



सत्यमेव जयते

Report of the  
Comptroller and Auditor General  
of India

for the year ended March 1999

Union Government  
(Scientific Departments)  
No.5 of 2000

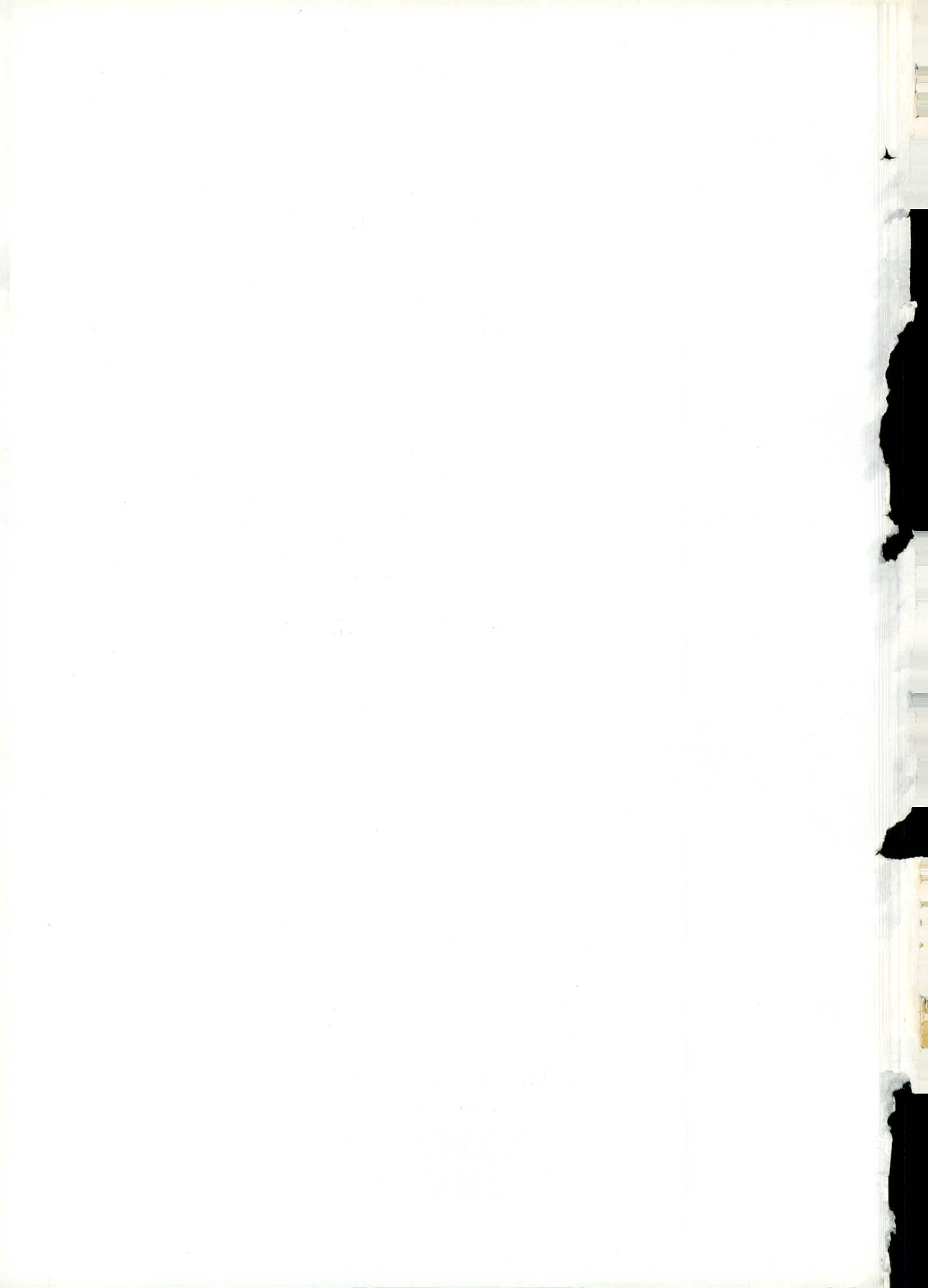
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## PREFACE

The Report for the year ended 31 March 1999 has been prepared for submission to the President under Article 151(1) of the Constitution. It covers matters arising from test-audit of the transactions of the Scientific Departments of the Union Government, the autonomous bodies funded by these Departments and some major scientific organisations associated with other Departments.

This Report includes four reviews and 13 paragraphs. The topics of review are :

- (i) Regional Medical Research Centre for Tribals, Jabalpur
- (ii) Utilisation of Laboratory Reserve Fund
- (iii) Central Mechanical & Engineering Research Institute, Durgapur
- (iv) Central Mining Research Institute, Dhanbad

The cases mentioned in this Report are among those, which came to notice in the course of audit during 1998-99. For the sake of completeness, matters relating to earlier years which could not be covered in the previous Reports have also been included, wherever pertinent. Similarly, results of audit of transactions subsequent to March 1999 in few cases have also been mentioned, wherever, relevant.





## OVERVIEW

The expenditure on Scientific Departments during 1997-98 was Rs 9451 crore. This represented an increase of 48 *per cent* over the last two years. Of the total expenditure on Scientific Departments, a major part of Rs 3794 crore related to Department of Atomic Energy followed by Department of Space, which accounted for an expenditure of Rs 1402 crore. With reference to the budget allotment, the Scientific Departments ended up with an overall unspent balance of Rs 993.19 crore. The Departments of Atomic Energy, Space, Environment and Forest and Non-Conventional Energy Resources spent Rs 214.52 crore, Rs 206.13 crore, Rs 213.43 crore and Rs 109.05 crore less than the allocation respectively

This report contains four performance reviews and 13 paragraphs. An overview of audit findings contained in the report is given below :

## Reviews

### Indian Council of Medical Research

#### Regional Medical Research Centre for Tribals, Jabalpur

Regional Medical Research Centre for Tribals, Jabalpur set up in 1984 to plan, conduct and co-ordinate applied research in areas of community health and nutrition among tribal population, failed to achieve its objectives due to shortage of funds, scientific manpower and infrastructure. Even the building to house laboratories, though completed in 1996 at a cost of Rs 348.50 lakh, was lying unoccupied due to several defects. Of the 26 projects approved to be taken up by Scientific Advisory Committee during 1995-99, the Centre took up only 11 projects and completed seven. It did not take up any research for development of health and nutrition delivery system to suit the special socio-cultural and economic needs of the tribals after 1989.

The Centre also did not monitor and evaluate the impact of intervention programmes initiated by State Government on the life style of tribals. The Centre did nothing to document and record the herbal wealth used by the tribal people for treatment of different ailments, despite the fact that this knowledge would become extinct with dwindling tribal population. No action plan was chalked out by the Centre to provide training to officials concerned with tribal development.

*(Paragraph 2.1)*

## **Council of Scientific and Industrial Research**

### **Utilisation of Laboratory Reserve Fund**

Laboratory Reserve Fund created with objective of upgradation of laboratories infrastructure and augmenting its R&D efforts was used to the extent of Rs 6.37 crore primarily on items not related to R&D viz. telephone/mobile phone bills, snacks/lunches/dinners, gifts/mementoes, celebration of foundation/golden jubilee day, financial assistance to private bodies and staff welfare club etc. The vagueness in the guidelines of LRF permitted the Directors full flexibility to incur expenditure on heads of contingencies. Regular contingent expenditure which ought to have been met from CSIR/Laboratory's own budget was also covered under LRF. Under the all encompassing scope of business development/promotion, Directors of laboratories could freely authorise foreign visits from LRF even though many such visits were not related to R&D efforts or upgradation of infrastructure. There were also unauthorised transfers of Rs 38.17 crore to LRF from Consolidated Fund of India, particularly from unspent balances of grants-in-aid projects and interest on investment of surplus balances under these projects, resulting in utilisation of huge amounts without parliamentary financial control.

There was no transparency in maintenance of mandatory records pertaining to LRF, thereby allowing the Directors a free hand in utilisation of LRF.

*(Paragraph 3.1)*

### **Central Mechanical Engineering Research Institute, Durgapur**

Central Mechanical Engineering Research Institute (CMERI), was set up to provide assistance to mechanical engineering industries. During 1992-99, all the six in-house projects were delayed for a period ranging between nine months to five years. Besides, technologies developed from four in-house projects, could not be transferred to the entrepreneurs.

Objectives of two sponsored projects, to provide potable drinking water in areas with brackish water and to develop technology for underwater mining were not fully achieved/remained unfulfilled, despite an expenditure of Rs 23.34 crore and Rs 6.48 crore respectively. For sponsored projects, the recovery was based on estimated cost and not on actual cost, leading to short recovery of Rs 4.24 crore.

Percentage of External Cash Flow generated by CMERI remained well below the prescribed percentage of 33.3 *per cent*.

*(Paragraph 3.2)*

### **Central Mining Research Institute, Dhanbad**

Central Mining Research Institute, established to provide scientific and technological back-up to mineral industries of the country, undertook 73 collaborative projects during 1994-99, for exclusive use of collaborators. However, no new technology was developed from the projects.

During 1994-99, CMRI completed 634 consultancy projects as against only 60 in-house and grants-in-aid projects, for which the staff received honorarium of Rs 278.80 lakh and Director's share during 1998-99 was Rs 5.82 lakh. This violated CSIR guidelines that owing to financial benefits accruing to staff members, attention should not be diverted from R&D to consultancy. In-house projects were not subjected to regular appraisal of Research Council.

Computer system valuing Rs 29.68 lakh was purchased without examining its configuration and utility and the same had not been installed as of June 1999.

*(Paragraph 3.3)*

## **Transaction Audit Findings**

### **Department of Atomic Energy**

#### **Non-establishment of a demonstration plant for irradiation of spices**

Department of Atomic Energy conceived a project titled 'Demonstration Plant for irradiation of spices' in June 1995 at a cost of Rs 2.98 crore. The plant was yet to be commissioned as of September 1999. Therefore, the benefit of setting up a demonstration plant that could have increased export of spices, was not derived even after spending Rs 3.04 crore.

*(Paragraph 8.2)*

#### **Undue benefit to a joint sector company**

Department of Atomic Energy executed an agreement in 1973 with Gujarat State Fertilizer Company for routing the ammonia gas produced by GSFC to be used for extraction of heavy water by Heavy Water Plant, Baroda. DAE failed to recover an amount of Rs 14.61 crore from GSFC on account of increased compensation for loss of ammonia, excess gas consumed by GSFC and proportionate cost of shortfall from minimum guaranteed off-take of natural gas. DAE continued to extend undue benefit to GSFC despite mention in previous Audit Reports.

*(Paragraph 8.1)*

### **Department of Telecommunication (Centre for Development of Telematics)**

#### **Wasteful expenditure due to abandoning of scheme**

Rural Telegraph Terminal technology developed by C-DOT could not be put to use in North East Region under its Satellite Based Rural Telegraph Network project as it had become obsolete before implementation. As such C-DOT incurred a wasteful expenditure of Rs 3.81 crore on manufacturing of 50 RTTs, procurement of accessories and godown/insurance charges under the project.

*(Paragraph 5.1)*

## **Council of Scientific and Industrial Research**

### **Irregular engagement of contract employees**

Director, Indian Institute of Petroleum, Dehradun recruited 110 casual workers in violation of ban imposed by CSIR on engaging casual/daily wage/contract workers thereby incurring unauthorised expenditure of Rs 29.57 lakh during October 1997 to March 1999.

*(Paragraph 3.7)*

### **Avoidable expenditure due to delay in construction of staff quarters**

Centre for Cellular & Molecular Biology (CCMB) issued a work order in September 1994 for construction of staff quarters and scientists apartments. CCMB failed to supply lay out plans in time resulting in delay in construction of quarters. As a result CCMB incurred an avoidable expenditure of Rs 46.89 lakh on cost escalation and rent of leased accommodation. In addition, it paid an amount of Rs 42.02 lakh to its employees as HRA.

*(Paragraph 3.4)*

## **Ministry of Non-Conventional Energy Sources**

### **Refuse Incinerator-cum-Power generation plant**

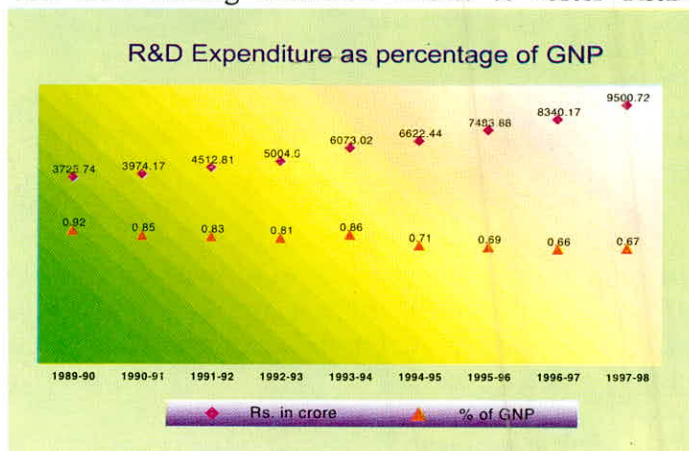
Ministry of Non-Conventional Energy Sources, installed a "Refuse Incinerator-cum-Power generation plant" in March 1985, which remained inoperative since its installation. The Cabinet directed the Ministry in September 1991 to explore the possibilities of alternative use of the plant. However, the Ministry had neither made alternative use of plant nor had it been able to dispose off the plant. On the other hand it incurred expenditure of Rs 1.25 crore on maintenance and insurance of the non-operational plant.

*(Paragraph 4.1)*

## CHAPTER 1 : FINANCIAL MANAGEMENT

### 1.1 Introduction

**1.1.1** Development of science and technology are the crucial parameters for national development and prosperity. Realising the need of application of science and technology for upliftment of the economy, Government of India has been making consistent efforts to foster R&D<sup>1</sup> activities. While the



expenditure on R&D went up from Rs 3725.74 crore in 1989-90 to Rs 9500.72\* crore in 1997-98, registering an increase of 155 per cent, the R&D expenditure as a percentage of GNP<sup>2</sup> actually declined from 0.92

per cent in 1989-90 to 0.67 per cent in 1997-98 as shown below:

(Rs in crore)

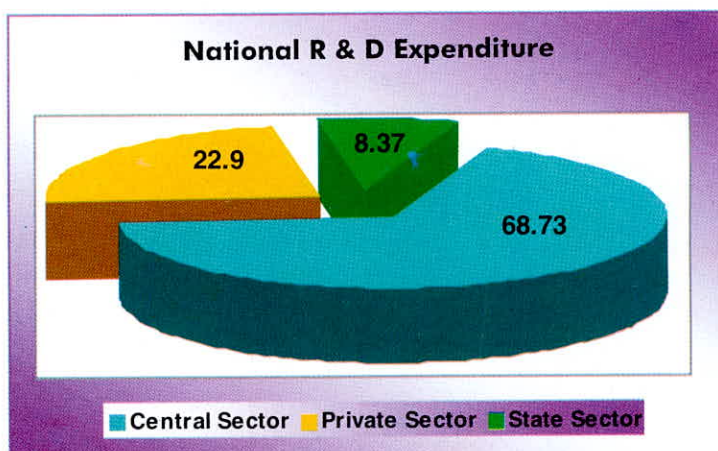
Year	GNP (at current prices)	R&D expenditure	Expenditure on R&D as per cent of GNP
1989-90	402913	3725.74	0.92
1990-91	470269	3974.17	0.85
1991-92	542691	4512.81	0.83
1992-93	618969	5004.60	0.81
1993-94	708504	6073.02	0.86
1994-95	930325	6622.44	0.71
1995-96	1089754	7483.88	0.69
1996-97	1272177*	8340.17	0.66
1997-98	1413231*	9500.72*	0.67

<sup>1</sup> Research and Development

\* Provisional estimates

<sup>2</sup> Gross National Product

Out of the total R&D expenditure for the year 1997-98, the share of the Central Government including the Public Sector was 68.73 per cent, the share of the Private Sector was 22.90 per cent and that of the State Governments was 8.37 per cent.



(Source: Research & Development statistics 1996-97 compiled and published in June 1999 by Department of Science and Technology)

There were 1,27,226 personnel engaged in R&D activities as on 1 April 1996\* 91,311 R&D personnel were employed in institutional sector and 35,915 R&D personnel were employed in the industrial sector. Out of 1,27,226 personnel primarily engaged in R&D activities, 11,078 (8.7 per cent) were females.

### 1.1.2 Output indicators

The number of patents sealed and research papers published in a country are indicators of output of R&D efforts. Data on patents sealed and research papers published in a particular year and comparison with data of similar nature of the previous years indicate the direction in which the research efforts of the country are progressing.

#### Patents

Though the expenditure on R&D had been increasing every year, the number of patents sealed in India had declined from 1890 in 1989-90 to 907 in 1996-97. The number of patents sealed in the name of foreigners continued to be much higher than those sealed by Indians throughout the period.

#### Research papers

The number of research papers published in India by research laboratories under the central and state governments and in-house R&D units of public and private sector industries in various subject areas of science and technology has declined from 50592 papers in 1994 to 42263 papers in 1998, the decline being particularly sharp during 1998.

Year-wise details of research papers published in various areas are indicated below :

\* These are latest authentic figures available.

Subject areas	1994	1995	1996	1997	1998
Agriculture	10997	11479	11516	11008	7872
Biological sciences	9987	9956	9507	9028	7597
Chemical sciences	13125	12567	13414	13210	12069
Physical sciences	5650	5710	5636	5518	5048
Medical sciences	4215	3988	4132	4619	4531
Engineering	4292	3658	4540	4679	3463
Earth sciences	874	1290	739	674	362
Mathematics	1452	1821	2166	2036	1321
<b>Total</b>	<b>50592</b>	<b>50469</b>	<b>51650</b>	<b>50772</b>	<b>42263</b>

It could be seen from above that while there was steep decrease in number of research papers published in the disciplines of Agriculture, Biological sciences, Earth sciences and Engineering, in other applied areas viz., Chemical sciences, Physical sciences and Medical sciences it was almost stagnant. India's contribution to world publications was 2.2 per cent during the years 1989-98.

