

3.1 Science and Technology Department

Highlights

The aim of the Science and Technology Department was to provide quality technical education and promote scientific awareness among the masses. In order to add value and power to technical education and to provide easy access to the students of the State, the department planned to launch programmes oriented towards building a large and substantial capacity in addition to taking up establishment of new institutions such as engineering colleges, polytechnics and Centres for Advanced Studies in the departments of universities/colleges. Deficient operational controls were noticed in the department. There were large scale vacancies in the operational cadres. Effective grievance redressal, vigilance and internal control mechanisms were absent. Evaluation of different projects in hand and their monitoring was not effectively done.

Budgetary control was deficient as estimates were unrealistic. Estimation during 2005-10 was on the higher side leading to large scale savings which were not surrendered in time and were allowed to lapse.

[Paragraph 3.1.7.1]

The department persistently delayed submission of budget estimates during 2005-10 by 66 to 131 days.

[Paragraph 3.1.7.3]

Detailed Contingent bills for ₹ 81 crore drawn on Abstract Contingent bills were not submitted to the Accountant General (A&E).

[Paragraph 3.1.7.4]

Spending of the units during March alone ranged between 27 and 61 per cent of the total expenditure.

[Paragraph 3.1.7.6]

The department paid ₹ 2.60 crore and created liability of ₹ 2.36 crore on account of salaries to contractual staff, which was irregular.

[Paragraph 3.1.7.7]

Expenditure of ₹ 1.24 crore incurred on construction of boys' hostels was rendered unfruitful due to non-construction of approach road and non-provision of water supply.

[Paragraph 3.1.8.3]

There was acute shortage of manpower in the engineering colleges and polytechnics. Thus, the quality of technical education was compromised due to lack of adequate manpower.

[Paragraph 3.1.9]

Monitoring mechanism was not effective in the department.

[Paragraph 3.1.10]

3.1.1 Introduction

The department aimed to provide quality technical education and promote scientific awareness among masses. In order to add value and power to technical education and to provide easy access to the students of the State, the department planned to launch programmes oriented towards building a large and substantial capacity in addition to taking up establishment of new institutions such as engineering colleges, polytechnics and Centres for Advanced Studies in the departments of universities/colleges. The vision of the department was to create wealth and prosperity in the society through application of technical and scientific knowledge. The mission of the department was to facilitate centres of teaching with modern resources for better knowledge transfer, to train the technical people of the department by providing them opportunities to interact and exchange knowledge with other educational institutions of excellence and organisations to ensure technical as well as scientific proficiency in the students in their related fields of study and to establish centres for excellence to match global standards.

3.1.2 Organisational Structure

The department was headed by a Principal Secretary, who was assisted by a Deputy Secretary and two Under Secretaries. The Principal Secretary was the Controlling Officer of the Department. The department had a Directorate headed by a Director, assisted by a Joint Director, three Deputy Directors, two Assistant Directors, supporting staff for implementation of field level programmes. There were 13 Polytechnic Institutes, five Women Industrial Schools (WISs), an Engineering College, a State Board of Technical Education (SBTE) and a State Project Facilitation Unit (SPFU) for imparting / improving technical education in the State.

In order to popularise science related activities in the State, the Jharkhand Council of Science and Technology (JCST) functioned under the Secretary of the Department, headed by an Executive Director.

3.1.3 Audit objectives

The working of the department was reviewed in audit to ascertain whether:

- planning of the department was adequate and effective;
- financial management was efficient and effective;
- programme implementation was adequate and effective;
- the manpower management was effective; and
- monitoring at different levels was adequate and there was proper co-ordination between the Department and institutions.

3.1.4 Audit criteria

The audit was conducted using the following criteria:

- Vision document, 2010 of Government of Jharkhand;
- Norms of All India Council for Technical Education (AICTE);
- Project description and guidelines of Technical Education Quality Improvement Programme (TEQIP); and
- Jharkhand Budget Manual, Jharkhand Financial Rules (JFR) and Jharkhand Treasury Code (JTC).

