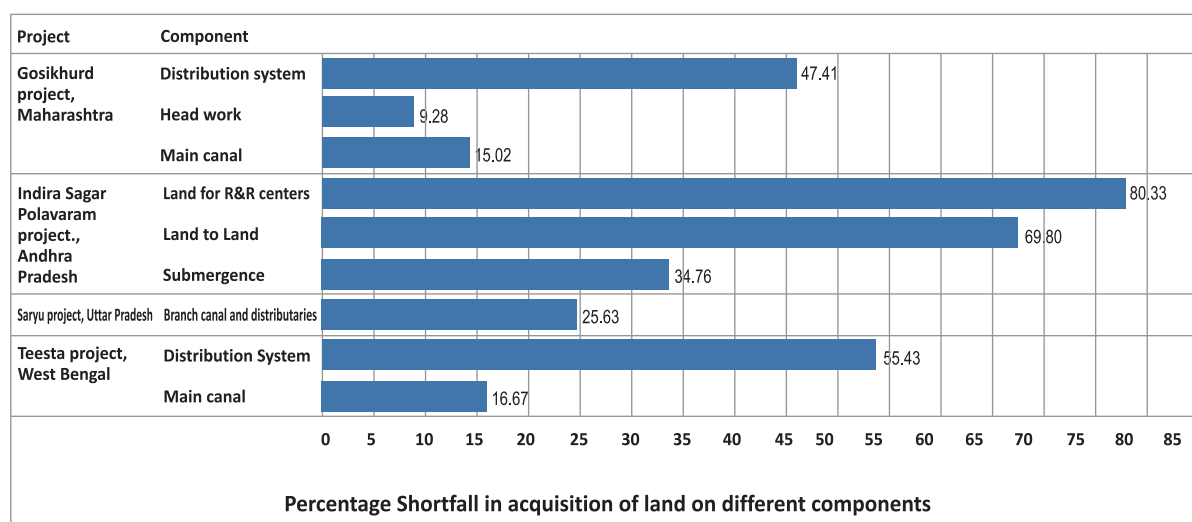
Time bound and comprehensive surveys and investigations are critical for formulation of DPRs and realistic budget estimates and time lines as well as subsequently for unhindered execution of the work. Audit observed that timelines stipulated for approval of projects were not adhered to by the CWC. Approval of projects were also complicated and rendered inaccurate due to adoption of redundant survey and outdated price levels that had both the risk of incorrect calculation of economic viability of projects as well as hampering and delaying the execution of the project. Insufficient and inaccurate survey work resulted in delays, duplication of efforts and additional cost of about ₹ 903.67 crore.

Factor 2: Delays in Land Acquisition

3.1 Difficulty in timely land acquisition process was identified as one of the major hurdles in successful implementation of erstwhile projects which were declared as National Projects. Land acquisition involves accurate estimation of land requirement for the project in work area as well as submergence area. The process is susceptible to change when regulatory framework for land acquisition change and is also influenced by the degree of coordination between various authorities such as project planners and revenue authorities in the State. Acquisition of land for irrigation projects and issues relating to rehabilitation and resettlement are governed by the Land Acquisition Act, 1894, and subsequently the Land Acquisition, Rehabilitation and Resettlement Act, 2013, and relevant State legislations. As per the 2013 Act, it is specified that declaration need to be issued within 12 months from initial notification provided the requisitioning agency deposits the amount towards cost of acquisition of land. The 1894 Act stipulates that the collector awards the land to the user department within a period of two years from the date of publication of the declaration for land acquisition.

3.2 Chart 6 below indicates shortfall in land acquisition (percentage) on various components of four out of the five projects under implementation. Land acquisition in case of Shahpur Kandi project is almost complete with negligible shortfall.

Chart 6: Percentage shortfall in acquisition of land in project components



3.3 We observed that land acquisition was not completed in four projects though they had been under implementation for over 35 years. Percentage shortfall in acquisition of land has ranged from nine to 80 *per cent* across the four projects spanning nine components. In Polavaram Project, the shortfall was maximum

ranging between 35 *per cent* for submergence, 70 *per cent* for land to land and 80 *per cent* for R&R centres. Specific cases relating to the reasons for delay in acquisition of land in these projects are noted in subsequent paras.

- 3.4** In Teesta project (West Bengal), land acquisition took two to three years involving various stages¹². A total of 8,375.13 Ha of land was to be acquired for the project of which 5,092.07 Ha was acquired before inclusion of the project in scheme of National Projects leaving a balance of 3,283.06 Ha to be acquired. Proposal for land acquisition of 1,199.583 Ha was submitted (September 2012) by the Teesta project authority for approval of State Cabinet. However, the approval was pending as of March 2017. Further, proposal for acquisition for 2,083.47 Ha has not been forwarded by Teesta project authority for approval of State Cabinet. During site visit, it was noticed that construction of 34 branch canals (distributary system) were incomplete due to pending land acquisition. Moreover, 36 gaps in 10 branch canals and six gaps in one main canal were also found due to non-acquisition of land. The execution of the project was affected due to delay in acquisition of land.
- 3.5** In Indira Sagar Polavaram project (Andhra Pradesh), the Revenue Department passed an award in March 2008 for acquisition of 89.62 acres in Kovvurupadu Village, Gopalapuram Mandal for ₹ 2.31 crore. However, the revenue department could not disburse the amount to the land owners as the farmers were requesting for cancellation of proceedings to an extent of 24.65 acres out of 89.62 acres. State Government rejected the request of the farmers in November 2012 as the identified land was essential for excavation of right main canal (km 13.000 to 14.000) of the project. The rejection of demand was, however, intimated to awardees only in April 2015 and ₹ 83.93 lakh was kept in Civil Deposits (June 2010 to April 2015) by the revenue authorities. The intimation of rejection of the request of the awardees after a lapse of three years and retention of fund to the tune of ₹ 83.93 lakh for almost five years indicate administrative weaknesses in the management of process of land acquisition.
- 3.6** Para 251 of the Maharashtra Public Works Manual provided that no work should be started without ensuring the availability of land. In Gosikhurd Project (Maharashtra), 19 works to be executed by five divisions were awarded at a cost of ₹ 24.87 crore between March 2009 to June 2014. However, these works could not be initiated (March 2017) due to non-availability of land and were consequently delayed by almost three to eight years since the date of issue of

¹² Submission of proposal, preliminary investigation, notice to land owner, submission of estimate to Teesta project, payment to revenue Department, gazette notification, award declaration and handing over the land to the project authority.

work order. Further, in five divisions, 34 works relating to distribution network of main canal were started but had to be stopped due to non-availability of land despite incurring an expenditure of ₹ 162.55 crore. Thus, the department did not ascertain with revenue authorities the status of availability of land required for the works prior to awarding the work orders resulting in delays in completion of the project due to administrative action.