## 1.2 Coverage under the Report

1.2.1 The position of the expenditure by major scientific departments/organisations, covered in this Report, during the year 1998-99 and in the preceding two years is given below:

Sl. No.	Ministry/Department/Organisation	(Rs in crore)		
		1996-97	1997-98	1998-99
1.	Atomic Energy	2264.11	2908.80	3793.57
2.	Space	1065.32	1050.50	1401.70
3.	Indian Council of Agricultural Research	589.28	681.03	972.48
4.	Environment and Forests including Zoological Survey of India and Botanical Survey of India	520.04	497.83	606.18
5.	Science and Technology including Survey of India and India Meteorological Department	469.56	592.12	545.43
6.	Department of Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	466.11	602.85	735.38
7.	Non-Conventional Energy Sources	282.70	228.68	298.57
8.	Geological Survey of India (Ministry of Mines)	247.69	211.47	386.14
9.	Electronics	134.40	164.99	146.79
10.	National Informatics Centre (Planning Commission)	96.27	126.89	141.75
11.	Biotechnology	91.39	95.50	114.18
12.	Indian Council of Medical Research	66.95	70.49	106.67
13.	Ocean Development	64.05	100.66	105.15
14.	Centre for Development of Telematics (Department of Telecommunications)	46.53	84.99	96.72
<b>Total</b>		<b>6404.40</b>	<b>7416.80</b>	<b>9450.71</b>

An analysis of expenditure in the three years indicated that Department of Atomic Energy and Department of Space have been the major scientific agencies contributing to R&D expenditure of Central Government. The combined expenditure of these departments was 51.99 per cent, 53.38 per cent and 54.97 per cent of total expenditure during 1996-97, 1997-98 and 1998-99 respectively.

### 1.2.2 Excess expenditure and unspent provisions under various Grant/appropriation

A summary of Appropriation Accounts of 1998-99 in respect of the scientific departments/major scientific organisations, mentioned in paragraph 1.2.1 above, is given below:

(Rs in crore)

Sl. No.	Ministry/Department/Organisation	Grant/appropriation (including supplementary)	Expenditure	(-) Unspent provision (+) Excess	Per cent of Unspent provision/ Excess
1.	Atomic Energy	4008.09	3793.57	(-) 214.52	(-) 5.35
2.	Space	1607.83	1401.70	(-) 206.13	(-) 12.82
3.	Indian Council of Agricultural Research	1051.39	972.48	(-) 78.91	(-) 7.51
4.	Environment and Forests, including Zoological Survey of India and Botanical Survey of India	819.61	606.18	(-) 213.43	(-) 26.04
5.	Science and Technology including Survey of India and India Meteorological Department	628.11	545.43	(-) 82.68	(-) 13.16
6.	Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	741.32	735.38	(-) 5.94	(-) 0.80
7.	Non-Conventional Energy Sources	407.62	298.57	(-) 109.05	(-) 26.75
8.	Geological Survey of India (Ministry of Mines)	345.71	386.14	(+) 40.43	(+) 16.69
9.	Electronics	214.07	146.79	(-) 67.28	(-) 31.43
10.	National Informatics Centre (Planning Commission)	145.77	141.75	(-) 4.02	(-) 2.76
11.	Biotechnology	117.77	114.18	(-) 3.59	(-) 3.05
12.	Indian Council of Medical Research	112.37	106.67	(-) 5.70	(-) 5.07
13.	Ocean Development	107.50	105.15	(-) 2.35	(-) 2.19
14.	Centre for Development of Telematics (Department of Tele-communications)	136.69	96.72	(-) 39.97	(-) 29.24
<b>Total</b>		<b>10443.85</b>	<b>9450.71</b>	<b>(-) 993.14</b>	<b>(-) 9.51</b>

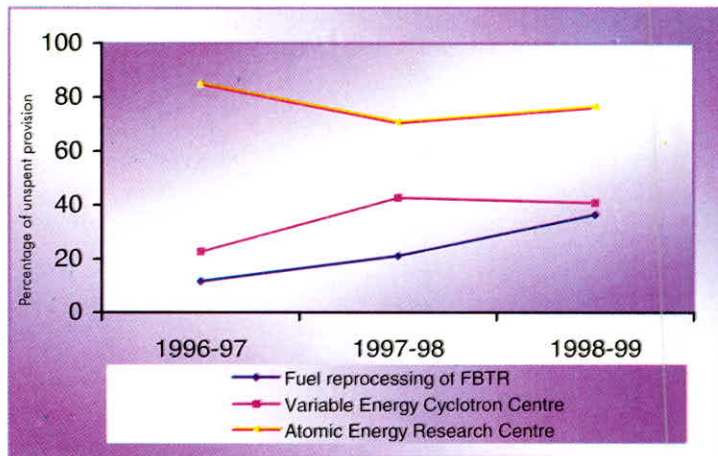


It would be seen from above that there was a total unspent provision of Rs 993.14 crore, representing 9.51 per cent of total provision of funds. Detailed examination of Appropriation Accounts of Department of Atomic Energy, Ministry of Environment & Forests, Department of Space and Department of Electronics, which accounted for 70.62 per cent of overall unspent provision, revealed as under :

<b>Grant No.89 – Atomic Energy (Department of Atomic Energy)</b>		
<b>Amount of unspent provision Rs 58.11 crore (3.21 per cent of total Provision)</b>		
Previous Years	Amount of unspent provision (Rs. in crore)	Percentage of unspent provision
1996-97	11.81	0.92
1997-98	90.57	5.71

**Schemes/Projects/Activity accounting for large unspent provision**

- ⇒ Fuel reprocessing of FBTR<sup>Φ</sup>
- ⇒ Variable Energy Cyclotron Centre
- ⇒ Atomic Energy Research



In three schemes executed under grant No.89 viz. Fuel reprocessing for FBTR, Variable Energy Cyclotron Centre and Atomic Energy Research, the unspent provisions ranged between 11.68 per cent to 85 per cent of the total provision during the years

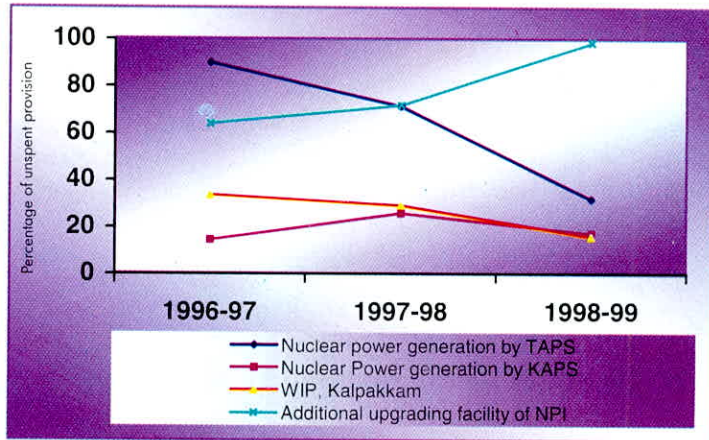
1996-97, 1997-98 and 1998-99.

<b>Grant No.90 - Nuclear Power Schemes (Department of Atomic Energy)</b>		
<b>Amount of unspent provision Rs 156.41 crore (7.27 per cent of total provision)</b>		
Previous Years	Amount of unspent provision (Rs. in crore)	Percentage of unspent provision
1996-97	7.33	0.72
1997-98	68.84	4.64

**Schemes/Projects/Activity accounting for large unspent provision**

- ⇒ Nuclear Power generation by Tarapur Atomic Power Station
- ⇒ Nuclear Power generation by Kakrapar Atomic Power Station
- ⇒ Waste Immobilisation Plant at Kalpakkam
- ⇒ Additional Upgrading Facility of Nuclear Power Plant

<sup>Φ</sup> Fast Breeder Test Reactor



In four schemes executed under grant No.90 viz. Nuclear Power generation by Tarapur Atomic Power Station, Nuclear Power generation by Kakrapar Atomic Power Station, Waste Immobilisation Plant at Kalpakkam, Additional Upgrading

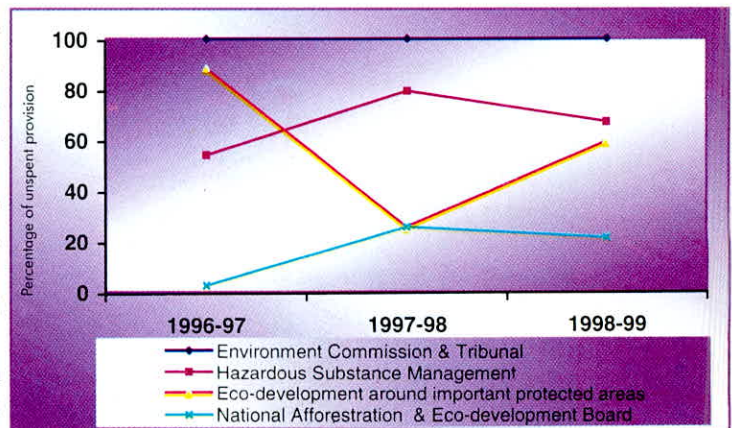
Facility of Nuclear Power Plant, the unspent provisions ranged between 14.22 per cent to 98.60 per cent of the total provision during the years 1996-97, 1997-98 and 1998-99.

**Grant No.24 – Ministry of Environment & Forests**

**Amount of unspent provision Rs 213.43 crore (26.04 per cent of total provision)**

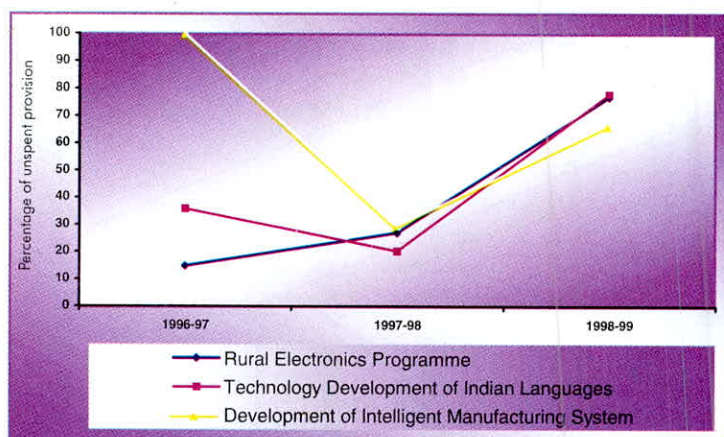
Previous Years	Amount of unspent provision (Rs. in crore)	Percentage of unspent provision	Schemes/Projects/Activity accounting for large unspent provision
			⇒ Integrated Afforestation & Eco-development project ⇒ Environment Commission & Tribunal ⇒ Indo-Canada Environment Facility Project ⇒ Taj Protection Mission
1996-97	32.73	5.92	
1997-98	140.76	22.04	

In four schemes executed under grant No.24 viz. Integrated Afforestation & Eco-development project, Environment Commission & Tribunal, Indo-Canada Environment Facility Project, Taj Protection Mission the unspent provisions ranged between 2.46 per cent to 100 per cent of the total provision during 1996-97, 1997-98 and 1998-99.



<b>Grant No.91 – Department of Electronics</b>			
<b>Amount of unspent provision Rs 67.28 crore (31.43 per cent of total provision)</b>			
			<b>Schemes/Projects/Activity accounting for large unspent provision</b>
<b>Previous Years</b>	<b>Amount of unspent provision (Rs. in crore)</b>	<b>Percentage of unspent provision</b>	
1996-97	21.80	13.96	⇒ Rural Electronic Programme ⇒ Technology Development for Indian Languages ⇒ Environmental Management in Electronics ⇒ Hi-Tech Investment Park
1997-98	3.24	1.93	⇒ Development of Intelligent Manufacturing System ⇒ Power Electronics

There were persistent unspent provisions under three schemes executed under



grant No.91 viz. Rural Electronic Programme, Technology Development for Indian Languages, Development of Intelligent Manufacturing System during the years 1996-97, 1997-98 and 1998-99.

<b>Grant No.93 – Department of Space</b>			
<b>Amount of unspent provision Rs 206.13 crore (12.82 per cent of total provision)</b>			
			<b>Schemes/Projects/Activity accounting for large unspent provision</b>
<b>Previous Years</b>	<b>Amount of unspent provision (Rs. in crore)</b>	<b>Percentage of unspent provision</b>	
1996-97	13.42	1.24	⇒ GSLV Project (Rs 3.25 crore)
1997-98	120.61	10.30	

There were unspent provisions ranging between 28.41 per cent and 69.77 per cent of total provision during 1996-97, 1997-98 and 1998-99 under Geo-synchronous Satellite Launch Vehicle Project.

### 1.2.3 Adverse balances appearing in the Finance Accounts

The adverse balances are negative balances appearing under the heads of accounts where normally there can be no negative balance. These arise due to misclassification or excess refunds or non-reconciliation of accounts or due to some other reasons. Statement No.13 of the Finance Accounts of the Union Government for the year 1997-98 revealed the following cases of adverse balances relating to Scientific Departments:

		<i>(Rs in thousand)</i>
1.	<b>DEPARTMENT OF SPACE</b> <b>MH 8443 – Civil Deposits</b> 106 – Personal Deposits	5,42 (Dr.)
2.	<b>DEPARTMENT OF OCEAN DEVELOPMENT</b> <b>MH 7610 – Loans to Government Servants</b> 203 – Advance for the Purchase of conveyance	3 (Cr.)
3.	<b>MINISTRY OF ENVIRONMENT AND FORESTS</b> <b>MH 8012 – Spl. Deposit and Account</b> 110 – Compulsory Deposit <b>MH 8443 – Civil Deposits</b> 109- Forest Deposits 800 – Other Deposits <b>MH 8550 – Civil Advances</b> 102 – Revenue Advances 103 – Other Departmental Advances 104 – Other Advances	1 (Dr.) 88,75 (Dr.) 43,93 (Dr.) 6 (Dr.) 5,69 (Cr.) 3,32 (Dr.)

*Note : MH refers to Major Heads of Account.*

In the case of Department of Space, adverse balance under Civil Deposits were repeatedly pointed out in the Reports of Comptroller and Auditor General of India, Union Government (Scientific Departments) from 1993 onwards. The adverse balance in the Department of Ocean Development was continuing since March 1997. There has been no improvement despite pointing it out in the Reports of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the years ended 31 March of 1997 and 1998. In case of Ministry of Environment and Forests, these were mainly proforma balances prior to formation of Ministry (i.e. January 1985), which were transferred from Ministry of Agriculture. Their details, though called for, were not produced by Principal Pay and Accounts Office.

All these adverse balances require investigation and rectification urgently.

### 1.3 Audit of accounts of autonomous bodies

Accounts of autonomous bodies, receiving grants and loans from the Ministries/Departments of the Government, are audited by the Comptroller and Auditor General of India under the relevant provisions of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

The Comptroller and Auditor General of India is the sole auditor of seven autonomous bodies under the Scientific Departments. Audit Reports are

prepared on their accounts under sections 19(2) and 20(1) of the Comptroller and Auditor General's (Duties, Powers & Conditions of Service) Act, 1971. The position of grants released to these autonomous bodies is indicated in *Appendix-I*.

In addition, the Comptroller and Auditor General of India may conduct supplementary/super-imposed audit of any of 52 other autonomous bodies which are substantially funded by the Government of India and whose primary audit is conducted by Chartered Accountants. The position of grants released to these autonomous bodies is indicated in *Appendix-II*.

#### **1.4 Outstanding Utilisation certificates**

Ministries/Departments are required to obtain certificates of utilisation of grants by the Ministry and Departments from the grantees i.e. statutory bodies, non-government institutions etc. indicating that the grants had been utilised for the purpose for which these were sanctioned and that, where the grants were conditional, the prescribed conditions had been fulfilled. 5143 utilisation certificates for grants aggregating Rs 605.67 crore were outstanding as given in *Appendix-III*. Utilisation certificates in 3019 cases aggregating Rs 239.86 crore were outstanding for more than three years. These included 1041 cases aggregating Rs 117.67 crore where utilisation certificates were outstanding for more than 10 years. An analysis of outstanding utilisation certificates revealed that Ministry of Environment and Forests alone accounted for 73.60 per cent of these. Other main defaulting Ministries/Departments were – (i) Department of Ocean Development (Rs 63.92 crore), (ii) Department of Electronics (Rs 51.42 crore), (iii) Ministry of Non-Conventional Energy Sources (Rs 33.85 crore).

Ministries/Departments need to look into this at the highest level and obtain the certificates or recover the amounts.

#### **1.5 Follow up on Audit Reports**

In its Ninth Report (Eleventh Lok Sabha) presented to the Parliament on 22 April 1997, Public Accounts Committee recommended that action taken notes on all paragraphs, pertaining to the Audit Reports for the year ended 31 March 1996 onwards, be submitted to them duly vetted by Audit within four months from the laying of the Reports in Parliament. However, Council of Scientific and Industrial Research had not submitted the action taken note on paragraph 2.2 of the Report of the Comptroller and Auditor General of India for the year ended March 1997.

## CHAPTER 2 : INDIAN COUNCIL OF MEDICAL RESEARCH

### 2.1 Regional Medical Research Centre for Tribals, Jabalpur

#### Highlights

- The objectives of the Centre, set up to deal with health problems unique to tribals and plan suitable intervention programmes could not be fully achieved due to shortage of funds, scientific manpower and infrastructure.
- A building to house 50 laboratories and 57 other rooms constructed in 1996 at a cost of Rs 348.45 lakh was yet to be occupied, thereby hampering the proper functioning of several key departments.

(Paragraph 2.1.6)

- Centre completed only seven out of 11 in-house projects undertaken during 1995-99. It ignored promotion and transfer of effective health care delivery system to existing health infrastructure. It did not address special socio-economic needs of the tribals.

(Paragraph 2.1.7 (a) & (b))

- Centre had no understanding with State Government for percolation of benefits of research activities to tribals. Impact of its intervention programmes was not assessed.