3.1.5 Scope and Methodology of audit

Chief Controlling Officer (CCO) based audit of the Science and Technology Department was conducted between April and July 2010 by test check of the records of the Secretariat, JCST and SPFU at the State level and one engineering college¹, nine² out of 13 polytechnics and three out of five Women's Industrial Schools³, selected on the basis of the simple random sampling without replacement method covering the period 2005-10.

The audit objectives, criteria and methodology were discussed in the entry conference with the Principal Secretary, Science and Technology Department on 9 March 2010. An exit conference was held on 23 October 2010 with the Principal Secretary, Science and Technology Department where the audit findings, conclusions and recommendations were discussed.

Audit findings:

3.1.6 Planning

The department had not prepared any Annual Plan prior to 2009-10. It had also not prepared any Perspective Plan. In order to add value and power to technical education and to provide easy access to the students of the State, the State Government allocated funds of ₹ 392.50 crore during the eleventh Five Year Plan (2007-12).

3.1.7 Financial Management

3.1.7.1 *Improper Budgeting and Unrealistic Budget Estimation*

According to Rules 65 and 112 of the Jharkhand Budget Manual, budget estimates were to be consolidated by the department based on proposals received from subordinate offices. Budget estimates were to be as accurate as possible and it was the responsibility of the Controlling Officer of the department to ensure timely re-appropriation/surrenders in the event of savings. Further, Rule 57 of the Jharkhand Budget Manual emphasized avoidance of over-estimation and enjoined upon the officer responsible for

¹ Bihar Institute of Technology, Sindri.

² Bokaro (Boys and Girls), Dhanbad (Boys), Dumka (Boys), Jamshedpur (Girls), Kharsawan (Boys), Latehar (Boys) and Ranchi (Boys and Girls).

³ Bokaro, Daltonganj and Jamtara.

preparing estimates to ensure that there was no provision for such sum which would not be spent. Annual allotments and expenditure of the department during the period of review were as given in **Table 1**.

Table-1 : Statement showing allotments and expenditure

(₹ in crore)

Year	Grant	Amount surrendered during the year	Actual amount of grant	Expenditure	Percentage of expenditure to grant	Percentage of savings to grant
2005-06	172.49	0.00	172.49	123.09	71	29
2006 07	147.22	1.90	145.32	77.55	53	47
2007-08	186.81	0.00	186.81	133.34	71	29
2008 09	224.07	0.75	223.32	141.40	63	37
2009-10	173.22	40.66	132.56	98.81	75	25
Total	903.81	43.31	860.50	574.19	67	33

(Source: Appropriation Accounts)

Estimation during 2005-10 was on the higher side leading to large savings varying between 25 and 47 per cent which were not surrendered in time

Scrutiny of the records revealed that estimation during 2005-10 was on the higher side, which resulted in persistent savings ranging from 25 to 47 per cent whereas the expenditure ranged between 53 and 75 per cent as shown in the table above. This showed improper budgeting on the part of the department.

Though the Controlling Officer of the department was responsible for ensuring timely re-appropriation/surrenders of funds, it was observed that the savings were not surrendered in time and were allowed to lapse during 2005-10.

3.1.7.2 Monitoring of expenditure

According to Rules 121 and 122 of the Jharkhand Budget Manual, all Drawing and Disbursing Officers (DDOs) were required to furnish Statements of Expenditure (SOE) to the Controlling Officers, duly reconciled with the records of treasuries. The Controlling Officers were required to reconcile them with the records of Accountant General (A&E). If any discrepancies relating to excess over allotment by the DDOs were noticed, the Controlling Officers were to enforce responsibility against the defaulting DDOs.

Scrutiny of the records revealed that SOEs were not submitted by the DDOs to the Controlling Officer. As a result, the reconciliation exercise with the Accountant General (A&E) was not carried out. This adversely affected monitoring of expenditure and preparation of the actual budget estimates, resulting in huge savings regularly as discussed in *paragraph 3.1.7.1* of this Report.

3.1.7.3 Belated submission of budget estimates

As per Rule 72 (Chapter III) of the Jharkhand Budget Manual, the Controlling Officer was to submit the revised estimates for the current year and budget estimates for the next year to the Finance Department by 14 October every year or as on the date notified by the Finance Department.