- 3.7** In Saryu project (Uttar Pradesh), there were 559 gaps¹³ involving 417.753 Ha of land in the canal system (March 2017) resulting in non-completion of the canal and distribution system of the project. In test-checked divisions, 6.682 ha land required to fill 11 gaps was stated to be under negotiation with the farmers for more than nine years.

Ministry cited (January 2018) various reasons for delay in land acquisitions. For Gosikhurd project, it attributed delay to factors such as dispute among land holder, unclear title of land, etc. For Saryu project, it assured that project authorities have been impressed upon to expedite the land acquisition. For Teesta project, it stated that recommendations of an expert committee (2015) are awaited for finalising land acquisition. The fact remained that these projects have been under implementation for more than 30 years and one of the very objectives of the scheme for National Projects was to curtail delays in land acquisition processes so as to expedite their completions. This objective had clearly not been achieved.

3.8 Audit Summation

We observed incomplete land acquisition in four projects even after being under implementation for more than three decades and about one decade after inclusion in the scheme of National Projects. The reasons for delay in acquisition of land are administrative in nature. Delays in land acquisition adversely impact the physical progress of the projects. Gaps in structures and connectivity due to non-availability of land hamper the utilisation of irrigation potential due to absence of hydraulic connectivity through the gaps.

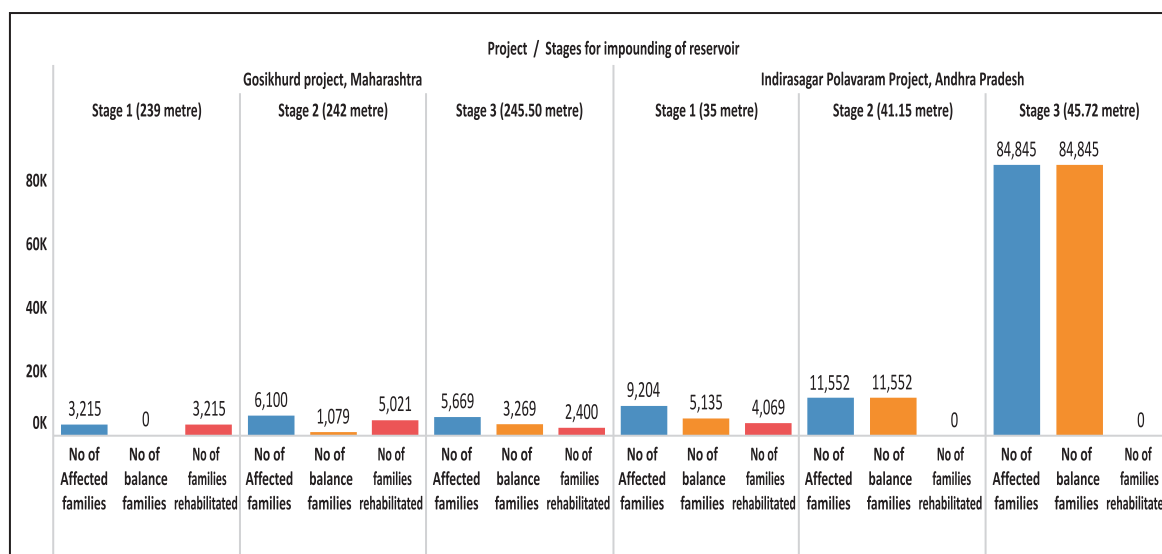
¹³ As per data obtained from Saryu project authority.

Factor 3: Inefficient Dispensation of R&R Measures

4.1 Rehabilitation and Resettlement (R&R) measures are governed by the Land Acquisition Act, 1894 and the Land Acquisition, Rehabilitation and Resettlement Act, 2013 of the Union and relevant State Acts. As per the 2013 Act, upon publication of preliminary notification under section 11 by the collector, the administrator must undertake a census for affected families in such manner and time as may be prescribed. After following due process of firming up a draft R&R scheme and a public hearing, the Commissioner approves the R&R scheme and makes necessary arrangements for its publication. The concerned State Government then issues a declaration for the purpose of dispensing R&R measures. Implementation of R&R measures in submergence¹⁴ area of a project is an essential pre-requisite before storing water in the reservoir.

4.2 Chart 7 below indicates various stages of impounding of reservoir and required displacement of project displaced families in submergence area of two projects (Indira Sagar Polavaram project, Andhra Pradesh and Gosikhurd project, Maharashtra). The remaining three projects (Saryu project, Teesta project and Shahpur Kandi project) do not involve any submergence.

Chart 7: Stage wise status of R&R in submergence area of two projects



4.3 In these two projects, we noticed delayed implementation of R&R measures which may affect impounding of reservoir as discussed below.

A) In Gosikhurd project (Maharashtra), necessary R&R work has been done for impounding the reservoir up to stage 1 only. We noticed 18 *per cent* shortfall

¹⁴ Submergence area refers to geographical area impacted by high water levels in river due to storage of water in reservoir.

in R&R measures to fill reservoir up to stage 2 and 58 *per cent* shortfall in filling the reservoir up to stage 3.

- B) In case of Indira Sagar Polavaram project (Andhra Pradesh), necessary R&R work even for stage 1 was not complete and fell short by 56 *per cent*. Considering the fact that Department took more than 12 years to rehabilitate 44 *per cent* of Project Displaced Families (PDFs) required to fill the reservoir to minimum levels (stage 1) and the spillway work is scheduled for completion by March 2018, the possibility of completion of R&R for balance PDFs and impounding of reservoir to desired necessary levels seems remote.