(Paragraph 2.1.7 (c) & (d))

- Centre did not document information on herbs used by tribals for treatment of different ailments.

(Paragraph 2.1.8)

- The existing system of monitoring by ICMR/Scientific Advisory Committee of the working of the Centre was deficient.

(Paragraph 2.1.10)

#### 2.1.1 Introduction

Almost a fourth of the tribal population resides in 46 groups in Madhya Pradesh and as they have distinctive life styles and social roles requiring suitable health intervention programmes, ICMR<sup>1</sup> established a Regional Medical Research Centre for Tribals (Centre) at Jabalpur in 1984 with a view

<sup>1</sup> Indian Council of Medical Research

to investigate their diverse health problems. The main objectives of the Centre were :

- To plan, conduct and co-ordinate applied research in the areas of community health and nutrition amongst tribals.
- To develop appropriate models of health and nutrition delivery system to suit the special socio-cultural and economic needs of the tribals.
- To assist the State Government, not only in the implementation of such programmes but also to monitor and evaluate periodically, the impact of such interventions on the life style of the tribals.
- To provide orientation and training to the implementing personnel of various departments and agencies concerned with tribal development.

### 2.1.2 Scope of Audit

The records maintained by the Centre at Jabalpur for the period 1994-99 were test checked with a view to ascertain the extent to which the Centre had achieved its objectives. Related records for the period prior to 1994-95 were also test checked wherever necessary to get a comprehensive picture.

### 2.1.3 Organisational set-up

Centre is headed by a Director, who in discharge of his duties, is assisted by a Deputy Director and two Assistant Directors. The research activities of the Centre are co-ordinated by a SAC<sup>1</sup> consisting of Heads of Department, Professors of various disciplines from Medical Colleges, representatives from Directorate of Health Services and Department of Tribal Welfare, Government of Madhya Pradesh, etc. Director General, ICMR is the chairperson of SAC.

### 2.1.4 Manpower Planning

The position of the sanctioned staff strength of the Centre during 1998-99 and actual deployment under each cadre was as under :

Cadre	Sanctioned	Filled	Vacant	Percentage of vacant posts	Remarks
Scientific	17	11	06	35	7 Posts were lying vacant from 1992-1996 while 6 posts remained vacant from 1996 to 1999
Technical	81	78	03	04	Vacancy position improved from 9 in 1992-93 to 3 in 1998-99
Administrative	47	46	01	02	Vacancy position improved from 4 in 1992-93 to one by 1998-99
<b>Total</b>	<b>145</b>	<b>135</b>	<b>10</b>		

<sup>1</sup> Scientific Advisory Committee

Despite repeated requests, ICMR did not provide adequate scientific manpower

Scientific personnel are primarily engaged in research and application oriented studies. From the above, it is clear that there have been persistent shortages in the scientific cadre. The Centre took up the matter with ICMR, as early as in 1989 and intimated that in the absence of appropriate specialists in the medical field, the studies have been conducted by available social scientists, which has affected the output of medical research. In April 1995, Director of the Centre again intimated the Director General of ICMR about the persistent shortage of staff in the scientific cadre which made it extremely difficult to carry out more than one or two projects in a year, and if there was no change in this situation, the research activities of the Centre would come to a stand still. However, there had been no improvement so far.

Even out of the available 11 scientific officials, one Research Officer in community medicine had not been attending to duties since December 1993. Despite the Director's request in April 1995 to terminate his service and fill up the vacancy, ICMR had not completed the disciplinary proceedings against him as of October 1999. ICMR stated in October 1999 that an enquiry has been initiated and the report was awaited.

While sufficient number of medical specialists were desirable, out of the 10 scientific officers available, only four belonged to the field of medicine. Of the four MBBS Doctors, one was on study leave from December 1997 onwards.

No Scientists/Research Officers were available in respect of the following Departments from the dates indicated against them. As a result, these departments have not carried out any activity since the dates mentioned in the table below :

Major departments remained non-functional for want of scientists

Name of the Department	Date from which working without scientist	Activity affected
Demography	4 January 1991	Conducting demographic studies on age, sex, fertility and association of the demographic variation with diseases on the tribals
Anthropology	24 January 1991	Conducting socio-cultural aspect of the health care of the tribals, birth related practices, factors affecting accessibility of modern health care, etc.
Microbiology	3 October 1991	Studying the microbiological aspect of the diseases
Immunology	17 January 1994	Studying immune status of individuals, correlation of diseases with the immune status of individuals, assessing the potency of vaccine for effective implementation of immunisation programme, imparting advanced training for the officials on immunological techniques.
Nutrition	10 July 1995	Conducting detailed analysis and nutritional value of the food taken by the tribals

There was no norm prescribing the relationship between administrative, technical and scientific posts. ICMR stated in October 1999 that it was not



feasible to prescribe such norms for various categories of staff on percentage basis in a scientific organisation. Besides, they attributed vacancies in scientific cadre to poor response to advertisements, unsuitability, ban on recruitment etc.

However, the reply has to be viewed in the light that in the absence of scientific posts being operated, it was not clear whether the technical staff was being gainfully utilised. In addition, it was noticed that due to failure of ICMR to fill up scientific posts promptly, two crucial posts related to scientific research, viz. Assistant Director, Genetics and Assistant Director, Microbiology had lapsed.

### 2.1.5 Financial position

The table below summarises the trend of expenditure under various heads.

*(Rs in lakh)*

Year	Pay and allowances	Other charges	T.A.	Equipment	Total	Percentage of Pay and allowances to total revenue expenditure
1994-95	57.87 (63.96)	18.90 (31.60)	1.62 (2.20)	9.81 (40.00)	88.20	65.61
1995-96	62.49 (69.93)	20.00 (35.00)	1.52 (2.25)	6.26 (45.00)	90.27	69.22
1996-97	74.31 (75.22)	29.43 (29.80)	1.49 (2.40)	4.57 (25.00)	109.80	67.68
1997-98	103.49 (103.80)	22.79 (84.25)	1.50 (2.30)	1.84 (40.93)	129.62	79.84
1998-99	120.67 (123.19)	28.94 (29.38)	2.40 (2.91)	1.46 (62.00)	153.47	78.63

*(Figures in bracket indicate budget demanded)*

The above table disclosed the following facts:

(i) The percentage of pay and allowances to total revenue expenditure gradually increased from 66 in 1994-95 to 79 in 1998-99. Coupled with this was the fact that during the same period, funds made available by ICMR for the purchase of equipment etc. were far below projected requirements, as shown in table above, thereby resulting in decrease in real terms as far as expenditure on research activity was concerned.

(ii) The expenditure on TA during the period of review varied between Rs 1.62 lakh and Rs 2.40 lakh as against Rs 3.30 lakh in 1991-92. This sharp decline, despite increased cost of travel, indicated that field visits in tribal areas during the past five years were actually reduced hampering research activities, as was evident from the fact that field visits dwindled from 3517 man days in 1994-95 to 584 man days in 1998-99.

Adequate funds for capital expenditure were not provided by ICMR

### 2.1.6 Infrastructure facilities

The complex constructed in 1996 at a cost of Rs 348.45 lakh is yet to be taken over

Since the Centre did not have a proper administrative building, housing laboratories etc., various research departments and other facilities were functioning at nearby Jabalpur Medical College building and at the residential quarters of the Centre at Jabalpur. CPWD<sup>1</sup> completed a building with a floor area of 5152.70 sq. m. (55443 sq. ft.) at a cost of Rs 348.45 lakh with facility to accommodate 50 laboratories and 57 other rooms. However, even after completion of the building in March 1996 the building has not been taken over by the Centre till date. This was due to many lapses in execution by CPWD, which were noted by the Centre, leading to the building being declared structurally weak. Items of work worth Rs 47.96 lakh were found to be far below specification.

In June 1999 Jabalpur Medical College authorities insisted on immediate vacation of the areas occupied by the Centre in the Medical College Building. Absence of proper infrastructure affected several crucial departments.



*A view of the unoccupied building constructed at a cost of Rs 348.45 lakh lying idle since March 1996*

Immunology Department of the Centre, housed in Medical College premises was closed with effect from November 1995 as the Medical College authorities insisted for its vacation. Oral Polio Vaccine Testing Centre functioning in the Centre with effect

from April 1991 under the Ministry of Health and Family welfare was wound up in August 1994 due to non-availability of good laboratory.

ICMR stated in October 1999 that since the CPWD did not remove the defects in construction, and replace sub-standard material and as the executive channel for redressal had failed, legal recourse has been resorted to by filing a writ petition in High Court, Jabalpur. Therefore, the building is not likely to be available for functional use in the near future.

Further, the infrastructure created was disproportionate to requirement of the Centre, which had a sanctioned staff strength of 147 only comprising 17 scientists, 81 technical and 47 administrative personnel and some of the departments were non-functional in the absence of necessary scientists.

ICMR stated that the infrastructure has been created keeping in mind the future expansions. Reply has to be viewed in the light of the fact that ICMR has failed to fill up even the sanctioned posts of scientists in the existing

<sup>1</sup> Central Public Works Department

departments, and possibility of creating and operating new departments in the future is remote.

### 2.1.7 Achievement of objectives

#### (a) Planning and co-ordination of Applied Research

The Centre was established with an objective to plan, conduct and co-ordinate applied research in the areas of community health and nutrition among tribal population. While SAC approved 26 projects to be taken up during 1995-99, the Centre took up only eleven projects of which it completed seven projects (including one taken up before 1995-96) till 31st March 1999. The discipline-wise details of completed projects was as under :

Sl. No.	Disciplines of research	1994-96	1996-98	1998-99	Total
1.	Community Medicine	01	01	01	03
2.	Genetics	02	-	-	02
3.	Statistics and Demography	-	01	-	01
4	Health Economics	01	-	-	01
Total		04	02	01	07

While during the first decade after its setting up, the centre completed 50 projects, it could complete only seven projects during 1994-99. Moreover, the Centre had not completed any studies in areas like Microbiology, Entomology, Anthropology, Immunology and Nutrition during 1994-99.

Even the field visits which were necessary for investigating the magnitude of the health problems of the tribes, their inter-relationship with their socio-cultural habits and for planning suitable intervention programmes for each tribe, had declined drastically as detailed below :

Year	1994-95	1995-96	1996-97	1997-98	1998-99
No. of mandays spent on field visits	3,517	849	976	1,184	584

In February 1987, October 1987 and May 1988, SAC had directed the Centre to concentrate more on problem solving activities, action oriented programmes, diagnosing health needs and problems of the tribal areas, testing out innovative remedies and finally transferring technology to the existing health care infrastructure, rather than carrying on research of academic importance. However, the Centre had transferred only one technology namely "Genetic counselling on prevalence of Haemoglobinopathies" during the period of review.

ICMR attributed in October 1999 the decline in completed projects to the fact that in the initial years there was unlimited scope for studies and these were meant for generating baseline data. Later on, after 1994, more analytical studies were undertaken which required longer time. ICMR further stated that the decline in the number of completed projects and field visits undertaken were due to shortage of scientific manpower, funds, vehicle and a proper laboratory.

**(b) Development of appropriate model of health and nutrition delivery system**

Centre failed to study weaknesses in existing health care services and suggest remedies

The Centre did not take up any research work for development of health and nutrition delivery system to suit the special socio-cultural and economic needs of the tribals after 1989. Even prior to 1989, only data collection was done. While sanctioning a project "Monitoring system for Primary Health Centres in tribal districts of Madhya Pradesh", SAC directed the Centre in August 1990 to probe in detail, the performance of health services in one district with a view to suggest remedial measures if defects were found in implementation. SAC also observed that mere collection of data did not serve any purpose, as the data was already available with State Government. The Centre proposed only in October 1998 to SAC to study the existing health care system in primitive tribes and to develop appropriate model for primitive tribes of Madhya Pradesh.

ICMR attributed (October 1999) shortage of trained staff and a laboratory as reasons for not taking up the study suggested by SAC and was exploring the possibility of providing funds. The fact remained that in 15 years, the Centre, had yet to undertake a meaningful study of the performance of health services.

With regard to development of nutrition delivery system, the Centre had not taken up any studies during 1994-1999. The Nutrition Department had not been conducting any research as no research officers were posted since July 1995. According to ICMR (October 1999), due to absence of Nutrition Delivery Scheme of the State Government, the Centre had not taken up any study. This ignores the fact that developing an appropriate model of nutrition delivery system, and suggesting it to the State Government was a priority area of the Centre.

**(c) Assistance to State Government in implementation of programme**

Centre has no understanding with State Government for implementation of its recommendations on tribal health

(i) One of the objectives of the Centre is to advise and assist the Government in implementation of tribal health programmes. Even though the Centre was formed in 1984, there is no Understanding with the State Government to ensure effective implementation of programme for the health upliftment of tribals based on the results of Centre's research. In the absence of such machinery, it is doubtful whether the benefits and objective of the Centre's research findings percolate to the tribals in real terms. Director of the Centre informed SAC in October 1998 that in the absence of any co-ordination between the Centre and the State Government, the achievements of the Centre were not being utilised by the State Government. On suggestion by Audit in July 1998 that there should be understanding and coordination in this regard, the Centre stated in April 1999 that action had since been initiated for finalising a Memorandum of Understanding with State Government.

However, ICMR stated (October 1999) that a Memorandum of Understanding with State Government was not necessary as the Intersectoral Committee and district level committees set up in 1993, in which the Centre is also a participant, could oversee implementation of the recommendations of the Centre.

(ii) In addition to rendering the assistance to State Government, the Centre was also required to periodically monitor and evaluate the impact of intervention programme initiated by State Government and to study impact of intervention on the life style of the tribals. The Centre did not monitor/evaluate the impact of the programmes. Out of 46 main tribal groups in Madhya Pradesh, the Centre conducted studies only in respect of 10 tribes and 7 primitive tribes during the past fifteen years. The Centre did not revisit any tribal group to see whether its intervention had any impact on their health and morbidity profile. Thus, the achievement of its own objective was not assessed by the Centre so far.

According to ICMR (October 1999), most of the primitive tribes had been studied within ten years, and revisiting them could be planned later as no significant changes could be expected in short period. However, out of 46 tribal groups only 17 were covered and for successful implementation of any programme or ascertaining impact of the programmes periodic appraisal and interaction are essential.

#### **(d) Orientation and Training on tribal development**

Even though one of the objectives of the Centre was to provide orientation and training to the implementing personnel of various departments and agencies concerned with the tribal development, the Centre had not chalked out any action plan in this regard. The Centre conducted only one training course in September 1997 in which it trained 55 para-medical staff of the State Government for grass-root level counselling on HIV. While accepting this fact, in October 1999, ICMR attributed the non-realisation of this objective to the lack of facilities like building and staff for full-fledged training programme.

#### **2.1.8 Failure to document knowledge on medicinal plants handed down by generations**

Tribal health strategy *inter-alia* provided for identification of indigenous herbs for medicinal use. A joint meeting of the Regional Medical Research Centres held in June 1995 also directed that the Centre should conduct a study of regional herbs used by tribal people for treatment of different ailments and document valuable knowledge regarding medicinal plants handed down through generations.

Although the Centre considered it an important project and realised the importance of documentation of traditional system of all medicines of tribals, it did not initiate any work in this direction. It submitted the project report on "A study on traditional system of medicines in Tribal Districts of Madhya Pradesh" to SAC for approval in 1998. However, SAC did not approve the project and directed the Centre to re-submit the project after comprehensive study of the literature and re-designing the project. ICMR clarified in October 1999 that the activity was put on hold until the issue of sharing of Intellectual Property rights with tribals was settled, and in view of the fact that proposals were underway to establish a Regional Medical Research Centre at Belgaum to carry out extensive studies related to medicinal plants. The reply is to be

Centre had no action plan to train officials concerned with tribal development

viewed in the background of dwindling population of the tribes and the risk that this valuable knowledge could become extinct unless tapped in a time bound programme. The fact also remains that even after recommendation/direction in June 1995, nothing has been done in this regard.

### 2.1.9 Implementation of Projects

Scrutiny of implementation of some of the projects undertaken revealed the following deficiencies in the achievement of objectives :

#### (a) Incomplete project

Haemoglobin disorders<sup>♦</sup>, mainly sickle cell disease<sup>◊</sup> and B-thalassaemia<sup>■</sup> are common afflictions among the population of Central India. Detailed clinical and haematological profile of sickle cell disease and B-thalassaemia patients in relation to their genetic make up was not known in Indian context. To fill up this gap, SAC in 1992 approved a project "Prevention and Management of Haemoglobinopathies in Central India" at a cost of Rs 74 lakh and attempts were to be made to get the funds from external sources. The project aimed at the establishment of the infrastructure facility for the development of technical knowledge for prenatal diagnosis, prevention and management of B-thalassaemia and its related disorders. As requisite funds were not forthcoming from the external sources, SAC in 1994 modified the scope of the project and restricted the project to an academic study of "prevalence of B-thalassaemia in Jabalpur area" with the following objectives :

- To study prevalence rate of B-thalassaemia and other haemoglobinopathic disorders among the various ethnic groups of Jabalpur area.
- To study the spectrum of B-thalassaemia mutation of Jabalpur.
- To study the proportion and level of anaemia.

With the reduced scope of the project the cost was also pruned down to Rs 14.25 lakh. The project was scheduled for completion by November 1997.

At the request of the Centre, ICMR extended the duration of the project till October 1998. Even with the restricted scope, the project was not completed as of March 1999 due to in-house delays such as in procurement of equipment required for the project.

ICMR stated in October 1999 that genetic disorder like B-thalassaemia could not be cured and for providing clinical management in sickle cell diseases, a

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♦ The clinical complications formed due to various diseases of haemoglobinopathies e.g. Sickle cell disease and B-thalassaemia.

◊ **Sickle Cell Disease** : - Common complication severe anaemia, joint pain, swelling of bones, gall stones, acute and chronic chest syndrome, jaundice, recurrent infections of common infectious diseases, etc.