Scrutiny of the budget estimate records revealed that the department persistently delayed submission of budget estimates during 2005-10 by 66 to 131 days as given in **Table-2**.

The department persistently delayed submission of budget estimates during 2005-10 by 66 to 131 days

Table- 2: Belated submission of budget estimates

Year	Due date of submission as notified by the Finance department	Actual date of submission	Delay in days
2005-06	06.10.04	14.02.05	131
2006-07	12.09.05	16.12.05	95
2007-08	13.09.06	11.12.06	89
2008-09	01.10.07	06.12.07	66
2009-10	01.10.08	NA	NA

(Source: Records of Science and Technology department)

Relevant records of the year 2009-10 were not made available to Audit.

3.1.7.4 Pending Detailed Contingent bills

According to Rules 319 and 320 of the Jharkhand Treasury Code, a certificate to the effect that Detailed Contingent (DC) bills for Abstract Contingent (AC) bills drawn upto the last date in the previous month have been submitted for counter-signature to the Controlling Officer was to be attached to the first AC bill presented for payment after the 10th of each month. On no account was an AC bill to be cashed after the 10th of the month, without the certificate.

Audit, however, noticed that according to the department's own records, outstanding DC bills for ₹ 81 crore drawn during 2006-10 on AC bills were not submitted (June 2010) to the Accountant General (A&E) as given in **Table-3**.

There were abnormal delays in submission of DC bills indicating ineffective financial control and monitoring

Table- 3: Unadjusted AC Bills

Year	Unadjusted AC bills (₹ in crore)	Period of delay (in months)
2006-07	16.90	38
2007-08	5.75	26
2008-09	40.55	14
2009-10	17.80	02
Total	81.00	

(Source: Science and Technology department)

It is evident from the table above that AC bills of ₹ 81 crore remained unadjusted during 2006-10. Such inordinate delays in the adjustment of AC bills was fraught with the risk of fraud/misappropriation.

3.1.7.5 Improper maintenance of cash book

Rule 86 (ii) of the Jharkhand Treasury Code (Vol. I) provides that all monetary transactions should be entered into the cash book as soon as they occur and be attested by the head of the office. The cash book should be closed and balanced each day regularly and completely checked. The head of the office should verify the totalling of the cash book or have this done by some responsible subordinate other than the writer of the cash book, and initial it as correct. At the end of each month, the DDO should verify the cash balance in the cash book and record a signed and dated certificate to that effect.

Scrutiny of the cash books of all the 16 test-checked units revealed that cash books were not maintained properly in five⁴ units. It was observed in these units that the heads of the offices neither recorded the certificate of the verification of cash balance at the end of each month nor had it done by some other responsible subordinates other than the writers of the cash books during the review period. The failure to follow the prescribed procedure for maintenance of the cash books entailed the risk of misappropriation of Government money.

3.1.7.6 Rush of expenditure in March

Rule 113 of the Jharkhand Budget Manual provides that money should not be spent hastily or in an ill-considered manner merely because it is available or that the lapse of a grant could be avoided. Rush of expenditure particularly in the closing months of the financial year would be a breach of financial regularity.

Scrutiny of relevant records pertaining to the period 2007-10 of all the test-checked units revealed that expenditure incurred by the units during March ranged between 27 and 61 *per cent* of the total expenditure as detailed in ***Appendix-3.1***.

3.1.7.7 Irregular payment and creation of liability

In order to implement the World Bank Project captioned 'Strengthening of Polytechnic Education', 106 persons were appointed (October 1996) on contract basis for a period of three years. The said project ceased to exist beyond October 1998. Payment of salaries to the contractual staff was made from the World Bank Project up to September 1998 and thereafter, from the budget of the department with the approval of the Chief Minister up to the extended period of contract up to June 2007 on the condition that the department would appoint regular staff for these contract posts.