Delayed implementation of R&R measures may impact storage of water in reservoir even if all project components are completed. This in turn would affect utilization of created IP.

Ministry stated (January 2018) that in Gosikhurd project, Project Affected Persons (PAPs) were not ready to shift due to their own reasons. It added that in Polavaram project, R&R measures took time in respect of dam site which resulted in delay in start of dam work.

- 4.4** In Indira Sagar Polavaram project (Andhra Pradesh), the work of construction of spillway, dam and excavation of foundations of power house as well as approach channel was awarded in March 2013 to a contractor for a total agreement value of ₹ 4,054 crore. However, the agency could not progress on work as the R&R measures in eight villages¹⁵ falling under the project affected area were not completed and the work was obstructed by the villagers. The contracting agency sought (June to August 2015) revision of agreement rates with current schedule of rates and the Department concluded (October 2016) a revised agreement with the agency for ₹ 5,385.91 crore which was 32.85 *per cent* higher than the original agreement value. Hence, inability of the local authorities to ensure dispensation of necessary R&R to the satisfaction of the local villagers led to cost escalation of ₹ 1,331.91 crore as well as delay of more than three years in progress of the work.
- 4.5** In Indira Sagar Polavaram project (Andhra Pradesh), in view of opposition from the State Governments of Odisha and Chhattisgarh against construction of the project on the ground of submergence of tribal areas in these States, the Andhra Pradesh Government proposed construction of protective embankments to prevent any submergence in those States. As per the construction programme given in the DPR (2005-06), the construction of protective embankments was to commence in the eighth year (2013-14) and completed by the eleventh year

¹⁵ Ramayyapeta, Mamidigondi, Devaragondi, Pydipaka, Thotagondi, Chegondapalli and Singanapalli villages in Polavaram Mandal of West Godavari District and Angaluru village of East Godavari District

(2016-17). However, construction of protective bunds in the Chhattisgarh and Odisha States have not even started as of March 2017. As per the revised target dates stipulated by the Department, the project works are scheduled for completion by June 2019. We observed that delays in dealing with the issue of submergence of tribal areas in neighbouring states might result in the project not being able to store water in the Indira Sagar Polavaram reservoir, which would further delay utilisation of created IP.

Ministry stated (January 2018) that efforts are being made to resolve the issues however, it did not indicate any timeframe for their resolution and realization of the intended benefits.

- 4.6** In Indira Sagar Polavaram project (Andhra Pradesh), the Department kept changing the figures of number of villages coming under submergence under the project. While the number of villages coming under submergence as per DPR (February 2006) was 276, it rose to 371 as per the latest figures of the project authority for revised R&R requirements (May 2017). With regard to DPR, the Department had identified 44,574 affected families under the project. However, as per the records of the R&R Commissioner, the number of project affected families was around 1,05,601. Uncertainty about the total number of beneficiaries reflects poorly on management of R&R measures and has the risk of delaying the completion of the project.

Ministry stated (January 2018) that land records are not updated due to various constraints.

- 4.7** In Gosikhurd project (Maharashtra), the executing agency was required to deposit compensation amount to the revenue authority for onward disbursement to the PAPs. According to Sections 31 and 34 of the Land Acquisition Act, 1894 (LA), the Collector shall pay compensation before taking possession of the land. If such compensation amount was not paid prior to possession, then the interest would be payable on the amount of compensation or part thereof. It was noticed that there were delay on the part of Vidarbha Irrigation Development Corporation (VIDC) in releasing due amount of ₹ 840.59 crore to Revenue authorities for disbursement to the PAPs for awards declared between 1999 and 2016. We also observed that an avoidable interest of ₹ 82.35 crore from date of declaration of award to the actual date of payment had to be paid for the delayed payment of compensation.

Ministry stated (January 2018) that sufficient funds could not be made available to revenue authorities and hence interest had to be paid to the land owners.

4.8 In Gosikhurd project, Nerala gaothan was identified (August 2004) for rehabilitation with an award amount of ₹ 58.77 lakh. The award amount was released by VIDC (February 2010) after lapse of five years and six months for onward disbursement to the PAPs. However, the PAPs refused to take the award amount due to delay in payment resulting in non-acquisition of land. Hence, administrative delays on part of VIDC in dispensing R&R measures timely resulted in non-acquisition of land and affected the progress of work in the project.

Ministry stated (January 2018) that proposal for Swecha-Punarvasan for Nerala village is under process, which would save cost. Thus, the process of land acquisition could not be completed due to delayed dispensation of award amount.

4.9 In Gosikhurd project (Maharashtra), an amount of ₹ 90 crore meant for distribution to PAPs as compensation was blocked with revenue authorities for a period up to 19 years (March 2017). This unusual delay in dispensing the R&R measure on part of revenue authorities in the State reflect poorly on their functioning and would delay completion of the project.

Ministry stated (January 2018) that amount was lying due to disputes about legal heirs of the PAPs and the issue would be sorted out in an year or two.

4.10 In Lakhwar project (Uttarakhand), the number of families residing in the affected villages does not match with the revenue records. The socio-economic survey got conducted by the project authorities in 2007 revealed that the total number of project affected families is 648 (171 fully affected and 477 partially affected families) while the revenue records depicted the total number of project affected families as 348 (171 fully affected and 177 partially affected families). It was also observed that a total of 159.031 Ha private land was required out of which only 105.526 Ha land has been acquired. However part payment of ₹ 4.13 crore was paid for 155.12 Ha of land during 1986-1992 by the Irrigation Department but no land acquisition had been done for 49.59 Ha of land. The payment for balance 3.91 Ha private land is yet to be made. This has further complicated the issue as the payments for acquisition had been made to individuals and with the passage of time, the division in the families continued which has raised the numbers of individual claimants and families which are present in the area. As a result of delay in implementation of R&R measures and non-acquisition of land, the cost would increase with passage of time as mentioned above.

Ministry stated (January 2018) that land acquisition would start only after funding under the scheme of National Projects is approved. It added that survey work for verification of number of families and updating of land records was in progress. The response does not address the issue of non-acquisition of land even after making the payments.