■ **B-thalassaemia major** : - Severe anaemia at young age (from 6 months onwards), iron overload in the vital organs of the body, recurrent infection, extreme weakness. The child is survived only through blood transfusions. Later on, the child has a high risk of developing many/various transfusion related problems.

modified project report was prepared and presented to SAC in 1998 and the possibility for funds was being explored. The reply of ICMR indicates low concern for the health care needs of the tribals.

**(b) Delay in completion of a project**

Project could cover only one out of seven tribes

SAC in August 1996 approved a Project "Epidemiology of Malaria" in Primitive tribes of Madhya Pradesh to study the rate of prevalence of Malaria in Primitive tribes; composition of vector species and their role in transmission and the management of disease. As per the directives of the SAC, the study was to cover at least two primitive tribes every year so that study on all the seven primitive tribes in Madhya Pradesh could be completed in about 3-4 years. Even though, the Centre was to cover 3-4 primitive tribes by March 1999 it covered only one tribal community viz. Bharia having a population of only 1430 till March 1999.

ICMR stated in October 1999 that though the project was to be carried out in collaboration with other centres and these centres could not be involved due to prior commitments, one entomologist of the Centre at Jabalpur was covering one community at a time and fresh efforts were being made to involve field stations of the Malaria Research Centre for expeditious coverage of all tribes. ICMR's reply underscores failure of the centre to anticipate and provide for such aspects while committing to undertake the project to SAC.

**(c) Diversion of study to non-core area**

The Centre conceived a project in 1998 to study the impact of genetic counselling of prevalence of hereditary anaemia in Sindhis (Non-tribals) in order to generate awareness among the Sindhis of Jabalpur district and to impart genetic counselling to high risk couples and to evaluate the effect of genetic counselling on prevalence of the disease. The project was not covered under the objectives of the Centre.

ICMR stated that the study was taken up in view of high incidence of B-thalassaemia in Sindhi Community in Jabalpur and the result of this project would be utilised among the tribal population. However, while the project is still underway, there is no evidence that the results obtained so far have been utilised to deal with similar problems among the tribals.

**(d) Specific recommendations not made to State Government**

Centre made no specific recommendations after completing a study on Economic Aspects of Health Care in tribal areas

A study conducted by the Centre during 1987-1990 on "Economic Aspect of Health care in a tribal area of Madhya Pradesh" disclosed that the health care situation in the tribal community was far from satisfactory and called for steps to improve the economic level of the people, thereby increasing the purchasing power so that they could get proper treatment. While reviewing the study, SAC observed that it was already a known fact that the economic status of the community had a direct bearing on its health-seeking behaviour. SAC, therefore, suggested that the findings of the study should be reviewed with an aim to provide specific recommendation to State Government.

However, the Centre did not prepare any such specific recommendation after reviewing the findings of the study.

The Centre stated in April 1999 that Dr. D.K. Mishra, Principal Investigator had not taken the matter seriously in spite of instructions from the Director and hence the Centre could not send concrete recommendation to State Government. However, ICMR reply was silent about action against the Principal Investigator, if any, in this regard.

**(e) Delay in the completion of a project for providing safe water free from fluoride**

An analysis made by the Centre revealed that the children consuming water from the bore well provided to the Public by State Government in the district of Mandla, Madhya Pradesh were affected by skeletal deformities dental mooting and flourosis, due to higher percentage of fluoride content in the water. As a result of these findings of 1995-96 all the bore-wells were examined/analysed and wells which were contaminated with fluoride were closed down by the State Government.

In view of this finding, Centre conceived a Project for the extensive survey to map out the endemic area in Mandla district for fluorosis with an aim to provide safe drinking water. The SAC approved the Project in August 1996.

The first phase of the project "Assessment of the severity and magnitude of the problems of fluorosis" was to be completed within 10 months from the commencement at an estimated cost of Rs 4.24 lakh out of the funds provided under Rajiv Gandhi National Drinking water mission by Ministry of Rural areas and Employment. The second phase of the project "The introduction of intervention programme for safe and sustained source of drinking water provision" was to be undertaken in collaboration with Public Health Engineering Division, State Ground Water Board, Geological Survey of India etc. Release of funds were linked to the progress of the project. First instalment of Rs 1.69 lakh was released in August 1997. The first phase of the project suffered from delays and has not been completed even as of March 1999. The Centre attributed the time overrun in the completion of phase-I of the project to the delay in receipt of second instalment of grant. Delay in release of second instalment was primarily due to failure of the Centre to furnish requisite progress report and utilisation certificate. Further, a perusal of accounts of the project revealed that enough funds were available with Centre as closing balance at various dates. Thus, the implementation of intervention programme for providing safe water to the people could not commence so far denying the people of the affected area a safe and sustained source of drinking water.

Delay in completion denied people a safe and sustained source of drinking water

**2.1.10 Improper Monitoring System**

The SAC consisting of eminent scientists is the agency responsible for reviewing the working of the Centre and monitoring the progress of the laboratories. SAC, which approves the projects to be executed by the Centre is required to meet once in a year. However, between 1994-95 and 1998-99,



SAC meetings were held only on three occasions viz. February 1995, August 1996 and October 1998, pointing to deficiency in monitoring of ongoing schemes.

#### **2.1.11 Conclusion**

It is evident from above that Regional Medical Research Centre for Tribals, Jabalpur, has been plagued by persistent deficiencies, viz. paucity of funds, dearth of scientific manpower and shortage of infrastructure. Ironically, the massive complex constructed to house all departments/laboratories, is unlikely to be used in near future due to legal wrangles. These constraints have seriously hampered research activities of the Centre and affected the functioning of its several departments, some of which are non-functional for nearly five to ten years, in the absence of scientists and research officers. Despite being aware of all this, ICMR has demonstrated nothing on its part to address any of the issues. In this background there is a serious need to review the continued functioning of the Centre.

## CHAPTER 3 : COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

### 3.1 Utilisation of Laboratory Reserve Fund

#### Highlights

- Guidelines governing Laboratory Reserve Fund were vague and permitted expenditure on contingencies and other items not related to upgradation of infrastructure. As a result, Directors of Laboratories had flexibility to use Laboratory Reserve Fund for expenditure on items not pertaining to infrastructure upgradation.

(Paragraph 3.1.4)

- Directors of laboratories spent Rs 6.37 crore from Laboratory Reserve Fund during 1994-99 on activities like golden jubilee/annual day celebrations, gifts/mementos, snacks/lunches/dinners, construction, repair/ maintenance and financial assistance to private bodies etc. Of Rs 6.37 crore, expenditure of Rs 0.97 crore did not even have the sanction of Directors.

(Paragraph 3.1.4(a))

- Council of Scientific and Industrial Research empowered Directors of Laboratories to incur expenditure on foreign visits from Laboratory Reserve Fund for business development/promotion, which was defined in such all encompassing manner that Directors could freely authorise foreign visits even though many of such visits could not be said to help R&D efforts, upgradation of infrastructure or augmenting resources. During 1997-99, an amount of Rs 53.91 lakh was spent on foreign visits.

(Paragraph 3.1.4(b))

- Directors of laboratories unauthorisedly transferred an amount of Rs 38.17 crore drawn from Consolidated Fund of India to Laboratory Reserve, which represented 21.70 per cent of total Laboratory Reserve Fund generated during 1994-99.

(Paragraph 3.1.2)

- In spite of sufficient balances ranging from Rs 19.19 crore to Rs 72.63 crore under Laboratory Reserve Fund, Directors planned utilisation of Laboratory Reserve Fund ranging between Rs 10.27 crore to Rs 25.85 crore. Council of Scientific and Industrial Research continued to rely on government support for modernisation.

(Paragraph 3.1.3)

- The records pertaining to Laboratory Reserve Fund failed to give a transparent view of generation and utilisation of Laboratory Reserve Fund.

(Paragraph 3.1.5)

### 3.1.1 Introduction

(a) CSIR<sup>1</sup>, which is mainly funded by Department of Scientific and Industrial Research, created a LRF<sup>2</sup> with effect from 1 April 1992. Objectives of creation of the fund were to channelise the receipts of Laboratories for the purpose of R&D<sup>3</sup> efforts, upgradation of infrastructure besides supplementing their financial resources. Therefore, R&D receipts like royalty and premia, testing charges, training fees, earning from pilot plants, overhead charges on sponsored/consultancy projects, intellectual fee and unspent/surplus balances on completion/closure of projects were segregated and kept under the LRF, while miscellaneous receipts like guest house charges, tender papers, priced publications, income from investments, private use of telephones and transport and recovery of water and electricity charges etc. were kept out of it.

(b) Under Section 20(1) of the Comptroller and Auditor General of India (C&AG's) (Duties, Powers and Conditions of Service) Act 1971, an audit review of CSIR's laboratories/institutes was carried out to examine the records relating to generation and utilisation of LRF during 1994-99. At the beginning of 1993-94, there was an opening balance of Rs 28.65 crore in LRF. A total of Rs 263.54 crore were generated out of which Rs 138.92 crore were utilised by the 41 laboratories of CSIR in 1994-99. Records in 14 laboratories as per *Appendix-IV*, involving generation of Rs 175.88 crore and expenditure of Rs 100.32 crore, representing a sample of 66.74 *per cent* of LRF generated and 72.21 *per cent* of LRF utilised, were test checked in audit to see whether LRF was set up in accordance with CSIR guidelines and whether the funds credited in LRF were utilised for the objectives for which it was created. The results of the test check are summarised below :

### 3.1.2 Unauthorised transfers to LRF

Directors of 14 laboratories unauthorisedly transferred Rs 38.17 crore to LRF

All R&D receipts as indicated in Paragraph 3.1.1(a) were to be credited to LRF as per guidelines framed by CSIR. This implied transfer to LRF of funds generated by the laboratories, and not from the Consolidated Fund of India. The Directors of these 14 laboratories unauthorisedly transferred an amount of Rs 38.17 crore, representing 21.70 *per cent* of total LRF generated during 1994-99, as discussed below :

Rs 28.56 crore interest accrued on investments unauthorisedly transferred to LRF

(i) As per the terms & conditions of grants-in-aid released by the Government, the interest accrued from investment of unspent balance of grants-in-aid projects was to be refunded/ adjusted in the subsequent instalment. Also, as per the accounting procedure approved in 1992, this was to form a part of 'Miscellaneous Receipts'. It was noticed during test check of 14 laboratories for the period 1994-99 that an amount of Rs 28.56 crore, on account of investment of deposits of sponsored/grants-in-aid projects was transferred to LRF. Out of Rs 28.56 crore, Directors of seven laboratories accounted for Rs 23.54 crore as detailed below :

<sup>1</sup> Council of Scientific and Industrial Research

<sup>2</sup> Laboratory Reserve Fund

<sup>3</sup> Research & Development

<i>(Rs in crore)</i>		
Sl. No.	Name of laboratory	Amount
1.	CBRI	3.02
2.	CFTRI	2.35
3.	CMRI	2.20
4.	NAL	2.18
5.	NCL	2.82
6.	NEERI	5.44
7.	NIO	5.53
<b>Total</b>		<b>23.54</b>

Besides, in CFTRI, CDRI and IMTECH, interest earned on investment of CSIR funds to the tune of Rs 17.42 lakh, Rs 0.88 lakh and Rs 5.39 lakh respectively were also unauthorisedly transferred by the concerned Directors to LRF during 1996-99. The fact that amounts pertaining to Grants-in-aid projects were actually drawn from Consolidated Fund of India makes this action of Directors highly improper. CSIR failed to check and prevent such transfers. CSIR stated in February 2000 that the laboratories were being advised to carry out necessary correction in case where interest was credited to LRF.

11 laboratories transferred Rs 9.08 crore representing unspent/surplus balances of projects to LRF

(ii) An amount of Rs 9.08 crore on account of unspent/surplus balances of completed sponsored/grants-in-aid projects of Government of India/State Government was transferred to LRF by 11 laboratories during 1994-99. This had resulted in transfers from Consolidated Fund to LRF, which was in contravention of the provisions governing grants-in-aid released by the Government. CSIR stated in February 2000 that the laboratories were being advised to review all such credits made to LRF.

(iii) Directors of CFTRI and IMTECH unauthorisedly transferred to LRF Rs 25.00 lakh and Rs 4.21 lakh respectively out of budgetary grant released by CSIR during 1997-98. This resulted in direct transfer of funds drawn from Consolidated Fund of India to LRF. While accepting the facts, CSIR stated in February 2000 that IMTECH had rectified the wrong transfers in January 2000.

### **3.1.3 Continued dependence on budgetary support for modernisation/R&D activities despite creation of LRF**

Despite substantial balances under LRF, Directors concerned did not plan for its optimal utilisation

During the period 1994-95 to 1998-99, CSIR generated Rs 263.54 crore under LRF and utilised only Rs 138.92 crore. A detailed examination of 14 laboratories revealed that during 1994-99 these laboratories had substantial balances ranging between Rs 19.19 crore to Rs 72.63 crore under LRF. In spite of such huge balances, the Directors of these laboratories planned utilisation of LRF in the range of Rs 10.27 crore to Rs 25.85 crore during 1994-99, as detailed below :

(Rs in crore)

Year	Balance under LRF	Projected utilisation
1994-95	19.19	10.27
1995-96	30.49	12.45
1996-97	46.68	14.63
1997-98	65.15	20.34
1998-99	72.63	25.85

Interestingly, Directors of CFTRI, IMTECH, NCL and NEERI could not utilise even the projected funds. CSIR stated in February 2000 that it was a Reserve Fund and most laboratories were accumulating LRF to put up facilities of a significant scientific and technological nature needing sizeable investments. The reply of CSIR is not acceptable in view of the fact that major expenditure from LRF has been on items not related to upgradation of laboratory infrastructure.

CSIR continued to rely on Government support for modernisation

Further, the Parliamentary Standing Committee on Science and Technology, Environment and Forest in its meeting held on June 19, 1998 had desired that CSIR should generate internal resources for modernizing the laboratories and also observed that most of the laboratories required urgent upgradation and replacement to make them globally competitive. In spite of having balance<sup>■</sup> of Rs 114.74 crore and Rs 153.27 crore as of 31 March 1998 and 31 March 1999 respectively under LRF, CSIR utilised only Rs 1.37 crore and Rs 1.44 crore out of LRF for modernisation during 1997-98 and 1998-99 respectively. While CSIR received Rs 46 crore and Rs 48 crore from the Government during these years for modernisation. Director General, CSIR stated in February 2000 that the expenditure for modernisation from LRF was likely to increase progressively.

### 3.1.4 Utilisation of LRF

LRF was used for all kinds of expenditure in addition to expenditure from regular Government grant

It was seen from an analysis of funds utilised during 1994-99 from Government grant as well as from LRF under revenue and capital heads by NPL, IMTECH, CBRI, CDRI, IIP, NIO, CMERI and NEERI, the figures for which were available, that Directors of these laboratories incurred an expenditure to the extent of 26.99 to 74.17 per cent of the total expenditure out of LRF on revenue heads like contingencies, maintenance, honorarium and Travelling Allowance for foreign tours respectively. The capital expenditure met out of LRF during 1994-99 ranged between 12.69 to 48.33 per cent of the total expenditure incurred by the laboratories as under:

■ Total balance under LRF

(Rs in lakh)

Sl. No.	Expenditure heads	Total expenditure	Expenditure from LRF	Percentage utilisation of LRF
<b>A. REVENUE</b>				
1.	Contingencies	4197.39	1238.18	29.50
2.	Maintenance	1155.02	311.77	26.99
3.	Honorarium	19.24	5.75	29.89
4.	Travelling Allowances on foreign tours	124.56	92.39	74.17
<b>B. CAPITAL</b>				
1.	Works & Services	1031.40	328.84	31.88
2.	Apparatus and Equipment including Computers	3948.50	1358.25	34.40
3.	Office equipment	98.35	47.53	48.33
4.	Library Books	582.23	73.86	12.69

As would be clear from the above table, the LRF was used for all kinds of expenditure, many of which were not R&D expenditure. Directors of CBRI, NPL & IIP spent Rs 63.17 lakh, Rs 220.47 lakh, and Rs 347.20 lakh from the LRF during 1995-99 respectively on contingencies. Of this, the expenditure on electricity, telephone and miscellaneous & unforeseen heads alone was Rs 52.27 lakh, Rs 137.71 lakh and Rs 260.96 lakh representing 82.74, 62.46 and 75.16 per cent respectively.

Flexibility given to Directors permitted expenditure on non-R&D activities

While the main objective of LRF was for R&D efforts of laboratories and upgradation of infrastructure, the guidelines framed in this regard were vague and virtually all items of capital and revenue expenditure from LRF were made permissible, thereby allowing the concerned Directors the flexibility to spend freely from LRF without ascertaining whether the same led to infrastructure upgradation or R&D efforts. It was seen that the Directors of the laboratories incurred expenditure on contingencies and other items not related to upgradation of infrastructure. Pertinent instances are brought out in succeeding paragraphs:

**(a) Expenditure on non R&D activities**

Rs 6.37 crore was spent by Directors from LRF on non R&D activities

Sample checks of individual items of expenditure disclosed that following specific cases where the Directors of these 14 laboratories incurred expenditure aggregating Rs 6.37 crore during 1994-99 on non-R&D activities under various sub-heads of contingencies, even though during these years these laboratories continued to draw budgetary support from CSIR for meeting expenditure on contingencies. Institute-wise expenditure incurred on non-R&D activities during 1994-99 is indicated in table below:

**(Rs in lakh)**

Name of the Institute	Expenditure on Non R&D activities
IIP, Dehra Dun	263.46
NPL, New Delhi	104.47
NCL, Pune	94.15
CBRI, Roorkee	44.57
NISCOM, New Delhi	39.40
NIO, Goa	27.20
NAL, Bangalore	17.99
CMERI, Durgapur	17.12
IICT, Hyderabad	9.62
CDRI, Lucknow	9.61
CMRI, Dhandbad	5.33
IMTECH, Chandigarh	4.33
<b>Total</b>	<b>637.25</b>

Out of Rs 6.37 crore, Rs 0.97 crore was spent by IIP, IMTECH, IICT and NAL without the specific sanction of the Directors. While accepting the facts, CSIR stated in February 2000 that concerned laboratories were being advised to obtain ex-post-facto approval of the Directors. The item-wise detail of expenditure by the institutes is given in *Appendix-V*.