Scrutiny of records of seven⁵ test-checked units revealed that the department did not initiate efforts to fill up the contractual posts with regular staff in the technical institutions. It was also observed that even after February 2007 neither the services of those staff were extended nor terminated. They were, however, not being paid any salaries for the duties performed by them after February 2007.

In the meantime, the department made irregular payment (***Appendix-3.2***) of ₹ 2.60 crore⁶ between December 2000 and February 2007 and created liabilities of ₹ 2.36 crore between March 2007 and February 2010 on account of their salaries as the department had never obtained sanction from the Finance Department for extension of their services and payment of salary. It was observed that the order of the Chief Minister for payment of their salary was subject to initiating the recruitment process by the department but nothing had been done so far (November 2010).

⁴ Bihar Institute of Technology, Sindri, Government Polytechnics; Bokaro, Dhanbad, Dumka and Ranchi.

⁵ Government Polytechnics, Bokaro (Boys and girls), Dhanbad (Boys), Dumka (Boys), Latehar (Boys), Ranchi (Boys and girls).

⁶ The amount has been calculated for the period after creation of Jharkhand.

3.1.7.8 Non-submission of utilisation certificates

As per Government's orders and instructions issued from time to time, utilisation certificates (UC) by executing agencies were to be submitted to the Government against the allotments made to them.

Scrutiny of records revealed that the department withdrew ₹ 126.60 crore from treasuries during 2005-10 and transferred the same to various executing agencies viz. Executive Engineers, Building Construction Division, National Rural Employment Programme (NREP), Drinking Water and Sanitation Division, National Buildings Construction Corporation Limited (NBCCL) and Deputy Commissioners for execution of works on 51 projects relating to purchase of land, construction, repairs and renovation of buildings and other purposes. The year-wise details of funds drawn and transferred to executing agencies are detailed in Table 4.

Table- 4: Details of works allotted by the department to executing agencies

Year	Amount (in ₹)	Number of works
2005 -06	2,19,39,700	11
2006 -07	28,13,86,983	06
2007 -08	35,75,73,338	27
2008 -09	42,69,27,326	04
2009 -10	17,80,10,170	03
Total	1,26,58,37,517	51

(Source: Science and Technology department)

Further, it was observed that no UC had been submitted by the executing agencies till date (November 2010). The department, however, neither insisted upon the submission of the UCs nor reconciled its accounts with the records of the Accountant General (A&E). In the absence of the UCs, the department was also not aware as to the amounts spent against each project.

3.1.8 Programme implementation

The Vision Document 2010 of the Government of Jharkhand, *inter alia*, envisaged strengthening of institutional framework to render science and technology accessible to the people, creating scientific aptitude and temperament in the masses to remove various myths and practices in the society, creating a conducive scientific environment for real e-governance for providing transparent, smart, paperless and quick services to the masses and developing information technology and bio-technology schemes in the State.

In the workshop of the Confederation of Indian Industries (CII), eastern region under Technical Education Quality Improvement Programme (TEQIP) held in April 2007, there was consensus on continuous migration of students for higher technical education. It was also observed that the students had to pay much higher fees and bear higher expenses to meet their cost of living in the various States. Accordingly, it was felt that the State had a responsibility to provide suitable avenues of equipping eligible youth with technical qualifications to meet the working needs of the country.

3.1.8.1 Non-establishment of technical institutions

The Vision Document of the Government planned enhancement of the enrolment capacity. However, there had been no increase in the enrolment capacity so far due to no addition in the number of technical institutions. Since the inception of Jharkhand (November 2000), only one new polytechnic at Kharsawan was started (2006).

The Government decided (between December 2006 and August 2007) to set up three engineering colleges at Ramgarh, Chaibasa and Dumka at an estimated cost of ₹ 36 crore each and nine⁷ new polytechnics in the State at an estimated cost of ₹ 16 crore each. The construction of the buildings of these engineering colleges and polytechnics was entrusted (between February 2007 and April 2010) to three Public Sector Undertakings (PSUs) viz. National Projects Construction Corporation Limited (NPCCL), National Buildings Construction Corporation Limited (NBCCL) and Engineering Projects (I) Ltd (EPIL) on turnkey basis.