4.11 Audit Summation

R&R dispensation are yet to be completed in two projects under implementation. This would delay utilisation of created IP even if the projects are completed in time as without R&R measures, water would not be stored in the reservoir. There were administrative delays on part of project executing agencies as well as revenue authorities in the State which not only hampered timely completion of the projects but also resulted in additional cost of ₹ 1,331.91 crore due to revision in agreements arising from R&R issues and ₹ 82.35 crore on account of payment of interests arising from delayed payment of compensation.

Factor 4: Deficient Contract Management

5.1 Achievement of the primary objective of the scheme of expediting completion of long pending projects of national importance is contingent upon efficient and effective implementation and observance of codal provisions and established procedures for work and contract management. These codal provisions generally envisage exercise of due diligence in conceptualization and approval of work proposals, ensuring availability of suitable unencumbered land and necessary statutory clearances so as to enable unimpeded execution of work due and strict enforcement of contractual provisions to ensure timely performance of contractual obligations by all parties to the contracts or work orders. We noticed several instances of deviations and non-observance of these provisions in management of execution of the five projects under implementation. These delays were compounded by administrative delays in processing of proposals which together led to cost escalations or delays in overall progress of works as narrated below. These instances of deficient contract management are those which came to notice in audit during the course of test check of relevant records and do not exclude the risk of other similar instances.

5.2 Undue delay in processing of proposals

Given the fact that these projects were deemed to be of national importance necessitating their early completion, it is imperative that there should be no undue delay in administrative processing of proposals and work orders at various stages. We however observed undue delay in provision of drawings, finalization of tender processes and issue of work orders in three projects under implementation as below:

- **Saryu project, Uttar Pradesh:** The project execution authority was to provide 687 drawings pertaining to five works to the contractors. We observed that 488 drawings were provided by the project authorities to the contractors after delays of five months to over four years from the date of award and the remaining 199 drawings (29 *per cent* of total drawings) were yet to be approved and provided to the contractors (March 2017). Delay in providing the drawings to the contractors delayed execution of works, hampering the progress of the project.
- **Teesta project, West Bengal:** There were delays ranging from seven months to over two years in eight out of 23 works costing ₹ 34.49 crore with reference to their target dates. Audit noted that there were administrative delays ranging between 79 days and 533 days in issue of work orders from the date of issue of Notice Inviting Tenders (NITs) in 23 works costing ₹ 56.06 crore.

- **Shahpur Kandi project, Punjab:** The Central Government released ₹ 10.80 crore in March 2010 and ₹ 15.24 crore in March 2011 for construction of main dam and regulator. However, the Irrigation Department took 34 months to finalize the tendering process and the work of construction was allotted only in January 2013 viz. approximately three years were taken by the department to finalize the award of the work which delayed the progress of work on the project.

5.3 Delay in obtaining statutory clearances

In order to avoid flooding of Bhandara city in Maharashtra due to creation of a reservoir in the Gosikhurd project, the project authorities awarded creation of a flood protection bund in June 2009 with scheduled completion by December 2012. However, the proposed flood protection bund crosses a National Highway and the project authority did not obtain any approval from NHAI for the proposed flood protection bund. While the remaining portions were completed, the work at the NHAI site is held up for almost five years (May 2012 to February 2017) after incurring an expenditure of ₹ 23.70 crore. Audit observed that the existence of the National Highway and consequently the need for clearance from NHAI should have been known to the project authorities at the time of award of work and should have been taken up in a timely fashion. Award of work by project execution agency without necessary approvals from NHAI resulted in non-completion of work despite incurring an expenditure of ₹ 23.70 crore and delayed its completion.

Ministry stated (January 2018) that necessary follow up for completion of the work is being done and is proposed to be completed by December 2018.

5.4 Deviation from codal provisions and rules

Adherence to the Public Work Manual, Government instructions and orders is a key requirement to ensure transparency and accountability in work management. We observed instances of deviations from existing rules and instructions in Saryu Project in Uttar Pradesh as below.

- As per Clause 315 of Public Works Account Rules for Uttar Pradesh, there are four main stages connected with a project for a work, namely, administrative approval, expenditure sanction, technical sanction, and appropriation and re-appropriation of funds. Clause 2.1 (2) of the CPWD Works Manual elaborates that no work should normally be commenced or any liability thereon incurred until an administrative approval has been obtained, a properly prepared detailed estimate has been technically sanctioned and where necessary expenditure sanction has been accorded and allotment of funds made. We

observed that NIT for 28 works costing ₹ 2,107.97 crore were issued before seven days to nearly three years of accord of technical sanction to the works by the competent authority. Issue of NIT before technical sanction amounts to bypassing a necessary step that is designed to ensure technical feasibility of the project design and any additions, deletions, improvements or modifications in design or scope of work approved in the technical sanction cannot be notified to all prospective bidders in the tender. This may result in technically deficient bids and subsequent award of works necessitating subsequent revisions and consequent delays and cost escalations.

- As per clause 360 of the Public Work Account Rules of Uttar Pradesh, the time for submission of tenders should be at least one month after the date of first advertisement. Test check of 51 contracts valued at ₹ 12.42 crore revealed that NITs for 42 works (82 *per cent*) valued at ₹ 10.01 crore were issued by Executive Engineers (EEs) by giving short period tender notices ranging between nine and 27 days. Only in four cases (eight *per cent*) were the bids invited by giving due tender notice of 30 days. Remaining five contracts of ₹ 1.23 crore were executed without NIT or open bidding. Limiting the time for responding to the NITs may unnecessarily restrict the field of respondents thereby compromising competition.
- General Financial Rules envisage competitive bidding for projects in accordance with pre-determined criteria to be laid down in the terms and conditions of tender in order to ensure that the most efficient and competitive bidders are selected for award of contract. Single tender enquiry may be resorted to only in case of propriety items or in cases of emergency or for standardization of machinery or spare parts. Scrutiny of 74 contracts valued at ₹ 1,949.90 crore of test-checked divisions revealed that seven contracts (nine *per cent*) of ₹ 4.26 crore were awarded on the basis of single tenders even though the work involved general construction and no propriety procurement was involved. Re-tendering was not done in any of these cases. This deprives the department of the benefits of competitive bidding and compromises transparency.
- Government decided (June 1995) that technical sanction to estimates would be issued and contracts would be awarded by Executive Engineer (EE), Superintendent Engineer (SE) and Chief Engineer (CE) for works costing up to ₹ 40 lakh, ₹ one crore and above one crore respectively. Audit observed that 43 works valued at ₹ 45.21 crore were split into 227 contracts during 2008-17 to avoid sanction of the competent authorities. Such splitting of works to

avoid scrutiny and sanction of higher authorities carries the risk of misuse and manipulation thereby undermining transparency and accountability.