**(i) Telephone/mobile phone bills**

Directors of six laboratories paid Rs 77.41 lakh towards telephone bills including Rs 6.04 lakh paid for mobile phone bills of Directors of IIP and NCL

Directors of CMERI, IIP, IMTECH, NCL NPL and NISCOM paid Rs 77.41 lakh during the period 1994-99 from LRF towards telephone/mobile phone bills. Of this, Rs 46.84 lakh and Rs 21.63 lakh related to IIP and NCL respectively. Out of Rs 77.41 lakh, NCL paid Rs 3.24 lakh during July 1997 to February 1999 towards mobile phone and pager bills of Director, Controller of Administration and staff respectively and IIP also paid Rs 2.80 lakh during January 1998 to December 1998 for mobile phone bills of Director and Director General, CSIR. IMTECH/NPL also paid Rs 0.52 lakh during March 1998 to March 1999 towards residential telephone bills.

**(ii) Snacks/lunches/dinners**

Directors of eight laboratories spent Rs 20.47 lakh from LRF on snacks/lunches/dinners

Directors of CBRI, CDRI, CMRI, IIP, NCL, NIO, NPL and NISCOM spent Rs 20.47 lakh during 1994-99 on snacks/lunches/dinners from LRF. Out of Rs 20.47 lakh, IIP and NIO incurred expenditure of Rs 9.55 lakh and Rs 6.23 lakh respectively. Since these expenditure cannot be related even remotely to the R&D infrastructure upgradation or for R&D efforts, the Directors are personally accountable for this misuse and responsibility should be fixed for it.

**(iii) Reimbursement of newspaper bills**

Directors of CBRI, IIP, NPL and NISCOM reimbursed Rs 3.65 lakh from LRF during 1994-99 towards newspaper bills provided at the residences of scientific/non-scientific officers.

**(iv) Gifts/mementos**

Directors of four laboratories incurred an expenditure of Rs 11.05 lakh from LRF for distribution of gift/mementos

Directors of CBRI, IIP, NIO and NPL distributed Gifts/Mementos/bags/watches/ silver coins (Gold plated) etc. on various occasions like golden jubilee celebrations, seminars, conferences, scientific/technical advisory committee meetings, Parliamentary committee meeting and Diwali festival during 1995-99, for which the Directors concerned authorised expenditure of Rs 1.70 lakh, Rs 2.95 lakh, Rs 0.49 lakh and Rs 5.91 lakh respectively from their LRF during 1995-99. Out of the expenditure of Rs 2.95 lakh, Director IIP incurred Rs 0.66 lakh towards distribution of *Leechi* fruits and Diwali gifts to Very Important Persons and well wishers. This amount should be recovered from the Director as such expenditure infringes the financial propriety.

**(v) Celebration of foundation/golden jubilee day**

Directors of six laboratories spent Rs 40.73 lakh out of LRF on celebration of foundation/golden jubilee day

During 1994-99, CBRI, IIP, IMTECH, NCL, NIO and NISCOM celebrated foundation day/golden jubilee day of their laboratories and incurred expenditure aggregating Rs 40.73 lakh consisting of Rs 4.26 lakh, Rs 0.20 lakh, Rs 0.24 lakh, Rs 28.60 lakh, Rs 6.63 lakh and Rs 0.35 lakh by these laboratories respectively from LRF. Director CBRI spent Rs 0.45 lakh on purchase of bust of Shri Jawahar Lal Nehru and its installation on the Golden Jubilee Celebration in 1997-98. These activities were not related to R&D activities.

**(vi) Financial assistance to private bodies**

Financial assistance of Rs 1 lakh released out of LRF to private bodies

Director IIP unauthorisedly granted assistance of Rs 0.95 lakh from LRF to private bodies viz. Doon School for establishing Centre for advanced education, Doon Press Club for providing chairs and sound system and Public Relations Society of India as one time grant during 1995-96 and 1998-99. Similarly, Director NIO also released Rs 5000/- from LRF in February 1999 as donation to a private school on its Annual Day function. Thus, LRF was treated as a miscellaneous purpose fund and the Directors of these laboratories were accountable for such unauthorised expenditure.

**(vii) Courier/Postal charges**

Rs 4.37 lakh spent from LRF towards private courier service

Directors of IIP, IMTECH, NPL and NISCOM spent Rs 4.37 lakh and Rs 13.29 lakh from LRF during 1994-99 towards courier service and postal charges respectively. These were items of expenditure which should have been met out of their annual budget.

**(viii) Electricity and water charges**

Directors of CBRI, CDRI, IICT, IIP, NCL, NPL and NISCOM paid a total of Rs 1.42 crore from LRF during 1994-99 toward electricity bills for their office building, including Rs 0.56 lakh for electricity charges of tubewell at CDRI residential complex. Out of this IIP, NCL and NPL accounted for expenditure of Rs 93.77 lakh from LRF towards electricity charges. In addition, Directors of CMERI and NISCOM also paid Rs 3.77 lakh and Rs 1.28 lakh from LRF



during 1994-99 towards water charges for office and residential colony respectively.

**(ix) Staff/welfare club**

Directors of CBRI, CDRI, IICT, IIP, IMTECH, NIO, NPL and NISCOM released Rs 5.29 lakh from LRF to their staff/welfare club for organising sports tournaments including distribution of prizes, Bhajan Sandhya, celebration of Independence Day etc. during the period 1994-99. Welfare Club had no direct relationship to any R&D activities. Out of Rs 5.29 lakh, Director IIP, and Director NIO alone released Rs 2.21 lakh and Rs 1.19 lakh respectively.

**(x) Over Time Allowance/honorarium/night duty allowance**

According to instructions issued by Ministry of Finance in May 1993, the laboratories were required to restrict the payment of OTA<sup>1</sup> to amounts paid during 1990-91 for subsequent years. The Directors of IIP, NCL and NPL not only infringed the instructions of Ministry of Finance but paid Rs 13.04 lakh, Rs 8.60 lakh and Rs 13.24 lakh respectively on OTA in excess of prescribed limit from its regular grant. They further paid OTA of Rs 14.87 lakh, Rs 11.88 lakh and Rs 2.36 lakh respectively from LRF. Besides their accounts of the normal grant concealed the payment of overtime allowance from a different source.

In addition, Directors of CBRI, IICT, IIP, NAL and NPL paid honorarium of Rs 7.49 lakh during 1995-99 from LRF. Director IIP also paid Rs 0.97 lakh from LRF as night duty allowances in October 1998.

**(xi) Petrol/diesel**

Directors of CBRI, IIP, IMTECH, NPL and NISCOM spent Rs 11.13 lakh from LRF towards petrol/diesel for their office vehicles. Out of this, CBRI and IIP accounted for Rs 8.90 lakh.

**(xii) Security/house keeping contract**

Directors of CMERI, IIP, NPL and NISCOM awarded security/house keeping contracts etc. to private contractors and paid Rs 40.77 lakh from LRF during 1994-99 towards payment of wages for supply of personnel for security/house keeping. Out of the expenditure of Rs 40.77 lakh, IIP and CMERI alone accounted for Rs 26.29 lakh and Rs 7.69 lakh respectively.

**(xiii) Hotel/Guest house accommodation charges**

Director NCL paid Rs 1.45 lakh from LRF towards hotel accommodation/guest house charges of Parliamentary Committee in October 1995.

Directors of three laboratories exceeded the prescribed limit for payment of OTA by Rs 34.88 lakh, of which Rs 29.11 lakh was paid from LRF

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<sup>1</sup> Over Time Allowance

**(xiv) Furnishing/renovation of guest house/hostel**

During 1994-99, Directors of CBRI, CMRI, IIP and NPL spent a total of Rs 11.46 lakh from LRF on furnishing/renovation of guest houses. Similarly, Director IMTECH spent Rs 0.79 lakh in January 1998 towards fitting of gas lines in hostel mess.

**(xv) Hindi Patrika/Hindi Diwas/Kavi Sammelan**

Director IIP spent Rs 4.67 lakh from LRF towards printing of Hindi Patrika and organising Hindi Diwas/Kavi Sammelan

Director IIP incurred a total expenditure of Rs 4.67 lakh from LRF each year during the period 1994-99 towards printing of Hindi Patrika "Vikalp" and organising Hindi Diwas/Kavi Sammelan, including distribution of cash prize without giving a thought as to how these were related even remotely to R&D efforts or creation of infrastructure.

**(xvi) Leave Travel Concession/Travelling Allowance/Transfer Travelling Allowance**

Directors of IIP and CMRI paid Rs 4.84 lakh and Rs 1.70 lakh respectively from LRF towards Leave Travel Concession. Directors of CBRI and NPL spent Rs 2.62 lakh from LRF towards payment of Travelling Allowance during 1997-99. Further, Director IIP spent Rs 0.84 lakh from LRF towards Transfer Travelling Allowance of scientific/non-scientific staff during 1996-98.

**(xvii) Purchase of medicines and reimbursement of medical claims**

Directors of CMERI, IIP and NPL spent Rs 12.95 lakh during 1994-99 towards purchase of medicines for their dispensaries, which ought to have been met out of their normal budget. Of this, Director IIP alone accounted for an expenditure of Rs 9.61 lakh. Further, Directors of CBRI, IIP and NIO also paid Rs 9.24 lakh from LRF during the same period towards reimbursement of medical claims of officials. Out of total expenditure of Rs 22.19 lakh, on medicine/medical claims, IIP alone incurred expenditure of Rs 13.40 lakh.

**(xviii) Construction, repair and maintenance**

During the period May 1994 to February 1999, Director IIP incurred irregular expenditure of Rs 10.92 lakh from LRF towards construction of a Central School, including supply of furniture and electric installations. Further, an expenditure of Rs 1.90 lakh was incurred by Director for construction/extension of bank building in IIP campus.

Director IICT incurred an expenditure of Rs 0.92 lakh in 1998-99 on external and internal painting of Primary and main school building at IICT campus (II). The expenditure did not fulfil the objective for which LRF was created and, therefore the decision of Directors of the laboratories was unauthorised.

In addition, the Directors of IIP, NAL and NPL spent Rs 21.07 lakh during 1994-99 from LRF towards various construction activities/repairs like bus stop shed/ generator shed, providing street lighting and repair/maintenance of, roads, staff quarters and fire fighting. Of this, Rs 15.13 lakh was spent by Director NAL alone towards repair of overhead tank in the campus.

**(xix) Advertisement charges**

Director CBRI spent Rs 3.47 lakh from LRF during 1994-98 for advertisement of vacant posts of steno/LDC/nursing sister and for inviting tenders.

**(xx) Liveries**

Directors of CBRI, IIP, NCL and NPL spent Rs 5.77 lakh from LRF during 1994-99 towards purchase of livery items for their staff, which was to be met from CSIR grant.

**(xxi) Municipal taxes**

Director NPL paid Rs 50.09 lakh in March 1996 from LRF towards payment of municipal taxes though it was to be met out of regular Government grant.

In their reply of February 2000, CSIR justified the expenditure on above items on the ground that the same was permissible as per the approved LRF scheme. This only buttresses audit contention that the approved scheme facilitated expenditure on non R&D items, while the rationale for setting up the LRF was to promote R&D activity and upgrade infrastructure. Besides, CSIR has justified the expenditure from LRF on the grounds that budgetary support was not adequate. This also reinforces the argument that LRF was used to meet all kinds of contingent and miscellaneous expenditure. Lastly, CSIR has also stated that certain specific instances of unwarranted expenditure like distribution of *leechi* fruits/Diwali gifts to VIPs and well wishers by IIP, expenditure incurred on mobile phone by NCL, and financial assistance to private bodies by IIP and NIO are being enquired/looked into.

**(b) Foreign visits**

The Governing body of CSIR empowered its Directors, with effect from April 1994, to sanction deputation abroad of scientists up to and including level of scientist 'G' for business promotion/development, subject to conditions prescribed in its order including the condition that expenditure on such deputation along with DA, medical certificate, visa fee, airport tax etc. of deputationists was to be met from LRF. Visits of personnel not covered above could be authorised by CSIR. CSIR's definition of business promotion/development was all encompassing so as to include any activity engaged as normal/logical/inevitable for extending/advancing/growing the potential or actual business for the laboratory presently or in foreseeable future and any foreign visit which furthered the cause of business development/promotion so defined was made permissible from LRF.

Directors of CBRI, NIO and IIP spent Rs 53.91 lakh on foreign visits from LRF for purposes like attending trainings, seminars, conferences etc.

An examination of records in the laboratories test checked revealed that Directors of IIP, CBRI & NIO and CSIR approved expenditure of Rs 53.91 lakh from LRF on foreign visits for various purposes like attending trainings, seminars, conferences, exhibition, presentation of papers and marketing of technologies etc., all under the cover of business development/promotion, as detailed in the *Appendix-VI*. Of this, IIP alone accounted for Rs 48.98 lakh on foreign visits of 24 scientists including Director and Secretary, Ministry of Petroleum. Institute-wise position of number of such foreign visits of scientists and expenditure involved is detailed below :

*(Rs in lakh)*

Name of Laboratory	Period	Number of scientists	Number of foreign visits	Total expenditure from LRF
CBRI	1998-99	2	2	1.22
NIO	1998-99	3	3	3.71
IIP	1997-99	24	32	48.98
<b>Total</b>		<b>29</b>	<b>37</b>	<b>53.91</b>

Further, it was seen that in one case\* (as commented in the *Appendix-VI*) involving expenditure of Rs 2.17 lakh even the requisite condition of obtaining the approval of Vice President of CSIR was not fulfilled.

Thus, the said arrangement facilitated Directors of the institutes to spend freely on foreign visits of scientists, even though many such visits could not be said to have aided the process of upgradation of infrastructure or augmenting the resources of the laboratories for their R&D efforts; parameters that were crucial for the rationale of setting up of the LRF.

### 3.1.5 Transparency in maintenance of records connected with LRF

Sample check to determine whether accounting records and other documents were maintained to provide a transparent view of credits and utilisation of LRF and whether adequate financial expenditure control existed, revealed as follows :

(i) As per the system approved in 1992, each laboratory was required to maintain subsidiary ledger and also to furnish the monthly statement of LRF in prescribed proforma, indicating opening balance, credits and debits during the month and closing balance. However, instead of furnishing the required monthly statement of LRF, which was the only laid down monitoring mechanism in the system, CSIR laboratories furnished monthly classified abstract to CSIR without disclosing the opening and closing balances under LRF. As a result of this, the balance available with each laboratory was not ascertained by CSIR. This was also not objected to by CSIR. CSIR stated in February 2000 that detailed instructions were being issued to laboratories for maintenance of appropriate ledger to show all receipts and payment from LRF.

Further, there was non-maintenance/improper maintenance of subsidiary ledger in the following laboratories :

Maintenance of records of LRF in CSIR's laboratories failed to give transparent view of generation and utilisation

Sl.No.	Name of Laboratory/Institute	Remarks
1.	CFTRI	Improper maintenance.
2.	IIP	-do-
3.	CMRI	Not maintained
4.	CMERI	-do-
5.	IMTECH	Prior to 1997-98, no ledger was maintained
6.	NPL	-do-

CSIR laboratories did not maintain a separate cash book, bank account and vouchers etc. to monitor the funds credited to LRF and expenditure therefrom. Thus, monitoring system of LRF in the laboratories and CSIR was inadequate as it failed to provide a true and fair view of transactions in the LRF.

(ii) Out of the total expenditure of Rs 604.77 lakh, Rs 948.97 lakh and Rs 613.83 lakh spent from LRF in CMRI, CMERI and NPL respectively during 1994-99, Directors of the laboratories approved expenditure of Rs 433.14 lakh, Rs 623.30 lakh and Rs 144.24 lakh respectively for charging to LRF through transfer entries from their original booking against other heads met out of the grants-in-aid from CSIR. The transfer entries did not indicate voucher numbers through which expenditure was incurred, as a result of which, the correctness of such expenditure being a genuine charge on the LRF could not be ascertained in audit. This indicated a tendency to cover the expenditure by booking it arbitrarily to LRF. CSIR admitted the facts and stated in February 2000 that laboratories were being advised to avoid such types of lapses in future.

(iii) The balance sheet of CSIR as on 31 March 1999 disclosed a difference of Rs 75.95 lakh between the assets and liabilities under LRF as under, resulting in understatement of assets.

Liabilities	Assets	Difference
Rs 153,26,85,299.39	Rs 152,50,90,581.93	Rs 75,94,717.46

The laboratories test checked disclosed a difference of Rs 63.15 lakh as under:

<i>(Rs. in lakh)</i>		
Sl. No.	Name of Laboratory/Institute	Amount of difference
1.	NPL, New Delhi	72.20
2.	IICT, Hyderabad	(-) 10.54
3.	CMERI, Durgapur	(-) 1.68
4.	CBRI, Roorkee	3.17

CSIR stated in February 2000 that reconciliation in the difference between assets and liabilities of LRF was being carried out.

### 3.1.6 Conclusions and recommendations

From the foregoing it is evident that the objective of creation of the Laboratory Reserve Fund to aid upgradation of infrastructure and give an impetus to R&D activities has not been fulfilled. The scheme of expenditure out of LRF permitted the Directors to spend, without restraint, on items clearly unrelated to R&D efforts or upgradation of laboratory infrastructure. As a result, Directors spent large sums of money from the LRF on contingency items like telephone/mobile phone bills, gifts/mementos, snacks/lunches/dinners and organising annual days/golden jubilee celebrations. Under the garb of business development/promotion, Directors of the Laboratories, as well as CSIR, spent huge amounts from LRF on foreign visits of its scientists for purposes like training, attending seminars etc.

