

CHAPTER 3
PUBLIC HEALTH ENGINEERING DEPARTMENT

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CHAPTER-3

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3.1 Pench Valley Group Water Supply Project

3.1.1 Introduction

The project administratively approved for Rs.9.99 crore in August 1985 to cater the water supply of 22.5 Million Litre Daily (MLD) for a projected population of 1.93 lakh by the year 2015 at the rate of 100 litre per capita daily (LPCD) remained incomplete due to non-creation of source of water and could supply 50 LPCD water to a population of 1.25 lakh only as of March 2000. Rs.2.13 crore were spent on interim water supply arrangements due to departmental inefficiency and indecision.

Protracted coal mining for several decades had lowered the water level in the "Pench" and "Kanhan" coal mine areas in Chhindwara district, resulting in drying of tube wells and acute scarcity of drinking water in the area. A "Pench Valley Group Water Supply Project" (Project) was conceived in 1979 to overcome the problem by providing drinking water to a projected population of 1,50,000 in the year 2015 of 15 sub-urban townships and villages in Pench areas. Western Coal Fields Limited (WCL), a Government of India undertaking, was managing the coal mines in this area and supplying water to its employees, through pipe-lines with private connections and public stand posts. The expenditure on the project was to be shared between WCL and Government of Madhya Pradesh (Govt.) in the ratio of 2:1 respectively, which approximated to the ratio of WCL employees to other members of the public living in the area covered by the scheme.

While the project was initially, estimated to cost Rs.10.16 crore was technically cleared (March 1980) by the Central Public Health Engineering and Environmental Organisation (CPHEEO), a revised project due to enhanced coverage of population of 1,93,000 was administratively approved by Government in August 1985 for completion within 3 years at a cost of Rs.9.99 crore.

Meanwhile, the revised estimates of 1985 were enhanced three times* upto January 1999 to reach Rs.29 crore. None of the enhanced revised estimates had been approved by the Government/CPHEEO.

* Original estimate for Rs.10.16 crore in March 1980, revised estimates of Rs.9.99 crore in August 1985, Rs.19.99 crore in July 1991, Rs.20 crore in November 1996 and Rs.29 crore in January 1999.

3.1.2 Planning deficiencies

(a) Non-creation of raw water storage

The adhoc approach and deficient planning resulted in non-creation of raw water storage.

The Manual on Water Supply and Treatment stipulates that a dependable source of water be identified for every water supply project to meet the prospective demand envisaged in the project and to provide a cushion against un-assessed demand in future.

The requirement of water in the project area for the years 1985, 2000 and 2015 was assessed at 11.5.MLD, 16 MLD and 22.8 MLD respectively. To meet this demand, construction of a 34 m high earthen dam across Mandhan Nallah (a tributary of Pench River), near village Darbai, with a designed potential of 27.36 MLD was proposed (1979) at a cost of Rs.3.22 crore.

The original dam site (site-1), selected without detailed geological investigation and without even basic design and drawing, was given up since it was not found suitable for geological reasons. A new site (site-2) near village 'Kajra' (1.5 km upstream of original site) was located after detailed geological investigations. An amount of Rs.85.10 lakh was spent on survey and investigation of dam (Rs.48.02 lakh) and on construction of approach road (Rs.37.08 lakh). The revised estimates for Rs.39.36 crore prepared in 1990 provided for a dam, based on drawings and design approved by Central Water Commission (CWC) costing Rs.20 crore, including basin treatment works.

A Tender Cum Purchase Committee (TCPC) consisting of a Chief Engineer (CE) and a Superintending Engineer (SE) of the Public Health Engineering Department (PHED) and a Chief Engineer, Civil (CE) and a Chief General Manager from WCL was constituted (March 1987) under orders of Government to expedite implementation of project and to avoid delays in processing of tenders etc.

The TCPC (November 1994) appointed a sub-committee to find out a cheaper alternative to site-2. The sub-committee suggested (November 1994) construction of 3 anicuts (1 on Pench River and 2 on Mandhan Nalla) (site-3) without detailed survey and investigation. Based on this, project estimates were prepared for Rs.14 crore, which included construction of anicuts at Rs.1.70 crore. TCPC proposed that some items of work of the proposed revised project costing Rs.19.99 crore (July 1991) be not carried out to restrict the cost to Rs.14 crore only. Site-3 was subsequently found unsuitable by the Geological Survey of India (GSI). Thereupon the proposal for construction of anicuts was dropped.