5.5 Non-recovery of dues from contractors for delay in completion of works

Time is considered to be the essence of a contract. As per the 'Andhra Pradesh Standard Specification' which stipulates a contractor's responsibilities and liabilities and the general contract conditions applicable for works contracts, EE may, in order to maintain the stipulated rate of progress of work, award a portion of a work that was being delayed by the contractor to another contractor on nomination basis. The EE is to certify the expenditure for getting the work done by another contractor and if this is more than the amount which would have been due to the contractor on completion of the work, the difference will not be paid to him. However, should the amount for the work exceed the cost in the original contract, the difference shall be recovered from the contractor limited to five *per cent* of the total contract amount.

Audit noted non-adherence to the above codal provision that resulted in non-recovery of ₹ 32.16 crore from defaulting contractors as well as cost escalation of ₹ 224.54 crore as summarised below:

- In package 1 of left main canal, work of construction of canal between 0 km to 25.60 kms was awarded to a contractor for ₹ 254.88 crore in March 2005 for completion within 24 months. However, even after series of time extensions, the work could not be completed up to June 2017. The project authorities decided to exclude this portion of the work costing ₹ 38.78 crore from existing contractor and awarded the same to another for ₹ 171.39 crore escalating the cost of this portion of the work by ₹ 132.61 crore. As per the specification, recovery of ₹ 12.74 crore (five *per cent* of total original contract cost) was to be made from the original contractor. However, this recovery was not made from the original contractor.
- Similarly in package 4 of left main canal, work of construction of canal between 69.145 kms to 93.70 kms was awarded to a contractor for ₹ 206.80 crore in March 2005 for completion in 24 months. However, the work could not be completed up to June 2017 and the project authorities decided to award this portion of the work costing ₹ 66.07 crore to another contractor for ₹ 108.86 crore escalating the cost of this work by ₹ 42.79 crore. Again, recovery of ₹ 10.34 crore (five *per cent* of original total contract cost) was not effected from the original contractor.
- In package 5 of left main canal, work of construction of canal between 93.70 kms to 111 kms was awarded for ₹ 181.60 crore in March 2005 to a contractor

for completion in 24 months. Even after a series of time extensions, work was not completed up to June 2017 and the project authorities decided to award this work costing ₹ 93.74 crore to another contractor for ₹ 142.88 crore thereby escalating the cost of this portion of the work by ₹ 49.14 crore. However, recovery of ₹ 9.08 crore (five *per cent* of original total contract cost) was not made.

5.6 Inability to enforce contract terms to expedite removal of defects

The Audit Report of the Comptroller and Auditor General on Economic Sector relating to Maharashtra for the year ended March 2011 had highlighted execution of sub-standard work by the contractor in construction of cement concrete lining of the Gosikhurd Left Bank Canal (LBC) in two stretches of 1 to 10 km and 11 to 22.93 km that was executed in August 2009 through two contractors at a total cost of ₹ 51.49 crore. Due to the sub-standard quality of lining works in the entire canal length, the canal lining developed cracks within one to two years after completion. As the defects had appeared within the defect-liability period, the contractors were directed in August 2010 to re-execute the whole work at their own cost within a period of six months viz. by February 2011. However, the re-construction of lining work was had been carried out in only 1.2 kms (five *per cent*) of the canal length as of April 2017. Slow progress of work on canal would affect operationalisation of the project as water would not be discharged into the canal without completion of rectification work.

Ministry stated (January 2018) that it is planned to complete the entire lining by March 2018.

Audit observed that completion by March 2018 seemed unlikely since 95 *per cent* of the re-construction work was pending as of April 2017. Further, the departmental authorities had evidently failed to take any action to compel the contractor to expedite the work though over six years had elapsed since the stipulated date of completion of the rectification works of February 2011.

5.7 Additional cost due to defective construction

The work of design and construction of Aqueduct¹⁶ on Gosikhurd Right Bank Canal (RBC) was awarded in January 2008 at a cost of ₹ 12.23 crore. Clause 10 (A) of the agreement stipulated that the contractor would rectify defects in execution of the works at his own cost during a defect liability period of 24 months from the date of completion or commissioning of the work whichever is later. The work was completed in January 2010 and it was certified to be as per the stipulated

¹⁶ Aqueduct is a structure used for crossing of canals over other structures such as river, another canal, railways or road.

specifications by the Assistant Executive Engineer (AEE) in January 2010 without conducting hydraulic tests. The contractor was paid ₹ 13.26 crore in February 2011 and security deposit of ₹ 21.56 lakh was refunded to him in June 2012.

Subsequently, the earth work and support systems upstream and downstream of the aqueduct got damaged due to heavy rains in August 2012. The Chief Engineer suggested preparation of a design to strengthen the damaged aqueduct. During subsequent site inspection, it was reported by the department that there had been deviations from the specifications stipulated in the agreement in respect of discharge channels, foundation levels of pier, wing walls and gradient of the slope. In July 2015, the department served a legal notice upon the contractor for defective execution of work asking him to remedy the defects or deposit ₹ 15.54 crore as the estimated cost of repairs. Subsequently, the repair works were



Repair work of aqueduct on Upper Stream side under progress



Repair work of aqueduct on Down Stream side under progress

awarded in July 2016 to another contractor at a cost of ₹ 16.55 crore for completion by January 2017. The work was still in progress as of May 2017.