There was no transparency in maintenance of mandatory records pertaining to LRF, thereby allowing the Directors a free hand in the manner in which they could utilise the LRF. CSIR also took no steps to curb any tendency of misuse on the part of Directors. There were also unauthorised transfers to LRF from Consolidated Fund of India, particularly from unspent balances of grants-in-aid/sponsored projects and interest on investment of surplus balances under these projects. Therefore, it is amply clear that the LRF has not served its intended purpose. There is need to fix responsibility and investigate all cases of irregularities pertaining to utilisation of LRF by the Directors, particularly Directors of IIP, NIO and NPL, as brought out above. CSIR stated in February 2000 that it was in the process of reviewing the utilisation of LRF by laboratories both in letter and spirit. Further on review, if considered necessary, a high level committee would be appointed to study the LRF in its entirety and the system of checks and balances needed to ensure its proper utilisation in the intended direction.

Director General, CSIR confirmed in February 2000 that a high-level committee was being set up to examine the issue and lay down stringent guidelines and devise a system of checks and balances, so that any misapplication does not take place in future.

### 3.2 Central Mechanical Engineering Research Institute, Durgapur

#### Highlights

- Technologies developed from four in-house projects costing Rs 0.45 crore were not transferred to the entrepreneurs. Project-wise accounts of in-house projects were not prepared.  
(Paragraph 3.2.4(A))
- Objective of a sponsored project, to provide potable drinking water in areas where the water was brackish, was not fully achieved despite expenditure of Rs 23.34 crore.  
(Paragraph 3.2.4 (C)(b))
- Objectives of a sponsored project to develop technology for underwater mining remained unfulfilled even after spending Rs 6.48 crore.  
(Paragraph 3.2.4(C)(a))
- Percentage of external cash flow ranged from 8.98 per cent to 30.38 per cent of total expenditure during 1994-95 to 1998-99, i.e. well below the target of 33.3 per cent.  
(Paragraph 3.2.5(i))
- Recovery from sponsors was based on estimated cost and not on actual cost, which led to short recovery of Rs 4.24 crore.  
(Paragraph 3.2.5(ii))
- Failure to assess availability of funds led to foreclosure of two in-house projects costing Rs 0.52 crore, and expected objective, were not achieved.  
(Paragraph 3.2.4(A)(a))
- During 1992-99, Central Mechanical Engineering Research Institute filed 13 patents. The only two patents that got registered during this period pertained to 1988-90.  
(Paragraph 3.2.7(a))

#### 3.2.1 Introduction

CMERI<sup>1</sup> at Durgapur, West Bengal was established as a constituent unit of CSIR<sup>2</sup> in 1958 with a view to provide assistance to mechanical engineering industries in the form of feasibility studies, research, training and consultancy. Since May 1995, CMERI's objectives have been modified as under :

<sup>1</sup> Central Mechanical Engineering Research Institute

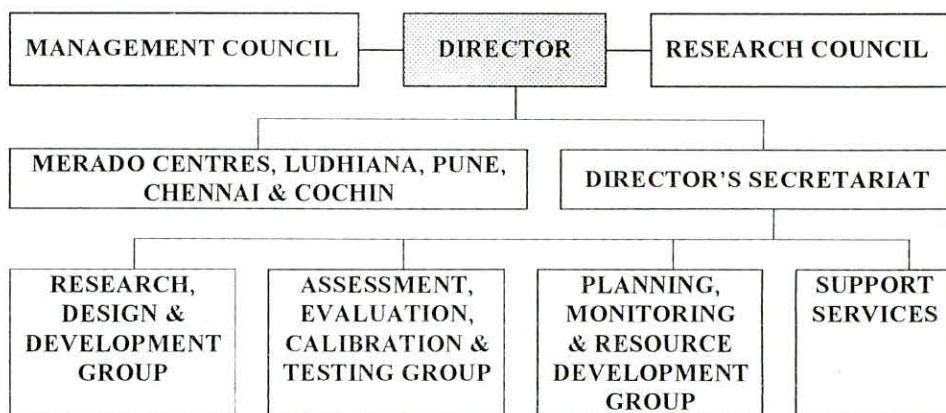
<sup>2</sup> Council of Scientific and Industrial Research

- providing competitive and world class technology and service to satisfy the identical needs of industry determined through field/market studies;
- focussing on selected areas to achieve excellence in a foreseeable time period;
- progressively achieving a financially self-sustaining CMERI.

Paragraph 12.4 of Report of the Comptroller and Auditor General of India for the year ended 31 March 1992: No.2 of 1993 Union Government (Scientific Departments) had highlighted deficiencies in areas of project management, system of monitoring and evaluation of projects, poor feed back from industries to whom the technology was transferred, and utilisation of costly equipment etc. Cases of persistent shortcomings noticed during 1992-99 are included in this review.

### 3.2.2 Organisational set-up

CMERI, a constituent unit of CSIR, is headed by a Director, who, in discharge of his duties, is assisted by different groups as depicted in the organizational chart below. In addition to its headquarters at Durgapur, West Bengal, CMERI also runs four MERADO<sup>1</sup> at Ludhiana (Punjab), Pune (Maharashtra), Chennai (Tamil Nadu) and Cochin (Kerala) to cater to the needs of the industry throughout the country, and has a Liaison Office at Calcutta (West Bengal).



A Research Council headed by an external expert, and comprising Director, CMERI and scientists from different Research organisations, advises and recommends the formulation of research programmes, conducts periodic review of research activities, assesses progress of projects and advises on fostering linkage between CMERI and other research organizations, industry and potential clients. Management Council, consisting of ten members and Director, CMERI as its Chairman is responsible for managing the day-to-day affairs of CMERI.

<sup>1</sup> Mechanical Engineering Research and Development Organisations



### 3.2.3 Scope of Audit

Audit of CMERI is conducted under Section 20(1) of the Comptroller and Auditor General's (Duties, Powers and Condition of Service) Act, 1971. Test check of project documents relating to project planning, implementation, monitoring, purchase and management pertaining to the period 1992-99 was conducted during January - February 1999.

### 3.2.4 Management of projects

The objectives of CMERI were to be achieved through research and development activities, which are conducted through in-house projects, grants-in-aid projects and sponsored projects.

#### A. In-house projects

In-house projects are taken up with funds provided by CSIR. The position of in-house projects undertaken by CMERI during 1992-93 to 1998-99 is shown as under :

Year	Opening Balance	New Projects taken up	Projects completed	Projects dropped/ kept in abeyance/ merged	Closing balance
1992-93	11	2	2	8	3
1993-94	3	0	0	0	3
1994-95	3	0	0	2	1
1995-96	1	2	1	0	2
1996-97	2	2	0	0	4
1997-98	4	1	1	0	4
1998-99	4	2	2	1	3
<b>Total</b>		<b>9</b>	<b>6</b>	<b>11</b>	

During the period 1992-93 to 1998-99 CSIR released grants totalling Rs 97.80 crore to CMERI. During the corresponding period, CMERI undertook nine in-house projects at an estimated cost of Rs 1.52 crore.

#### Projects delayed/kept in abeyance

Six projects (estimated cost Rs 0.78 crore) completed during the period 1992-99 had a time overrun ranging from 9 months to 5 years as shown in *Appendix-VII*. Out of these projects, no technology was developed from two projects costing Rs 0.43 crore and technologies developed in the other four projects, costing Rs 0.35 crore, were yet to be transferred for commercialisation till January 1999. During the same period, CMERI also kept 11 projects (estimated cost was Rs 2.69 crore) in abeyance after more than two years' running, for the reason that they did not have any linkage with the industry. The actual expenditure incurred on the above in-house projects could not be ascertained since CMERI did not maintain their project-wise accounts.

CSIR stated in October 1999 that the projects were kept in abeyance due to shortage of funds. However, the fact remains that these projects did not have any linkage with industry.

Records pertaining to seven in-house projects were made available to audit. Scrutiny of six out of these revealed as follows :

**(a) Foreclosure of an in-house project**

Projects costing  
Rs 0.52 crore were  
foreclosed on the plea  
of inadequate funds

On the recommendation of CSIR Steering Committee on "Global Change Activities" CMERI took up two in-house projects between September 1992 and January 1993 with the objective to control environmental pollution created out of Chloro-fluro Carbons. The total cost of the projects was Rs 51.97 lakh with scheduled dates of completion between February 1995 and June 1995. CSIR released only Rs 5 lakh for execution of the projects. The projects were closed midway in August 1994 before the objectives could be achieved due to shortage of fund.

CSIR stated in October 1999 that it could not provide funds as originally envisaged and the knowledge base acquired from the projects was being utilised on other projects. The reply of CSIR demonstrates its failure to realistically assess the availability of required funds, which led to foreclosure of the projects without achieving the objectives despite expenditure of Rs 5 lakh.

**(b) Wrong selection of project**

Resources wasted on  
developing technology  
already available in  
market

CMERI took up a project "Conversion of mechanical weighing scale" in July 1997 at a cost of Rs 1.10 lakh to develop a mechanical sensor to measure the rotation of the gauge indicator, and to display the rotation in terms of weight, produce printout and network connectivity, by December 1997. The mechanical sensor developed from the project was found defective. The problem was solved by procuring an electronic sensor at a cost of Rs 0.03 lakh from the market. The project was completed in September 1998. Despite delay of eight months, the technology generated from the project added nothing to the mechanical research/industry. In reply to audit query, CMERI intimated in January 1999 that it would require field test and demonstration at the user's premises before the transfer of the technology. CSIR stated in October 1999 that efforts were made to develop a mechanical sensor as a low cost solution but it failed to give requisite result.

Improper selection of the subject of research resulted in the wastage of resources on development of a sensor, which was already available in the market at a nominal cost of Rs 0.03 lakh.

**(c) Transfer/commercialisation of technology developed**

Technology developed  
was yet to be  
commercialised due to  
delayed action

(i) CMERI took up a project titled "Development of cold forming process and manufacturing technology for aluminium alloy bi-cycle hub" in January 1996 at Rs 5 lakh. The project was to develop on line flow system including load calculation, dye design, metal flow characteristics and subsequent

utilisation of process know how in manufacturing the critical engineering component. CMERI, did not transfer completely till date, the technology developed by it in April 1997 to any party. Scrutiny revealed that a Ludhiana based cycle industry had shown interest and requested CMERI in November 1998 to send 100 pairs each of front and rear hub samples to assess the economic feasibility of the product in anticipation of buying the technology in future and deposited Rs 0.19 lakh. Till October 1999, CMERI could send only 45 pieces of rear hubs and 22 pieces of front hubs samples. CSIR stated in October 1999 that hubs of modified dimensions had been manufactured which were undergoing friction-welding and heat treatment operations and would be sent to the party on completion.

Thus, the delay in sending the samples indicated CMERI's low concern to transfer the technology promptly to a prospective buyer.

(ii) CMERI undertook a project 'Design and development of high speed indexing unit using globoidal cam including manufacturing technologies' in July 1996 at a cost of Rs 20 lakh for the purpose of import substitution with scheduled date of completion in March 1997. As per proposal, the project would be treated as complete only after the successful transfer of technology and field trials of first few indexing units manufactured by any sponsor. However, the project was declared complete in July 1998 during field trials before manufacturing of a single indexing unit by any sponsor. CSIR stated in October 1999 that the technology could not be transferred because of the change in the management of the company who had shown keen interest in the product. It failed to find any other prospective buyer even after a lapse of over one and a half year from the date of development of the technology.

(iii) To establish indigenous technology for design/manufacture of harmonic drive for wide range of industrial application in the country and substitute import, CMERI took up a project "Design and development of harmonic drive<sup>a</sup>/wave generator" in April 1990 at Rs 8.97 lakh with scheduled date of completion in March 1991. CMERI developed the harmonic drive in March 1996 after a time overrun of five years and did not transfer the technology for any commercial use till October 1999.

CSIR stated in October 1999 that a Business Development Group had been constituted which was trying to involve professional marketing firms to assess market potential and also to help in technology transfer. Thus, the technology of harmonic drive/wave generator developed at a cost of Rs 8.97 lakh remained to be commercialised even after three years of its development.

## **B. Grants-in-aid projects**

Grants-in-aid projects are funded by government departments/agencies. The position of grants-in-aid projects taken up by the Institute during the period 1992-99 was as follows :

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<sup>a</sup> The new transmission that overcomes the problems of the standard transmission is called a harmonic drive.

Technology developed from a project costing Rs 20 lakh was not transferred

In the absence of market analysis, technology could not be commercialised

Year	Opening Balance	Projects taken up	Projects completed	Projects dropped/ kept in abeyance/ Merged	Closing balance
1992-93 to 1996-97	-	-	-	-	-
1997-98	-	4	-	-	4
1998-99	4	-	1	-	3
<b>Total</b>		<b>4</b>	<b>1</b>		

As seen from above, CMERI took up only four grants-in-aid projects since 1992-93 and no grants-in-aid project was taken up before 1997-98. Comments on the lone completed project are given below :

### Delay in completion of project

Objectives were not fulfilled even after six months beyond extended date of completion

CMERI took up in June 1997 a project for "Development of stitching process, machines and tooling for the manufacture of cricket and hockey balls" funded by the Sports Goods Export Promotion Council at Rs 5 lakh with anticipated date of completion as February 1998, to improve quality of stitching of cricket balls. CMERI sought approval of the funding agency in May 1998 for extension of the project till July 1998 on the ground that since the project was of developmental nature it required modification/refinement during the prototype stage to obtain the desired performance in an industrial environment.

The machine developed at CMERI was sent to MERADO, Ludhiana for trial run and demonstration in July 1998 and the project was treated as complete from that date. However, during trial run it was found that the machine required modifications. CMERI had not carried out the requisite modifications till date.

CSIR stated in October 1999 that the machine was undergoing trial. But it did not make available the results of the trial. Thus, the project could not be completed despite extension of date and its objective was yet to be realised.

### C. Sponsored projects

Sponsored projects, which are funded by both government and private agencies, have specified R&D objectives and well defined expected project output/results. The position of sponsored projects undertaken by CMERI during the period 1992-93 to 1998-99 was as under :

Year	Opening Balance	Projects taken up	Projects completed	Projects kept in abeyance	Closing balance
1992-93	18	10	3	2	23
1993-94	23	7	2	1	27
1994-95	27	7	14	2	18
1995-96	18	11	11	3	15
1996-97	15	1	7	3	6
1997-98	6	7	4	-	9
1998-99	9	6	4	-	11
<b>Total</b>		<b>49</b>	<b>45</b>	<b>11</b>	

As of April 1992, CMERI was engaged in 18 sponsored projects. It took up 49 projects during the period 1992-99 and completed 45 projects leaving a balance of 11 projects at the end of March 1999 and kept 11 projects costing Rs 1.20 crore in abeyance during the period, on the advice of RC, for various reasons like non-receipt of second instalment from the sponsor, non-availability of project leader due to deputation abroad/transfer/retirement/death etc. Scrutiny revealed that out of 45 projects completed during 1992-93 to 1998-99, 39 projects were not completed within their scheduled dates of completion, and there was time overrun ranging from one month to 36 months. Examination of 50 per cent completed projects revealed the following facts :

### **Objectives not achieved**

(a) DOD<sup>1</sup> required a commercially viable mining system, with an extractive capacity of 3 million tonne per year, which would be utilised for mining of seabed at depths up to 6 km below the surface of the sea where the Polymetallic nodules are found. DOD entrusted CMERI with the above specific work with funding of Rs 8.34 crore. Since it was not possible to straightaway design and experiment on a commercial scale mining system, it was proposed to complete the work in three phases.

Accordingly, CMERI undertook a project "Design and Development of remotely operated underwater collecting unit with lifting system" as Phase-I in November 1990, at a cost of Rs 4.84 crore scheduled for completion by March 1992. The objective was to develop a collecting and lifting system of 100 tonne of sea nodules per day working in shallow depths. Under the project, CMERI developed a remotely controlled collector unit, bucket-in-pipe lifting system at the laboratory level and proposed to construct a shallow water basin of 5 metres depth for testing. The schedule of Phase-I got hampered due to the delay in construction of shallow basin as well as procurement of material. The collector unit and the riser unit, which were developed in Phase-I were tested in the shallow basin. After operating the collector unit underwater the problem areas were identified and it was proposed by CMERI to tackle them in Phase-II. Even though CMERI was unable to develop the system with capacity of 100 tonne per day, the project was declared completed in March 1993 after a delay of 12 months.

While Phase-I of the project was in progress, CMERI proposed development of a semi-commercial system having capacity of lifting 500 tonne sea nodules per day working at depths of about 200 meter to 1000 meter under Phase-II. The project proposal was reviewed in June 1992 by the sub-committee of Research Advisory Committee, which recommended to initiate a fresh project in such a way that the underwater sub-system might be applied in related areas, especially at shallower depths up to 250 metres. Accordingly, the project proposal was modified and CMERI took up the project "Design, development and testing of underwater subsystems (Phase-II)" in November 1992 at a cost of Rs 3.50 crore funded by DOD with scheduled date of completion in March 1994. In this phase of the project, CMERI developed different sub-systems viz. (i) seabed crawler/miner, (ii) hydraulic and airlift

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<sup>1</sup> Department of Ocean Development

system, (iii) remotely operated vehicle and (iv) master slave manipulator. The project was declared complete in December 1994 after time overrun of nine months due to the delay in compilation of experimental results. But the research result could not be utilised in related areas as envisaged. CMERI, however, clarified in January 1999 that the technologies developed for deep seabed mining could not be directly utilised for any application as it required major modifications.

**Research results of completed project not utilised despite expenditure of Rs 6.48 crore**

Phase-III of the project was not taken up by CMERI. It stated in February 1999 that the future work on commercial scale mining was aborted and discontinued due to policy change of the sponsor. While explaining the reasons for not achieving the objectives of the project, CSIR stated in October 1999 that it had submitted the final report to DOD. However, it was unable to furnish any evaluation report to indicate satisfaction of DOD even after more than four years from the date of completion.