The Department then decided (July 1995) to construct an 18 m high cement concrete gravity barrage at a cost of Rs.9.50 crore, at site 2 proposed for the earthen dam, for storage of 1.78 M cu m raw water. This proposal, which is yet to be approved by WCL and Government, will provide only 17.70 MLD water against a designed requirement of 22.8 MLD. The present estimates are based on this concept and the scheduled completion year is 2001 at an estimated cost of Rs.29 crore subject to timely availability of funds and sanctions.

Even after spending Rs.14.68 crore on the project, the Department could provide 50 per cent potable water to 72 per cent of identified beneficiaries.

Thus, the ad-hoc approach and deficient planning resulted in the site for impounding raw water not being decided. The expenditure of Rs.14.68 crore incurred on execution of the project upto March 2000 could provide only 50 per cent of potable water to 72 per cent of identified beneficiaries.

The EE stated (May 2000) that the dam could not be constructed due to the indecisive attitude of WCL authorities. WCL had released its share of Rs.8.83 crore as against Rs.9.32 crore based on the revised estimate for Rs.13.95 crore. WCL did not agree to further increase in its share.

(b) *Inadequate estimates*

A look at the table in appendix-III giving the physical and financial position of various components of the project executed between 1986-87 and 1990-91 would indicate that while creation of source of raw water was yet to be decided other components were executed piece-meal on ad-hoc estimates. The cost of various components increased by 26.01 percent to 790.80 percent during execution as compared to the original estimate (Rs.9.99 crore) which went up by 300 percent to Rs.29 crore. Obviously, there was no planned execution of various items.

(c) *Un-authorized expenditure of Rs.2.13 crore*

Non-creation of raw water storage led to avoidable expenditure of Rs.2.13 crore on interim water supply arrangements.

Due to abnormal delays taking place in the construction of raw water storage (as discussed in paragraph 3.1.2 (a) above), the Department had to make interim water supply arrangements at the request of WCL. For this purpose, Rs.2.13 crore, were spent on (i) clear water pumps at Bhamodi and Ambada (Rs.4.37 lakh), (ii) temporary raw and clear water pumping sets (Rs.47.90 lakh), (iii) temporary earthen dams (Rs.27 lakh), (iv) laying of pipe line in Parasia and Chhindwara towns from tube wells to WCL reservoirs and distribution system (Rs.1.05 crore), and (v) collecting water from various natural depressions in the river Pench, Mandhan nallah and dugwells (Rs.28.66 lakh), which were not provided in the estimates. This expenditure though absolutely necessary was avoidable had the Department not delayed the construction of a raw water source. To that extent the expenditure is attributable to departmental inefficiency and indecision.

On this being pointed out (May 2000), the Department stated that these additional items were executed to provide drinking water from time to time. The reply is not tenable, as the Department diverted its activities and resources (funds) on execution of works not included in the project report and which would be redundant on completion of the project. This also led to avoidable time and cost overruns, jeopardising the successful completion of the project.

3.1.3 Deficiencies in execution

(a) Expenditure on protection work of pick up weir

Unauthorised increase in height of pickup weir led to avoidable expenditure of Rs.47.95 lakh.

The project envisaged construction of a stone masonry pick up weir 6 m high on the Pench river including flood protection works at a cost of Rs.15 lakh. GSI recommended the construction of a weir only 1.7 m high. The Department, however, constructed between 1988 and 1993 a 4 m high Reinforced Cement Concrete weir at a cost of Rs.63.35 lakh without obtaining technical sanction and approval of drawings. While the work was still in progress, the river banks started eroding. Several gullies were formed (November 1992) causing overhanging of rocks. To avoid further erosion and damage, protection works costing Rs.47.95 lakh were carried out on the advice of SE and Chief Technical Examiner (CTE).

Thus, increase in the height of pickup weir against the advice of GSI resulted in avoidable expenditure of Rs.47.95 lakh on protection works.