Audit observed that failure of the AEE to correctly assess the work with reference to the stipulated specifications resulted in the department having to eventually incur an additional expenditure of ₹ 16.55 crore. Had the defects been detected during the defect liability period, the remedial measures would have had to be undertaken by the original contractor at his own cost as per the terms of the agreement. Issue of a legal notice in July 2015 long after the expiry of the 24 months defect liability period was legally untenable and hence could not be pursued. It was further observed that due to the damaged aqueduct, water for irrigation purpose was supplied (September 2015 to January 2016) to 4,374 Ha by using temporary steel pipes at a cost of ₹ 88.95 lakh.

Ministry stated (January 2018) that hydraulic testing was not possible as the canals were not completed at that time and the defect liability clause could not be invoked as the period of defect liability had expired by the time the defects were detected. It added that the repair work was now complete and water was being released through the aqueduct since August 2017.

The reply is not tenable since the defects brought out subsequently related to deviations in construction with reference to specifications stipulated in the agreement which should have been detected at time of certification of the works before release of payment to the contractor. The cost of such remedial measures would then have had to be borne by the contractor and expenditure of ₹ 17.44 crore could have been avoided.

5.8 Release of funds outside agreement conditions

Payments for execution of works to contractors are governed strictly in accordance with payment terms stipulated in the contract agreement. The agreements stipulate the obligations that are to be met by each of the contracting parties. Audit observed that the department released funds totalling ₹ 72.13 crore for obligations that were to be borne by the contractors in the Indira Sagar Polavaram project (Andhra Pradesh) as below.

- As per clause 24 of special conditions of contract, if the canal system is crossing any pipeline of Hindustan Petroleum Corporation Ltd (HPCL) or Gas Authority of India Ltd (GAIL), the contractor shall provide suitable crossing in consultation with the authorities concerned and the cost of such crossings shall be deemed to be included in the contract price. There were two pipeline crossings in package 2 of right main canal of the project between 19 kms and 19.75 kms of the canal. Accordingly, the project authority asked the contractor in May 2012 to deposit ₹ 2.72 crore and ₹ 4.47 crore with GAIL and HPCL respectively towards cost of laying new pipelines. However, the contractor did not deposit any amount for the crossing till May 2015. Finally, citing urgency of operationalisation of right main canal, project authority itself paid (May 2015) ₹ 6.89 crore and ₹ 7.21 crore to GAIL and HPCL respectively. The amount was yet to be recovered from the contractor (March 2017).
- As per the terms and conditions of the agreement for Head works and Spillway (Clause 2.2 of part A- technical specifications) of the project, the contractor was to make his own arrangement for procurement of steel for execution of work. However, the project authority paid (June 2017) ₹ 25.37 crore directly to the Steel Authority of India Ltd for supply of steel for the work on behalf of contractor. The amount was yet to be recovered from the contractor (December 2017).
- As per the agreement condition of Head work (Clause 11.2 of Vol 1 of the general conditions of the contract) of the project, it was the responsibility of the contractor to ensure land for dumping and no separate payment was to be made in this regard. The cost of the work was inclusive of land cost and the land so arranged for disposal of soil was to be handed over to the project

authority after completion of work. The contractor proposed 203.74 acres of land for the purpose of dumping at a cost of ₹ 32.66 crore. Citing urgency, the Revenue Divisional Officer paid ₹ 32.66 crore for this land on behalf of the contractor from funds available for land acquisition. The amount was yet to be regularised (August 2017).

Ministry stated (January 2018) that the amounts would be recovered from the contractors. Audit observed that payment of such amounts totalling ₹ 72.13 crore on behalf of the contractor for meeting his fund flows for execution of the works from public funds over and above that envisaged under the terms of the agreement was irregular. This reflected adversely on the financial viability of the contractors selected for such works as well as the selection criteria and also constituted undue assistance to the contractor from public funds. Moreover, these works continued to be delayed though urgency was cited as the justification for the release of funds for payments on behalf of the contractors.

5.9 Audit Summation

There was undue delay in processing of proposals, delay in obtaining statutory clearances, non-adherence to codal provisions and rules and poor contract management and enforcement that led to cost escalations and delays in execution. The failure of the project authorities to ensure compliance with and enforce contract terms led to non-recovery of ₹ 32.16 crore from defaulting contractors as well as cost escalation of ₹ 224.54 crore. The departmental authorities also released ₹ 72.13 crore to contractors over and above the agreement terms on the ground of urgency or to expedite works. This amounted to financial assistance to contractors from public funds. However, even this did not substantially alter the slow pace of works. Further, deviation from codal provisions and tender/agreement terms provides no assurance as to the transparency and objectivity of the process of selection of contractors, award of works and their execution.

Factor 5: Monitoring, Operation and Maintenance of Projects

Lack of adequate monitoring

- 6.1** Effective monitoring ensures proper execution and aids in course correction as may be required during execution of projects. This is all the more imperative where the fundamental objective is to expedite the progress of the works and to ensure their completion within stipulated time lines. As per guidelines for irrigation projects (AIBP¹⁷), the Central Water Commission and its offices have to conduct annual monitoring of the projects. In addition, the State level implementing agencies are also required to carry out periodic inspection of ongoing works to ensure their progress and address any impediments that may arise.
- 6.2** We noticed shortfall in frequency of monitoring by CWC in three projects as indicated in Table 9 below.

Table 9: Shortfall in frequency of monitoring by CWC

Name of project	CWC at Central Level		
	Target/prescribed frequency (Nos.)	Conducted (Nos.)	Variation (Nos.)
Gosikhurd project, Maharashtra	18	14	4
Shahpurkandi Dam project, Punjab	9	7	2
Saryu project, Uttar Pradesh	5	4	1

Ministry stated (January 2018) that Gosikhurd project was almost at standstill due to quality related issues and various committees had visited the project for corrective actions.