Thus, the objective of developing a commercially viable system for collection of sea nodules at depths of up to 6 Km was not fulfilled even after incurring an expenditure of Rs 6.48 crore.

**(b)** An Expert committee formed by the National Drinking Water Mission under DRD<sup>1</sup> decided in March 1988 that CMERI, as a nodal agency, would co-ordinate and implement the desalination programme on behalf of DRD to provide potable water in areas where the naturally available water was brackish. CMERI was to render technical and managerial advice for successful completion of the programme. The programme involved procurement of 132 desalination plants, site selection for their installation and O&M<sup>2</sup> of the plants up to five years before handing over to the State Governments or other organisations at a sanctioned cost of Rs 28.45 crore. The activities of the desalination programme were initiated by CMERI in June 1988 under project "Desalination plant programme under National Drinking Water Mission" with scheduled date of completion as March 1993. DRD released Rs 24.32 crore to CMERI against the sanctioned cost.

Under the programme, 132 locations for as many plants in eight states were selected by CMERI in consultation with the respective State Governments. However, eight plants in four states were not installed though 20 *per cent* of the cost of eight plants, viz. Rs 0.17 crore was paid to the suppliers.

Of the balance 124 plants installed, seven plants costing Rs 1.14 crore were not commissioned due to high Total Dissolved Solids and presence of iron in raw water as well as insufficient availability of infrastructure.

Of 117 plants installed and commissioned, 11 plants in Rajasthan costing Rs 2.03 crore were closed because the suppliers did not discharge the agreed responsibility of maintenance of plants during O&M period. Scrutiny however revealed that there was no penalty clause in the agreement in case of violation of the terms and conditions by the suppliers. This apart, five plants

<sup>1</sup> Department of Rural Development

<sup>2</sup> Operation & Maintenance

Project could not succeed due to improper selection of sites

in Gujarat costing Rs 1.35 crore (including O&M expenditure) were closed due to unsuitable sites and 15 plants costing Rs 2.06 crore (including O&M expenditure) in Rajasthan were also closed after expiry of O&M period between June 1993 and November 1994 for reasons like non-availability of raw water due to failure of pumps and non-availability of electricity.

CSIR stated in October 1999 that as the draft agreements for supply as well as O&M/U were vetted and approved by the legal department of the Ministry (DRD), there was no scope to incorporate any penal clause. The argument of CSIR was not tenable since CMERI was to provide managerial advice for successful completion of the programme and ought to have proposed inclusion of penal clause in the agreement. As regards nonfunctioning of said 31 plants (i.e. 26 in Rajasthan, 5 in Gujarat) CMERI did not clarify the reasons for not taking appropriate steps for making the plants functional by the suppliers.

Out of the remaining 86 plants after commissioning only 80 plants have been handed over to the State Governments. The project was, however, declared closed in August 1995 pending the work of handing over of 37 commissioned plants to the State Governments.

Objectives to provide potable drinking water was not fully achieved despite expenditure of Rs 23.34 crore

Thus, due to failure of CMERI to discharge its technical and managerial responsibilities specifically in ensuring selection of suitable sites where the plants could operate effectively, the programme to provide drinking water to the villagers achieved only 60 per cent of its objectives even after expenditure of Rs 23.34 crore.

### (c) Technology Mission on Oilseeds and Pulses

Transfer of four technologies developed from Technology Mission Projects could not take place

CMERI developed six technologies related to oilseeds and pulses between May 1995 and January 1998, at a cost of Rs 1.77 crore, out of nine projects funded by Technology Mission on Oilseeds and Pulses of Ministry of Agriculture. Four technologies costing Rs 1.38 crore, out of the six technologies developed, remained to be commercialised. CMERI stated in February 1999 that the responsibility for transferring the technology did not devolve on them as the projects were funded by Technology Mission on Oilseeds and Pulses. The contention of CMERI was not acceptable since it contradicted CSIR's clarification issued in October 1994, which stated that basic objectives of CSIR under Mission Programmes were to develop and commercialise the technologies as early as possible.

### 3.2.5 Financial management

CMERI is financed mainly through the funds provided by CSIR out of grant-in-aid received by it from Government of India. CMERI also receives External Cash Flow from sponsors and collaborators by rendering technical services, testing and analysis etc. The receipts and expenditure of CMERI for the years from 1992-93 to 1998-99 were as under :

(Rs. in lakh)

Year	Funds from CSIR	Other income (i.e. receipt of LRF <sup>o</sup> )	Receipt of External Cash Flow (ECF <sup>ψ</sup> )	Total receipt	Expenditure		Expenditure from ECF	Total expenditure	Percentage ECF on total expenditure
					Capital	Revenue			
1992-93	920.00	199.26	647.53	1766.79	177.63	756.50	756.20	1690.33	69.32
1993-94	926.00	180.95	362.69	1469.64	61.53	884.61	325.62	1271.76	38.33
1994-95	1009.00	118.73	318.27	1446.00	122.62	924.95	254.67	1302.24	30.38
1995-96	1159.00	183.94	282.61	1625.55	152.82	1066.38	131.83	1351.03	23.18
1996-97	1426.00	210.00	411.74	2047.74	237.74	1259.82	371.33	1868.89	27.49
1997-98	1942.00	203.02	225.24	2370.26	324.91	1748.96	247.43	2321.30	10.86
1998-99	2398.00	115.23	225.20	2738.43	417.01	2089.54	162.88	2669.43	8.98
<b>Total</b>	<b>9780.00</b>	<b>1211.13</b>	<b>2473.28</b>	<b>13464.41</b>	<b>1494.26</b>	<b>8730.76</b>	<b>2249.96</b>	<b>12474.98</b>	

ECF of CMERI remained well below the prescribed percentage

(i) As per directives of CSIR issued in August 1989, CMERI was expected to be more "user responsive" and to externally generate at least one third of its expenditure on R&D from 1992-93. However, it was seen that percentage of ECF to total expenditure had drastically come down after 1993-94, and ranged between 8.98 *per cent* and 30.38 *per cent*. Even the higher ECF during 1992-94 was due to release of Rs 36.79 crore from Government funds for three sponsored projects. CSIR stated in October 1999 that CMERI was hampered in competing with its competitors as it had to do business within the framework of existing rules/regulations. The argument underscores CSIR's failure to initiate necessary corrective action for promoting healthy competition. Moreover, the targets set by RC to generate a minimum of Rs 3 crore as Lab Reserve, inclusive of previous year's interest from 1993-94 could not be achieved, and it ranged between Rs 1.15 crore and Rs 2.10 crore during 1993-94 and 1998-99.

No project accounts were prepared for in-house projects

(ii) Although project-wise estimates were prepared, the project-wise accounts were not prepared for in-house projects. Therefore, the actual expenditure incurred against the estimated cost of the project could not be ascertained in audit. CSIR stated in October 1999 that the Institute had notified all project leaders to maintain project expenditure from 1 April 2000.

Recovery from sponsor was based on estimated cost and not on actual cost

Moreover, in case of sponsored projects, the recovery from sponsors was based on estimated cost and not on actual cost. Out of 45 completed projects, sponsored by various organisations during 1992-93 to 1998-99 at a contract value of Rs 41.80 crore, CMERI did not recover an amount of Rs 6.24 crore in 16 cases as on December 1998. CSIR stated in October 1999 that only Rs 0.11 crore was yet to be realised. However, scrutiny of supporting documents revealed that Rs 4.24 crore was still to be realised as of October 1999.

(iii) CMERI was also expected to meet 50 *per cent* of its revenue expenditure through earnings of LRF. During 1992-93 to 1998-99, total earning from Laboratory reserve was Rs 12.11 crore, which was far below

<sup>o</sup> Laboratory Reserve Fund, includes royalty and premium, testing and analytical charges, interest on investment of LRF etc.

<sup>ψ</sup> External Cash Flow, includes funds received from sponsors in respect of grants-in-aid projects, sponsored projects etc.



50 per cent of the total revenue expenditure of Rs 87.31 crore during these years and ranged between 5.51 per cent and 26.33 per cent.

### 3.2.6 Monitoring and evaluation

CSIR prescribed that a PME<sup>1</sup> cell be constituted in each Institution for monitoring and evaluation of ongoing projects at regular intervals. The cell was to be responsible for budgeting, costing and maintaining project folders for each project and it was also required to submit a statement of progressive expenditure on each project (in-house) along with physical progress to the internal committee for review. Though PME cell maintained project folders, it did not prepare project-wise accounts for in-house projects.

RC<sup>2</sup> was responsible for conducting periodic review of research programmes of CMERI. A review of the minutes of the meetings of RC held during 1993-98 revealed that project review and assessment of individual projects was not conducted by RC. As a result project leaders or scientists were deprived of suggestions/recommendations of RC and all the projects continued without any appraisal of their progress. Follow up action on decisions/recommendations of the RC were not reflected in the minutes of subsequent meetings. As a result, it was not ascertainable whether and how far the activities of CMERI were monitored by the RC. Moreover, suggestions/recommendations of RC were also not followed by CMERI in the following cases test checked in audit :

#### (a) Timely completion of projects

RC repeatedly suggested completion of projects in time. Scrutiny revealed that out of 52 projects completed during 1993-99, only six projects were completed in time and 46 projects were completed after time over run ranging from 5 years to 3 months. CSIR accepted the facts in October 1999.

#### (b) Delayed action on closure of MERADO, Cochin

RC expressed its concern in May 1994 on the performance of MERADO, Cochin and recommended to prepare a proposal for its closure. CMERI did not act on this recommendation of RC for almost 5 years. After being pointed out by Audit, CMERI forwarded the said proposal in February 1999. Thus non-implementation of this important recommendation of RC resulted in an avoidable expenditure of Rs 12.19 lakh incurred towards establishment cost of MERADO, Cochin for the period 1994-95 to 1998-99. CSIR accepted the facts and stated in October 1999 that the proposal was under examination at their end.

No project-wise review was done by RC

Failure to implement RC's recommendations led to avoidable expenditure of Rs 0.12 crore

<sup>1</sup> Project Monitoring and Evaluation

<sup>2</sup> Research Council

**(c) Impact assessment**

RC's suggestion regarding switching to alternate refrigerants was not followed

In April 1993, RC had suggested CMERI to approach the leading refrigeration companies to find out the impact of alternate refrigerants in their production floor activities. However, no follow-up action on RC's suggestion was initiated by CMERI. CSIR stated in October 1999 that concerned scientists had discussed the matter with the industries. However, CSIR did not furnish any evidence to show that the matter had been taken up with the industries and what was the outcome.

**(d) Market oriented research**

Systematic market study was not done

In October 1994, RC stressed the need for undertaking market driven<sup>β</sup> R&D for which it was considered necessary for CMERI to conduct market study, preferably with the help of a professional agency. Even after lapse of five years CMERI was yet to follow the suggestion of RC. CSIR stated in October 1999 that they were trying to involve professional marketing firms to undertake market potential study and to help in technology transfer. This is indicative of lackadaisical approach to address an important issue.

**3.2.7 Research results and its utilisation**

**(a) Patents**

R&D work resulting in development of a process for the production of new compounds, compositions, development of new machines leads to generation of intellectual property such as patent. The details of patents filed and sealed during 1992-99 were as follows :

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Total
Number of patents filed	-	2	2	1	4	2	2	13
Number of patents granted and sealed	-	-	-	-	2	-	-	2

During 1992-93 to 1998-99 thirteen patents were filed and only two sealed

Though 52 projects were completed during 1993-99, only 13 products were found worthy of patenting. On the subject of filing small number of patents, CMERI stated in January 1999, that 28 out of 52 projects completed pertained to analysis, fabrication and installation/supplies, study etc., which were not likely to create intellectual property such as patent. The contention of CMERI was contradictory since scrutiny revealed that out of 13 patents filed during 1993-99, four patents were filed on the basis of study reports and not based on products. Further only two patents, were granted during 1992-99, and that too for patents filed during 1988-90. Thus no patent was granted in favour of CMERI in respect of R&D activities executed during 1992-99.

Director General, CSIR stated in February 2000 that due to inadequate number of patent examiner in the India Patent Office and huge backlog of pending patent applications, it takes six to seven year for the grant of a patent. The processing of patent applications was much faster in countries like USA,

<sup>β</sup> According to the need of the market.

China etc. However, the fact remained that no patent had been granted so far in favour of CMERI in respect of R&D activities executed during 1992-99.

### (b) Commercialisation of technologies

During 1992-99, CMERI developed only 30 products/ processes/know-how out of 52 projects completed. Of these, only four products/processes/know-how were generated from in-house projects and remaining 26 were the outcome of the sponsored projects. Out of 30 technology, only 13 generated out of sponsored projects, were transferred to the industry.

CSIR accepted the facts and stated in October 1999 that the Institute had taken steps for licensing the technologies to other prospective clients and had introduced a customer satisfaction cell to obtain customer feed back.

### (c) Research publications

The position of research publications during the period 1992-93 to 1998-99 (December 1998) was as follows:

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Total
Indian Journals	2	10	26	15	10	5	9	77
Foreign Journals	0	-	-	3	1	1	0	5
<b>Total</b>	<b>2</b>	<b>10</b>	<b>26</b>	<b>18</b>	<b>11</b>	<b>6</b>	<b>9</b>	<b>82</b>

During 1992-99, only 82 papers were published in different journals, which included five papers published in foreign journals. As could be seen, the number of research papers published was on the decline.

### 3.2.8 Management of Purchases

On test check of records, following shortcomings relating to purchases were observed :

(a) In February 1995, CMERI placed an order for import of one "Portable FFT Analyser", worth £ 11,695.50, for on-the-spot analysis of vibration signals. The analyser was needed to process signals on the spot. The foreign supplier assured that in case of defects in material and workmanship they would either replace or repair defective parts during the warranty period of one year from the date of shipment. The analyser costing Rs 5.54 lakh was received at CMERI in June 1995. The service engineer who visited CMERI in November 1995 could not instal the analyser. CMERI also did not take any steps to get the analyser replaced/repared by the foreign firm during the warranty period, which expired in May 1996. CSIR stated in October 1999 that the analyser was installed in November 1995 and only two features were not working. It further stated that the matter was reported to the supplier and Indian agent who have not responded. The reply of CSIR was contradictory to CMERI's reply of February 1999 that the instrument had not been installed as on date.

### **(b) Demurrage and terminal charges**

In terms of CSIR instructions, expenditure on demurrage and terminal charges exceeding Rs 250 was to be reported. However, the amount of demurrage/terminal charges paid were not known to CMERI. Test check of few cases by Audit, however, revealed that in four cases Rs 0.11 lakh was paid by CMERI during 1992-98.

CSIR accepted in October 1999 that no consolidated information in this regard was being maintained by CMERI.

### **3.2.9 Management of Stores**

#### **(a) Physical verification**

Physical verification of stores is to be done every year. It was, however, observed that no physical verification of stores was conducted by CMERI at Durgapur after 1990-91. The report of verification for the year 1990-91 was also not available with CMERI as the same was stated to be destroyed. CSIR stated in October 1999 that various committees were formed in June 1999 and the work was expected to be completed shortly. While physical verification of MERADO, Cochin was last conducted in March 1993, no physical verification was conducted for Pune and Ludhiana after March 1997 and July 1997 respectively. Absence of physical verification could result in shortage/pilferage of stores.

CSIR stated in October 1999 that physical verification of stores was in progress.

#### **(b) Unserviceable stores**

In September 1998, Stores Disposal Committee of CMERI declared 992 items of stores, valuing Rs 0.24 crore as unserviceable. Scrutiny of records, however, revealed that CMERI did not dispose off the unserviceable stores despite Government of India's decision to minimise the time lag between the declaration and actual disposal of stores to ensure that such stores fetch a good return and do not occupy valuable storage space unnecessarily. CSIR stated in October 1999 that the proposal for disposal was with them since January 1999.

#### **(c) Stores and equipment acquired out of externally funded project**

Expenditure incurred out of funds received for sponsored projects results in creation of Capital assets. Such equipment becomes the property of the sponsoring agencies unless they are gifted to particular Institute. In two projects costing Rs 8.34 crore that were funded by DOD<sup>1</sup> and completed between March 1994 and December 1994, CMERI acquired assets valuing Rs 2.84 crore. But the concerned officer-in-charge of the stores section did not initiate any action for getting the assets gifted by DOD and include the

<sup>1</sup> Department of Ocean Development

Physical verification was not conducted after 1990-91

Unserviceable stores valuing Rs 0.24 crore were awaiting disposal

stores in the stores ledger which resulted in omission of such assets in the accounts.

CSIR stated in October 1999 that the issue of transfer of stores was being taken up with DOD.

### 3.3 Central Mining Research Institute, Dhanbad

#### Highlights

➤ In accordance with Council of Scientific and Industrial Research instructions, collaborative projects were to be undertaken for upscaling laboratory level know how and generation of intellectual property. Central Mining Research Institute undertook 73 projects for exclusive use of collaborators during 1994-99. However, no new technology was developed from these projects despite expenditure of Rs 67.69 lakh.

(Paragraph 3.3.4(C)(b))

➤ During 1994-99, Central Mining Research Institute completed 634 consultancy projects against only 60 in-house and grants-in-aid projects. Rs 278.80 lakh was paid to staff as honorarium. Director's share of honorarium was Rs 5.82 lakh during 1998-99. This violated Council of Scientific and Industrial Research guidelines that owing to financial benefits accruing to staff members, attention should not be diverted from R&D to consultancy.

(Paragraph 3.3.4(D))

➤ Out of 244 projects completed, patent applications for only 40 had been filed, of which no patent could be sealed.

(Paragraph 3.3.6(i))

➤ In-house projects were not subjected to regular appraisal of Research Council.

(Paragraph 3.3.7)

➤ Central Mining Research Institute purchased one computer system in March 1996, at a cost of Rs 29.68 lakh without examining its configuration and utility and the same was yet to be installed.

(Paragraph 3.3.8(a))

#### 3.3.1 Introduction

CMRI<sup>1</sup>, Dhanbad, a constituent unit of the CSIR<sup>2</sup> was established in 1955 with a view to providing scientific and technological backup to mineral industries of the country.