The PSUs were also provided (between March 2007 and March 2008) mobilisation advance of ₹ 29.42 crore for construction works without ensuring availability of land as land for only three engineering colleges and three polytechnics (Kharsawan, Silli and Bhaga) was provided by the Government to PSUs. Land for the remaining six polytechnics was to be provided as of June 2010.

Scrutiny further revealed that construction of buildings was incomplete even after the lapse of 16 to 22 months (June 2010) from the scheduled dates of completion as detailed in ***Appendix-3.3***. Thus, the Plan of the department to establish technical institutions as envisaged in the vision document remained unfulfilled.

3.1.8.2 Expenditure on repairs/renovation

Administrative approval for ₹ 83.57 lakh for repairs/renovation/construction work of Government Polytechnic, Bhaga was accorded by the department in March 2008 and the work was allotted to the Executive Engineer, NREP, Dhanbad in April 2008.

Scrutiny of records revealed that the department ordered (September 2008) the Principal, Government Polytechnic, Bhaga as well as the executing agency to stop the work forthwith as there was no need for such repair/renovation/construction because a new polytechnic building was coming up at Bhaga, Dhanbad at an estimated cost of ₹ 17 crore which was likely to be completed in June 2009. Meanwhile, an expenditure of ₹ 38.67 lakh was already incurred. It was seen in audit that the remaining amount of ₹ 45 lakh was still lying (September 2010) with the agency.

Thus, award of sanction for repair and renovation of the existing polytechnic without assessing its need in view of the new polytechnic building resulted in avoidable expenditure of ₹ 38.67 lakh besides blocking of funds of ₹ 45 lakh.

⁷ Bahragora, Bhaga, Chandil, Garhwa, Gola, Jagganathpur, Kharsawan, Pakur and Silli.

3.1.8.3 Faulty estimation delayed the boys' hostel functional.

Despite having incurred an expenditure of ₹ 1.24 crore, the hostel buildings were not suitable for use

The department accorded (September 2004) administrative approval of ₹ 1.24 crore for construction of two 100-bedded boys' hostels in the premises of the Government Polytechnic, Latehar for which technical sanction for ₹ 1.38 crore was accorded (November 2005) by the Chief Engineer, Building Construction Department (BCD). The work was allotted to the Executive Engineer, Building Division, Latehar.

Scrutiny of records revealed that the technical estimates prepared by the Chief Engineer, BCD did not include any provision for water supply and approach road to the hostel. As a result, the hostel, completed (October 2009) after incurring expenditure of ₹ 1.24 crore, could not be put to use so far (June 2010).

3.1.8.4 Non-implementation of schemes as per AICTE norms

As a part of its functions, the All India Council for Technical Education (AICTE), provides financial assistance to promote research and development activities in technical institutions and to enhance industry institute interaction under various schemes like Entrepreneurship Development Cell (EDC), Industry Institute Partnership Cell (IIPC), National Facilities in Engineering and Technology with Industrial Collaboration (NAFETIC) and National Coordinated Projects (NCP) in the technical disciplines through the Bureau of Research and Institutional Development.

(I) Non-submission of proposal to the AICTE

Entrepreneurship Development Cells (EDC) were established in AICTE approved polytechnics and degree technical institutions to encourage students to consider self-employment as a career option. To provide training in entrepreneurship and increase the relevance of management, the institutions were required to send proposals to AICTE to get financial assistance. Proposals under the EDC scheme were to be submitted to AICTE, duly certifying that the institutions would discharge all their obligations.

Scrutiny revealed that none of the test-checked Polytechnics sent any proposal in this regard to AICTE. As a result, they could not avail of the benefits of financial assistance from AICTE and the students were deprived of the intended benefits.

(II) Non-submission of proposal to AICTE under Industry Institute Partnership Cell

AICTE launched the Industry Institute Partnership Cell (IIPC) scheme for its approved institutions with a view to reduce the gap between industry expectations (practice) and academic offerings (theory). In order to get financial assistance from AICTE under this scheme, the institutes were required to send their proposals for the project to the AICTE.