Audit noted that data regarding prescribed frequency for monitoring by State agencies could not be provided to Audit to ascertain the adequacy of monitoring by these agencies during 2008-17. Further, in the Indira Sagar Polavaram project (Andhra Pradesh), the system of weekly monitoring at State level by the Chief Minister was started (2015) after nine years of commencement of works. The First meeting of the Project Management Unit was held only in July 2017 indicating that the State Level Monitoring Mechanism was formed very late. In Gosikhurd Project (Maharashtra), the Chief Engineer and Superintending Engineer¹⁸ inspected the works on only 110 visits during the period 2010-17 as against the prescribed 1,512 visits. There was short fall in conducting technical inspection in

¹⁷ Guidelines for National Projects do not prescribe frequency of monitoring by CWC. However these projects, before being declared as National projects were a part of AIBP scheme. Hence the monitoring criteria for AIBP projects has been used.

¹⁸ CE is to conduct inspection for eight visits per month. SE is to conduct inspection for 10 visits per month. EE is to conduct inspection for 15 visits per month.

nine divisions ranging between 91 to 94 *per cent* in case of inspection by EEs and between 47 to 100 *per cent* in respect of inspections by Deputy Engineers.

Ministry stated (January 2018) that the progress of the project was slow and therefore lesser number of visits was done. It added that each technical officer had now been instructed to visit the site for effective monitoring.

Operation and maintenance of created assets and infrastructure

- 6.3** Given the long gestation period for these projects and the extended delays in their completion, it is important that there be adequate procedures for operation and maintenance of the parts of the projects already executed so that the infrastructure created are safeguarded and the expected benefits accrue to the targeted beneficiaries.



Echhornia Plant growth in front of gate number 3 of the Gosikhurd Reservoir



Echhornia Plant growth in front Gate No. 13 of the Gosikhurd Reservoir

- 6.4** Safety of dam needs to be continuously monitored for protection of downstream areas from potential hazard and ensuring continued accrual of benefits from the assets created. Dam maintenance works need to be undertaken to reduce siltation by adopting appropriate Catchment Area Treatment (CAT). In case of Gosikhurd project (Maharashtra), we found that while the main dam was completed in September 2009, the CAT activities were carried out only in 2,408 Ha out of total planned area of 9,881 Ha and that too after lapse of eight years since completion of dam. This partial execution of CAT works left scope for siltation, erosion and sedimentation of dam thereby reducing its storage capacity.
- 6.5** In Saryu project (Uttar Pradesh), excavated earth of five canals were dumped in a haphazard manner resulting in them flowing back into the canals during rains decrease in rate of flow of water by 25-58 *per cent* as indicated in Table 10 below.

Table 10: Details of shortfall in discharge rate in Saryu project

Sl. No.	Name of the Canal	Design Discharge (cumec)	Discharge at which canals were last run (cumec)	% of shortfall in discharge rate
1.	Saryu Link Channel (SLC)	360.00	270	25
2.	Saryu main canal (SMC)	360.00	270	25
3.	Basti Branch	118.00	55	53
4.	Gonda Branch	106.69	50	53
5.	Imamganj Branch	36.00	15	58

There was no action by the project authorities to either remove the excavated earth or to de-silt the canal to ensure the designed flow of water within the Command Area.

6.6 In Gosikhurd project (Maharashtra), retaining walls of length 3,515 metres were constructed between May 2008 to May 2009 at selected patches of the right bank canal at a cost of ₹ 51.48 crore to provide



Skidding of Retaining wall at RD 31020 m

Skidding of Retaining wall constructed between RD 31020 m to RD 31470 m

safety to the canal from heavy rainfall. However, the retaining wall between 31.120 kms to 31.470 kms and 20.850 Kms to 20.990 Kms shifted towards the centre and fell into the canal bed during monsoon rains in 2010. The damage was yet to be rectified as of May 2017. This was indicative of lack of timely action to rectify damages and ensure due maintenance of created assets.

Ministry stated (January 2018) that remedial measure for the retaining wall is being worked out and rectification work will be done.

6.7 Audit Summation

Thus, lack of adequate monitoring at all levels including CWC coupled with lack of timely action to rectify damages and breaches contributed to the poor progress of works as well as to inadequate maintenance of created assets.

Conclusion and Recommendations

Conclusion

Sixteen National Projects were identified by the Government in view of their national importance with the fundamental objective of expediting their completion and delivery of the envisaged benefits. This fundamental objective remained unachieved even after almost a decade of existence of the scheme with only five projects being actually under implementation. A total expenditure of ₹ 13,299.12 crore had been incurred on these five projects as of March 2017. Despite the huge expenditure incurred, none of the five projects were near completion and the anticipated benefits in terms of creation of irrigation potential and augmentation of water and power generation were yet to accrue.

The shortfall in terms of physical progress in different components of the projects ranged from eight to 99 *per cent* in the five projects under implementation along with an overall cost escalation of 2,341 *per cent* that threatened the economic viability of the projects. Only 15 *per cent* and 37 *per cent* of the intended irrigation potential envisaged for all the 16 projects and the five projects under implementation respectively has been utilised so far. Further, there has been no achievement of the other associated benefits in terms of additional power generation, drinking water and additional reservoir capacity except 0.53 MAF capacity created in the Gosikhurd Project.

The tardy implementation and cost escalation was attributable to management failures and deficiencies in terms of non-adherence to codal provisions relating to survey and investigations that are an essential ingredient for preparation of detailed project reports, ensuring statutory clearances for the project sites and administrative delays in land acquisitions. This was compounded by inefficient Rehabilitation and Resettlement measures that further hindered progress of the projects. This resulted in additional cost of ₹ 1,331.91 crore due to revisions in agreements and ₹ 82.35 crore on account of payment of interest arising from delayed payment of compensation.

There was undue delay in processing of proposals, delay in obtaining statutory clearances, non-adherence to codal provisions and rules and poor contract management and enforcement that contributed to cost escalations and delays in execution. The failure of the project authorities to ensure compliance with and enforce contract terms led to non-recovery of ₹ 32.16 crore from defaulting contractors as well as cost escalation of ₹ 224.54 crore. The departmental authorities also released ₹ 72.13 crore to contractors over and above the agreement terms on the ground of urgency or to expedite works. This amounted to financial assistance to contractors from public funds. However, even this did not substantially improve the slow pace of works. Further, deviation from codal provisions and tender/agreement terms provides no assurance as to the transparency and objectivity of the process of selection of contractors, award of works and their execution.