(b) Wasteful expenditure on Mild Steel (MS) gates Rs.6.71 lakh

Tenders for wooden kurry shutters with 4 m height for pickup weir was accepted by TCPC (November 1987) but in subsequent meetings (December 1988 and October 1989) it was decided to purchase heavier MS sluice gates through Madhya Pradesh Laghu Udhog Nigam (MPLUN) at a cost of Rs.6.71 lakh. CE and SE later found MS shutters not useful as these were stop dam shutters without lifting arrangement. The pick up weir was actually constructed with wooden kurry shutters. The purchase of MS shutters was unwarranted and resulted in wasteful expenditure of Rs.6.71 lakh.

(c) Un-authorized payment of escalation charges of Rs.5.61 lakh

Lump-sum contract on turn key job basis on form 'F' were invited (September 1985) for construction of 16.5 MLD capacity water treatment plant at Charai, without preparation and sanction of detailed estimates. Form 'F' does not provide for price escalation clause, but the same was added (as per clause 11-C of form 'A') in the detailed NIT without approval of Law Department resulting in unauthorised payment of Rs.5.61 lakh on account of price escalation.

(d) Shorter life span of pipe line.

The TCPC in its meetings (October 1989 and November 1994) decided to provide water from Ambada to Dungariya by a gravity main of pre-stressed concrete (PSC) pipe in a length of 12.45 km at a cost of Rs.26.50 lakh instead of a clear water rising main. It was, however, seen that instead of PSC pipe Asbestos Cement Pressure (ACP) pipe in a length of 10371.50 m was laid at a cost of Rs.48.75 lakh. The unauthorised change by EE was injudicious due to shorter life of ACP pipe as compared to PSC pipe and are susceptible to tampering and misuse.

(e) Pipes costing Rs.2.12 lakh not returned by contractor

For laying and jointing of gravity main, the contractor was issued (March 1995) ACP pipe 200 mm dia, 8050 m and 150 mm dia, 4840 m against requirement of 7500 m and 4300 m respectively. The contractor laid only 7621.50 m ACP pipe 200 mm dia and 2750 m, 150 mm dia as of October 1996. No action for recovery of cost of pipes issued in excess of requirement and not returned by contractor (ACP pipes 200 mm dia 428.50 m, 150 mm dia 2090 m), amounting to Rs.2.12 lakh was initiated as of March 2000.

On this being pointed out, the EE agreed to recover the cost of pipes from the contractor.

(f) Wasteful expenditure

Scrutiny of the stock account revealed that CI pipes, fittings and specials costing Rs.18.58 lakh, procured by the Department (1985-90) for laying pipe lines were lying unused and were declared surplus (March 2000). Similar items costing Rs.17.44 lakh were lying idle in stock as of March 2000 due to their substitution by ACP pipes. The entire expenditure of Rs.36.02 lakh thus proved wasteful.

On this being pointed out, the EE intimated that surplus items would be disposed off by sale or transfer to other divisions requiring such material.

The matter was referred to Government (June 2000), reply was awaited (October 2000).

3.2 Blockage of funds on purchase of pipes

AC pressure pipes worth Rs.26.11 lakh procured in November and December 1997 became unusable due to injudicious revision of design.

Technical sanction to the Naila-Janjgir Water Supply Scheme (Scheme), for supply of 3.36 million litre daily (MLD) of water was accorded (March 1991) by the Chief Engineer (CE), Raipur Zone, Raipur for Rs.49.90 lakh. Administrative approval was accorded by the Government in February 1994.

The work included laying and jointing 250 mm dia asbestos cement (AC) pressure pipe class '10' (6200 meters) for clear water rising main from treatment plant to the overhead reservoir. The AC pipes were procured through MP Laghu Udyog Nigam (MPLUN) in November and December 1997 for Rs.26.11 lakh. Subsequently, AC pipes were substituted by cast iron (CI) tyton pipes on receipt of a Technical circular (28 May 1998) from the Engineer-in-Chief (E-in-C) that only CI pipe be used for rising mains in areas with black cotton soil.

The substitution was injudicious and unwarranted as the Technical circular prohibited the use of AC pipes for rising main only in black cotton soil areas whereas the scheme was being implemented in an area with hard red sand stone strata.

Resultantly not only were AC pipes worth Rs.26.11 lakh rendered unusable but an avoidable extra cost of Rs.96.98 lakh would be incurred on the procurement of CI pipes. The Division declared the AC pipes as surplus and circulated it with other surplus items to other Divisions in October 1998. It was still in stock as of February 2000.

The matter was reported to Government (May 1999); reply had not been received (October 2000).