Scrutiny revealed that none of the test-checked polytechnics sent any proposal in this regard to the AICTE. As a result they could not get financial assistance from AICTE and the students were deprived of the intended benefits.

(III) Lack of performance appraisal system and training to faculties

As per norms 6.2.11 and 6.2.12 of AICTE, a performance appraisal system for teachers was to be set up, well integrated with the institutional functioning, to identify individual training and development needs and teachers were to be provided the opportunity to improve their qualifications through the quality improvement programme, which was to be both industry oriented and practice based.

Scrutiny of records revealed that neither had performance appraisal system been set up by the institutions nor was training imparted to faculty members in all the test-checked institutions except the Bihar Institute of Technology, Sindri.

3.1.8.5 Implementation of TEQIP scheme

The Technical Education Quality Improvement Project (TEQIP) initiated by the Government of India with the assistance of the World Bank in March 2003 aimed at improvement of the quality of the technical education sub-sector into a dynamic, demand-driven, quality conscious, efficient and forward-looking system, responsive to rapid economic and technological developments occurring both at national and international levels.

Funding for the scheme was provided by the World Bank on loan basis. The loan was to be repaid by the Central and State Governments in the ratio of 30:70.

The State Government passed a resolution for implementation of the project only in May 2004 and started work from December 2005. The TEQIP project was to be implemented by the State Project Facilitation Unit (SPFU) at the State level.

The project had four components viz. developing academic excellence, networking, service to community and economy and development of management capacity to be implemented in the first stage. Initially, four⁸ technical institutions were selected in the first phase spread over the period 2005-09. SPFU, Jharkhand received (August 2007) ₹ 31.87 crore through the National Project Implementation Unit (NPIU), GOI as a life time allocation (LTA) for implementation of the scheme.

Scrutiny of the records of three⁹ test-checked units revealed that:

- As per the TEQIP guidelines, selected technical institutions were to have academic, administrative, managerial and financial autonomy for receiving grants. The State Government passed a resolution to this effect in May 2004. It was, however, observed that the units did not have academic, administrative, managerial and financial autonomy for receiving grants. In only one test-checked institute viz. Bihar Institute of Technology, Sindri academic, administrative and financial autonomy was available to some extent. Further, these institutes were provided funds from GOI under

⁸ Bihar Institute of Technology, Sindri, Birla Institute of Technology, Mesra, Rajkiya Polytechnic, Dumka and Ranchi.

⁹ Bihar Institute of Technology, Sindri, Rajkiya Polytechnic, Dumka and Ranchi.

TEQIP project by the SPFU without ensuring fulfilment of the required criteria.

- As per the TEQIP scheme, there was to be a Board of Governors (BOG) at the institutional level to take policy decisions and overall management of the institutions. No Board of Governors was formed in the Rajkiya Polytechnics, Dumka and Ranchi. Also, need based training and science awareness programme among local people such as popularisation of solar system, water quality assessment, water harvesting etc as required under TEQIP were not organised by them.
- As per the TEQIP project, funds such as corpus fund, a staff development fund, a maintenance fund and a depreciation fund were to be created to ensure sustainability of the reform process beyond the project period. The sources of funds were to be fees collected from students, savings from block grants, donations from charitable organisations, internal resource generation (IRG) and matching grant on IRG to be provided by the State Government.
- Scrutiny of the records of two Rajkiya Polytechnics, at Dumka and Ranchi revealed that though they received ₹ 1.80 crore, they had not established any fund for sustainability of the reform process.
- The second component of the project, i.e. 'Networking' was to be established with selected institutes for resource sharing and optimisation, faculty development, curriculum development, research participation, information dissemination and bringing a competitive spirit among faculty and students of the participating institutes.
- Scrutiny of records revealed that the Department had not even identified (June 2010) the institutes where networking was required to be done. The SPFU at the State level was to identify the institutions from where the human resource sharing could be done through networking under the TEQIP scheme. It was also observed that networking equipment worth ₹ 7.93 lakh was purchased during 2005-09 by two institutes viz. Dumka and Ranchi but the same were still to be made functional due to lack of conferencing machines.