Lastly, lack of adequate and effective monitoring and timely action to deal with breaches and damages to created infrastructure both contributed to the poor progress of works as well as inadequate maintenance of assets already created.


Recommendations

Based on our audit findings, it is recommended as follows:

1. In view of their national importance, these projects may be taken up in a mission mode with nodal officers at the central level to effectively monitor the progress of the projects under implementation and remove bottlenecks in coordination with the State authorities.
2. The Ministry may ensure *pari passu* implementation of Command Area Development work in the projects and may insist that concerned States submit Command Area Development proposals at the earliest.
3. Contract management needs to be streamlined and accountability fixed on project authorities for deficient contract management that results in cost escalations.
4. The Ministry may impress upon concerned States to resolve issues related to inadequate land acquisition and R&R measures through better coordination with revenue authorities.

5. The monitoring mechanism may be strengthened with regular meetings between the Ministry and the State Department to monitor progress and identify impediments including availability of funds.
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New Delhi
Dated: 21 March 2018


(MANISH KUMAR)
Principal Director of Audit
Scientific Departments

Countersigned

New Delhi
Dated: 21 March 2018


(RAJIV MEHRISHI)
Comptroller and Auditor General of India

Appendices

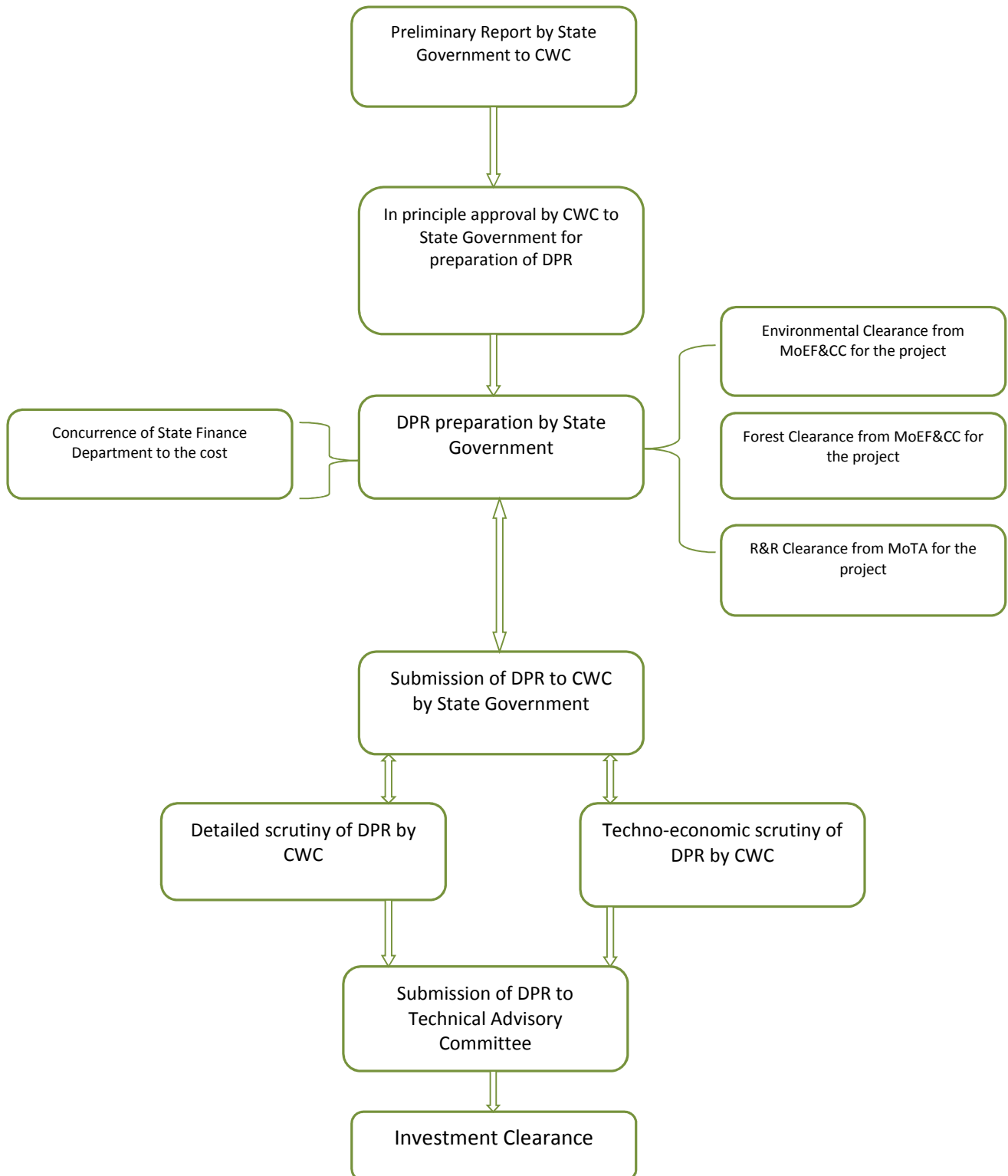
Appendix 1: Agencies involved in National Projects

Appendix 2: Process flow for approval of projects

Appendix 1: Agencies involved in National Projects

Central Government	Ministry of Water Resources, River Development and Ganga Rejuvenation	Issue of Investment Clearance and overall coordination of the project
	Cabinet Committee on Economic Affairs	Set the funding pattern for the project
	Central Water Commission	Techno-economic scrutiny of projects
	Regional offices of Central Water Commission	Initial scrutiny of State project proposals
	Independent Organisation such as Central Soil and Material Research Station	For monitoring and quality audit of the projects
	Polavaram Project Authority	Specific authority created for management of Polavaram Project
State Government	Central Design Organisation	State body to certify the design of the project
	State Level Technical Advisory Committee	State body for techno economic scrutiny of the project
	Irrigation Department	Provides agricultural data for BCR
	Water Resource Department	Execution department for the project
	Revenue Department	To oversee land acquisition and dispensation of R&R measures
	Joint Ventures	Project specific Inter-State JVs such as Kishau Corporation Limited

Appendix 2: Process flow for approval of projects



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