Scrutiny of the records of JCST revealed that funds of ₹ 2.54 crore were provided (between October 2002 and January 2007) to the concerned district authorities for execution of the project, in three instalments. The works were, however, not completed (April 2010) despite the lapse of eight years at five centres¹¹. The department did not monitor the progress of the works and only in March 2010, enquired from the DCs whether there were difficulties in the execution of works. The DCs were still to reply (October 2010).

The department had already incurred (February 2009) an expenditure of ₹ 1.05 crore. Latest details of expenditure though called for (August 2010) were not provided (October 2010).

Thus, due to improper monitoring by the department and delay in execution of works, the envisaged benefits could not be passed on to the beneficiaries.

3.1.8.7 Non-functional Regional Science Centre

GOI decided to establish a science centre at Ranchi. The cost of the project was to be shared by the National Council of Science Museum (NCSM) on behalf of the Central Government and the State Government on 50:50 basis. The main purpose was to develop an activity based science learning centre with strong infrastructure. Administrative approval of ₹ 5 crore accorded in February 2002 was revised (October 2004) to ₹ 6.50 crore. The funds for the project were released by the State Government between November 2003 and March 2006. Land was acquired (August 2005) at village Chiraundi (Ranchi).

Scrutiny of the records revealed that the construction work of the regional science centre was given (October 2002) to the National Council of Science Museum (NCSM), Kolkata on turnkey basis. The work was to be completed within 30 months from the date of commencement of the project which was to be reckoned from the date of handing over of the site to the executing agency. The site was actually handed over in January 2007 and accordingly, construction should have been completed by July 2009. It was observed that the science centre had not been completed and made functional till the date of audit (June 2010).

3.1.8.8 Non-establishment of technical university

The State Government decided (2005-06) to establish a technical university at Ranchi which was to be the affiliating university for the technical institution and was to ensure all-round development and maintenance along with reforms in curriculum. Besides, the technical university was also to conduct and publish timely results of all technical educational institutions as well as to ensure uniformity in the academic calendar. It was observed that no such university was established (June 2010) in the State and this hampered the updation and regulation of technical education in the State.

3.1.9 Human Resources Management

The performance of institutions and efficient implementation of the schemes depend on availability of the required manpower. An analysis of manpower

¹¹ Bokaro, Daltonganj, Dhanbad, Dumka, and Hazaribag.

management revealed acute shortage of manpower in the engineering college and polytechnics.

(a) Engineering College

The only engineering college in the government sector was the Bihar Institute of Technology, Sindri. Scrutiny revealed acute shortage of manpower as detailed in **Table 5**.

Table- 5: Shortage of manpower in BIT, Sindri

Sl No.	Designation	Sanctioned Strength	Persons in position	Vacancies
1	Director	01	01	Nil
2	Professor	26	02	24 (92)
3	Assistant Professor	42	05	37 (88)
4	Lecturer	128	76	52 (41)
Total		197	84	113 (57)

(Source: Science and Technology department) (Figures under bracket indicate percentage.)

As can be seen, the percentage of vacancies in teaching cadres ranged from 41 to 92 *per cent*. Appointments on *ad-hoc* basis for short periods were made by the institute to tide over the crisis. Failure of the department to fill up the vacancies on permanent basis deprived the premium engineering college of experienced faculty. Such large scale vacancies adversely impacted the functioning of the institute.

As per the AICTE norms of 15:1 student teacher ratio, the number of teachers should have been 195 for 2,924 students enrolled. The actual strength was, however 84 only. No efforts were made by the department to fill up the vacancies.

There was acute shortage of teaching and non-teaching staff in Government polytechnics

(b) Polytechnics

According to the AICTE norms, the desirable and minimum student and teacher ratio is 11: 1 and 16:1 respectively. As per the teacher student ratio of AICTE norms, the desirable and minimum number of teachers should have been 512 and 352 respectively for 5,634 students enrolled. Scrutiny revealed that as per AICTE norms the sanctioned strength should have been 352 but it was actually 240. The acute shortage of teaching and non-teaching staff in Government polytechnics is detailed in **Table 6**.

Table- 6: Statement showing teacher student ratio

Sl. No.	Designation	Sanctioned strength	Men in position	Vacancy
1	Principal	12	01	11 (92)
2	Head of department	15	02	13 (87)
3	Lecturer	209	90	119 (57)
4	Work shop Superintendant.	04	Nil	04 (100)
	Total	240	93	147 (61)

(Source: Science and Technology department)(Figures under bracket indicate percentage)

As can be seen, the percentage of vacancies in the various cadres ranged from 57 to 100 *per cent*. Such acute shortage of staff was bound to adversely impact the functioning of the polytechnics. The actual strength of 93 was grossly inadequate. Similarly, there were only 20 laboratory assistants against the

sanctioned strength of 44. It was noticed that the department had not taken any initiative to fill up these vacant posts (October 2010).

Thus, the quality of technical education provided to students by the polytechnic institutions was at the risk of being compromised due to lack of adequate manpower.

3.1.10 Monitoring and Internal control

The overall aim of the department was to provide quality technical education, to build solid infrastructure for substantial capacity enhancement and to add value and power to technical education for easy access to the students of the State. A system of internal control was necessary to provide reasonable assurance that the Management's objectives were achieved in an economical, efficient and effective manner.

Scrutiny revealed that the department did not evolve any mechanism to evaluate/inspect/review the working pattern of technical institutes under its jurisdiction and develop a management information system. The department had no manual of its own. It did not take any effective steps to obtain reports regarding utilisation of funds from various executing agencies and was not aware of the status of ongoing works. No complaint redressal mechanism existed in the department.

It was observed that the department did not have an internal audit wing. The internal audit wing of the finance department of the State Government conducted audit of only one out of 16 test-checked units during the period 2005-10. The department also did not have any vigilance mechanism. Some examples are given in paragraphs 3.1.8.6 and 3.1.8.7, where department did not effectively monitor the activities which led to denial of intended benefits.

3.1.11 Outstanding audit observations of previous year(s)

The regularity audit of the Department was conducted regularly by the Principal Accountant General (Audit), Jharkhand, Ranchi as per the Audit Plan and, accordingly, Inspection Reports (IRs) were issued to the concerned Drawing and Disbursing Officer (DDO). Abstract of outstanding audit observations in IRs is given in Table-7.

**Table- 7: Abstract of outstanding audit observations in Inspection Reports
Position as on 31.3.2010**

Year	Number of Inspection Reports issued	Number of Paras issued	Para settled	Outstanding paras	Initial reply not received
2005-06	6	27	2	25	5
2006-07	Nil	Nil	Nil	Nil	Nil
2007-08	5	41	9	32	3
2008-09	3	20	1	19	2
2009-10	2	14	-	14	2
Total	16	102	12	90	12

(Source: Office of the Principal Accountant General (Audit), Jharkhand, Ranchi)

From the above table it is evident that there were 90 paragraphs outstanding for a period of four to 60 months even though regular reminders for

compliance of audit paragraphs were issued to the department. The department did not take (July 2010) any initiative for settling the old paragraphs.

3.1.12 Conclusion

The provisions of the budget manual were not being adhered to. As a result, huge savings were noticed. Cash books were not being maintained properly. DC bills, for money drawn on AC bills, were not submitted timely. Deficient operational controls were noticed in the department. There were large scale vacancies in the operational cadres. An effective grievance redressal mechanism was absent in the department. Vigilance and internal control mechanisms were totally absent. Evaluation of different projects in hand and their monitoring were not effectively done.

3.1.13 Recommendations

- Budget estimates should be prepared after obtaining inputs from the institutions in time and the same should be submitted to the Finance department in time.
- It should be ensured that expenditure statements from all the DDOs are sent to the department regularly.
- Financial rules and principles of financial propriety should be adhered to strictly.
- Effective implementation of projects should be ensured.
- Shortage of manpower should be effectively dealt with.
- Proper system of monitoring the progress of work should be developed.
- An internal audit wing should be established in the department.