In 1993-94, CMRI elaborated its objectives as follows:

- to develop mining technologies for exploitation of complex coal deposits and to develop total packages for optimum exploitation of mineral deposits using improved techniques;

<sup>1</sup> Central Mining Research Institute

<sup>2</sup> Council of Scientific and Industrial Research

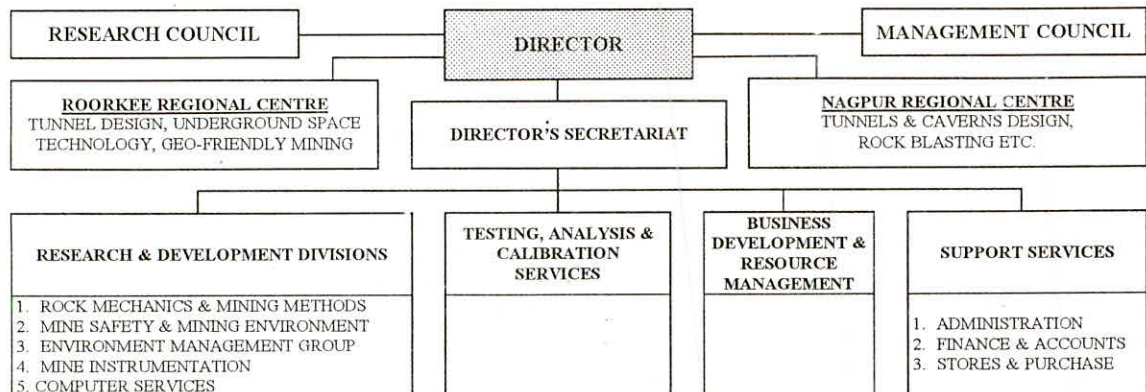
- to develop methods and devices to improve safety performance and safety standards in mines and to do numerical modelling of mechanical behaviours of rock excavation, computer application in mines, tunnels and underground caverns for planning and design from stability point of view;
- environmental management, reclamation and development of innovative eco-friendly mining practices.

### 3.3.2 Scope of Audit

Audit of CMRI is conducted under Section 20(1) of the Comptroller and Auditor General's (Duties, Powers and Condition of Service) Act, 1971. A review on the working of CMRI for the period 1987-92 was conducted in April 1992 and published in the Report of the Comptroller and Auditor General of India for the year ended 31st March 1992 (No. 2 of 1993) relating to the Union Government (Scientific Departments). Paragraph 12.1.6 & 12.1.8 of the Report had brought out deficiencies in areas of collaborative projects and transfer of technology respectively. Shortcomings noticed as a result of test check of functioning of CMRI during the period 1994-99 are included in this review.

### 3.3.3 Organisational set-up

Headquarters of CMRI is located at Dhanbad. CMRI also has two Regional Centres at Roorkee and Nagpur. CMRI is headed by a Director, who is assisted by different groups as depicted in the organisation chart shown below:



Research Council comprising Director, CMRI, and scientists from different research organisations, is headed by an external expert and advises and recommends the formulation of research programmes, conducts periodic review of research activities, assesses progress of projects and advises on fostering linkage between CMRI and other research organisations, industry and potential clients. A Management Committee, consisting of ten members from CMRI and outside, with Director, CMRI as its Chairman manages day to day affairs of CMRI.

### 3.3.4 R&D activities

R&D<sup>1</sup> activities in CMRI are to be carried out through projects to provide scientific and technical back-up to mining industries and achieving the objectives as listed out above. These projects are broadly classified under five categories, viz. in-house projects, grants-in-aid projects, sponsored projects, collaborative projects and consultancy projects. While in-house projects are wholly funded by CMRI, grants-in-aid projects are partly funded by CMRI and partly by other Government departments. In the case of sponsored projects funds are provided by sponsors and collaborative projects are partly funded by collaborative agencies. Consultancy projects, which are of non R&D nature, are taken up on payment of fees by the client.

#### A. In-house projects

The position of in-house projects undertaken by CMRI during the period 1994-99 was as under :

Year	Opening balance	Projects taken up	Projects completed	Closing balance
1994-95	7	15	6	16
1995-96	16	4	14	6
1996-97	6	11	1	16
1997-98	16	7	11	12
1998-99	12	8	5	15

#### (a) Selection of projects without prescribed survey

CMRI did not adhere to the prescribed system of selection of projects

CMRI had a prescribed procedure for selection of in-house projects. The project leader would formulate project proposal and the project would be selected only after market survey, examination of economic viability and interaction with potential user. In spite of the above provisions and recommendations of RC<sup>2</sup>, CMRI did not conduct any formal market survey to examine economic viability before taking up new projects. The projects were selected by CMRI mainly on the basis of study of scientific literature available or interaction of concerned scientists with interested parties but without conducting market survey and examining economic viability. This reveals lack of systematic approach in selecting projects. CSIR stated in January 2000 that market survey as a pre-requisite in all cases might not be practicable/feasible since the Institute was mostly dealing with public sector industry where there was no need for marketing. CSIR reply contradicts procedure prescribed for selection of in-house projects by CMRI and recommendations of RC.

During 1994-99, CMRI completed 37 in-house projects. Of these 37 completed projects, research result of only one project with the estimated cost of Rs 0.70 lakh (excluding salary component) was transferred to industry in

<sup>1</sup> Research & Development

<sup>2</sup> Research Council



April 1994 for commercialisation. Research results in remaining 36 projects did not attract any entrepreneur for commercialisation. CSIR stated in January 2000 that three technologies have been transferred to the respective industries after April 1999.

**(b) Mineral exploitation projects**

Test check of the records of some in-house projects initiated by CMRI relating to Mineral exploitation revealed that in one case CMRI abruptly closed a project meant for increase of country's copper production while in the other case despite knowing fully well that it could not arrange the funds required for commercialisation of the research result of the project, CMRI initiated the project, as discussed in the succeeding paragraphs :

**(i) Bio-accumulation of copper by plant species**

CMRI undertook an in-house project titled "Bio-accumulation of copper by plant species" in October 1995 at an estimated cost of Rs 16.33 lakh including salaries in order to develop an alternative, cheaper technology for recovering maximum copper from unexplored resources by Bio-technological method, while keeping a control over pollution hazards. However, CMRI neither presented the project proposal before RC for its recommendation, nor consulted any expert in the line.

While evaluating the progress of the project in January 1997, members of MEC<sup>1</sup> suggested inclusion of more number of plants for conclusive results and also advised to consult reports of foreign scientists. However, CMRI continued the project up to March 1998 without adhering to the recommendations of MEC. The project was finally closed in March 1998 without achieving its objectives. CMRI stated in February 1999 that the outcome of the project was a research paper accepted for publication in an International journal. In the absence of proof of acceptance letter for such publication the claim of CMRI remained doubtful. CSIR stated in January 2000 that further investigation with more number of plant species could not be carried out due to non-availability of qualified staff and experience gained from this project has helped in taking up new grant-in-aid project. CSIR however, had not mentioned which new grant-in-aid project was taken up.

**(ii) Application of Bucket Wheel Excavator Technology**

CMRI undertook an in-house project titled "Feasibility of Wider Application of BWE<sup>2</sup> Technology in Indian Surface Mines" in February 1996 at an estimated cost of Rs 5.66 lakh including salaries with the objectives to study the BWE application in Indian open cast lignite mine and to identify the factors responsible for high digging resistance offered by rock mass through field and laboratory studies. The pre-requisite formalities i.e. market survey, analysis of economic aspect and need of industry were, however, not gone

Disregard of advice of RC led to objectives not being achieved

Project was not properly conceived

<sup>1</sup> Monitoring and Evaluation Committee

<sup>2</sup> Bucket Wheel Excavator

through before taking up the project, on grounds of extra cost. The project was completed in January 1997 without attaining the above objectives.

CMRI stated in February 1999 that identification of project/areas was needed to be done for future application in the field. The reply of CMRI had to be viewed in light of the fact that even before taking up the project it was fully aware that there was no Indian manufacturer of BWE and the cost of equipment (of the order of Rs 200 crore for one large BWE) was prohibitive factor for its wider application. CSIR stated in January 2000 that the project was completed at the advice of the members of Monitoring and Evaluation Committee and accordingly the project proponent submitted the final report. However, the fact remained that the project was completed without attaining the objectives.

**(c) Projects having no relevance with mining**

During examination of in-house projects, it was noticed that CMRI had completed five projects between December 1992 and August 1997 having no relation with the thrust areas of the institute, at an estimated cost of Rs 16.64 lakh including salaries, categorising these as Societal Mission Programmes, which are research programmes for the benefit of society in general. These projects were Removal of arsenic from drinking water, development of Life Safety kit for two wheelers, manufacturing of Air-pollution observer, development of Eco-friendly garbage loader and development of kit to save Petrol in two-wheelers.

While all five projects were closed as successfully completed, technology developed was not commercialised in any case as no entrepreneur had shown interest in the technology. Consequently, the contemplated benefits to society in general could not be achieved rendering the expenditure incurred unfruitful. CSIR admitting the fact stated in January 2000 that in respect of three projects, no sponsors have come forward for further scaling up of the technologies developed, while two projects have been referred to National Research & Development Centre for commercialisation. The reply of CSIR had to be viewed in light of the fact that CMRI had not been able to find the sponsor or commercialise even after two to seven years of the completion of the project.

**B. Grants-in-aid Projects**

The position of Grants-in-aid projects undertaken by CMRI during the years 1994-99 was as under:

Year	Opening balance	Projects taken	Projects completed	Closing balance
1994-95	14	7	4	17
1995-96	17	4	3	18
1996-97	18	5	4	19
1997-98	19	6	4	21
1998-99	21	2	8	15

**(a) Delays in Project completion**

Final project reports of nine out of 23 completed projects were not prepared

It was noticed that out of 23 grants-in-aid projects shown as completed final project reports in respect of 11 projects only involving estimated cost of Rs 116.13 lakh had been issued by CMRI after a delay ranging between 5 to 24 months from the date of their completion. Final reports in respect of nine projects involving cost of Rs 356.02 lakh were yet to be prepared even after a period of one to five years of completion of the projects. Information regarding submission of final project report in respect of one project, completed in December 1998 at a cost of Rs 10.75 lakh, was not furnished. Balance two projects were not taken up after preliminary studies.

Test check of two projects revealed as follows:

**(i) Air leakage in Coal mines**

CMRI, undertook a project on study of air leakage in Coal mines funded by MOC<sup>1</sup> in September 1993 at a cost of Rs 3.50 lakh with scheduled date of completion as December 1994. MOC released an amount of Rs 2.00 lakh in February 1994. The objective of the project was to develop techniques for detection of air leakage in mines and to investigate leakage pattern and to measure air leakage in cave goaves and various ventilation structures like doors, air-crossings, surface and pit-bottom air locks, stoppings etc. in two coal mines. In June 1995, CMRI approached MOC for extension of six months to complete the project within the approved cost and to release the balance amount of Rs 1.50 lakh for continuing the investigation. Pending decision of the funding agency, CMRI submitted the final report on the project in March 1996. CSIR stated in January 2000 that whatever work was possible within the available funds was completed and the funding agency had accepted the report without any comment. The reply of CSIR was not based on facts as Central Mine Planning and Development India Limited, a nodal agency of MOC for the project commented in April 1996 that the main objective, i.e., measurement of leakage quantity through stoppings, which is not in appreciable amount, and leakage through caved goaves were not even addressed. It also added that the techniques for detection of air leakage suggested by the Institute were not new.

Project was foreclosed without attaining objectives

Thus, CMRI closed the project without developing any new technology for detecting air leakage in coal mine rendering expenditure of Rs 3.50 lakh unfruitful.

**(ii) Environmental impact assessment of land degradation**

CMRI undertook in February 1994 a project titled "Environmental Impact Assessment and Environmental Management Plan of Sirmour Limestone Deposits in Himachal Pradesh" funded by Ministry of Environment & Forests at a cost of Rs 33.58 lakh with scheduled date of completion by August 1995. The objective of the project was to minimise adverse effects of environmental

<sup>1</sup> Ministry of Coal

degradation. Ministry released Rs 30.72 lakh to CMRI in February 1994. The project was completed in August 1996 after a delay of one year.

Final report on completed project was not prepared

However, CMRI was yet to prepare the final project report as of February 1999 since the findings were not up to the satisfaction of the Ministry as it did not cover all aspects desired by them. Therefore, achievement of the objectives of the project on a crucial environmental issue like land degradation were not achieved even after spending Rs 30.72 lakh on execution of the project. CSIR stated that the final report has been sent in September 1999. However, CSIR's reply is silent about satisfaction of the Ministry.

### C. Collaborative and Sponsored projects

The collaborative and sponsored projects are aimed to develop R&D activity in such a way that a linkage between industry and laboratory could be established so that new ideas, technology could be developed for optimum exploitation of mineral deposits using improved techniques.

#### (a) Delay in completion

The position of sponsored/collaborative projects for the period from 1994-95 to 1998-99 was as under:

Year	Opening balance	Projects taken up	Projects completed	Closing balance
1994-95	161	15	23	153
1995-96	153	9	109	53
1996-97	53	9	39	23
1997-98	23	10	3	30
1998-99	30	3	10	23

During 1994-99, out of 207 projects (including 161 carried over from 1993-94), 184 projects were completed. Details of contribution/expenditure incurred by CMRI towards 184 completed projects were not available with CMRI. As such total financial involvement of CMRI in those projects could not be assessed in audit. However, details of only 80 projects were furnished to Audit (73 from collaborative projects and remaining 7 from sponsored projects). As per records made available all the 73 collaborative projects completed by CMRI had been taken up on partially funded basis at an estimated cost of Rs 124.77 lakh of which share of collaborators was Rs 56.87 lakh whereas CMRI's share was Rs 67.89 lakh. Out of these, 51 projects pertaining to the period 1994-97 were completed after extension of time period ranging from two to 54 months.

Period	No. of Projects
Upto 1 year	14
1 to 2 years	4
2 to 3 years	7
3 to 4 years	22
4 to 5 years	4

**(b) Projects undertaken for exclusive use of industries**

CMRI took up projects for exclusive use of industries and not for developing new technology

CSIR guidelines indicated that the objectives of collaborative projects should be for upscaling/improving laboratory level know how and for technology development for generation of intellectual property. Review of 73 collaborative projects revealed that all the projects were taken up on the specific request of the industries and for their exclusive use only. Thus, neither any new technology was developed nor any benefit was derived by CMRI from these projects even after spending Rs 67.89 lakh. CMRI stated in June 99 that the objectives of all those 73 projects were mainly for enhancing external cash flow. The reply of CMRI reflects its low concern towards R&D work because during the said period, while CMRI took up 73 collaborative projects, it completed only 37 in-house projects the research results of only one of which could attract entrepreneur for commercialisation.

**(c) Lack of feed back on commercialisation of intellectual property**

In accordance with the CSIR's guidelines, in the event of the sponsor failing to commercially exploit the intellectual property derived out of the sponsored project within the time stipulated in the agreement, the laboratory shall be free to license the intellectual property to others.

Lack of information regarding commercial exploitation prevented licensing of intellectual property

However, CMRI had no system of obtaining information about the development and commercialisation of the intellectual property developed from sponsored/collaborative projects. Thus, in the absence of any feed back system, CMRI could not license the intellectual property to others in case it was not utilised by the sponsor.

In this connection, a reference was made in paragraph 12.1.8. of Report of the Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year 1993, regarding non-existence of any feed back system in CMRI to know the utilisation of technology transferred by them to the industries. In the action taken note, CSIR had stated in September 1995 that a Technology Transfer Cell was established to obtain feedback from the industry about the know how transferred by the institute. CMRI, however, had no knowledge about the utilisation of their technology by the industry as of February 1999. CMRI stated in February 1999 that fulfilment of objectives was a long drawn process and it needed a substantial time for getting feed back.

#### D. Consultancy projects

CMRI undertakes consultancy projects for rendering services to the industries, on payment of fees, which are basically non-R&D in nature. The position of consultancy projects taken up during 1994-95 to 1998-99 is detailed below :

Year	Opening balance	Projects taken up	Projects completed	Closing balance
1994-95	116	114	101	129
1995-96	129	106	153	82
1996-97	82	135	134	83
1997-98	83	154	124	113
1998-99	113	135	122	126
<b>Total</b>		<b>644</b>	<b>634</b>	

During 1994-99, the Institute had undertaken 760 consultancy projects including 116 projects at the beginning of 1994-95 of which 634 projects were completed during the period under review. Consultancy fee of Rs 444.94 lakh was earned for undertaking consultancy assignments by the institute during 1994-99 of which Rs 293.48 lakh was distributed among the scientists, technical, supporting staff of CMRI and CSIR Welfare Fund in the ratio of 65:15:15:5 respectively and the balance amount of Rs 151.46 lakh was transferred to Laboratory Reserve Fund Account.

#### (a) Large number of consultancy projects in disregard of CSIR guidelines

CMRI completed 634 consultancy projects as against 60 R&D projects during 1994-99

The instructions issued by CSIR in July 1992 stipulated that owing to financial benefits accruing to staff members from consultancy work, attention should not be diverted from R&D and other activities to consultancy. A proper balance of manpower and other resources to be deployed on R&D activities, consultancy and technical services was to be decided by the RC. But the institute never presented before RC the exact quantum of manpower deployed in consultancy without hampering the R&D work of the institute. Thus, in the absence of specific data on quantum of manpower deployed and mandays utilised for consultancy projects, comparison with other R&D projects could not be done in audit. However, it was observed in audit that during 1994-99 while CMRI completed only a total of 60 in-house and grants-in-aid projects, it completed 634 consultancy projects for which CMRI distributed honorarium for Rs 278.80 lakh, out of Rs 444.94 lakh earned, to the staff members for their financial benefit.

Detailed analysis of honorarium received from consultancy project by individual scientists disclosed that many scientists received honorarium up to 158 per cent of their gross salary during 1994-99. 56 scientists received honorarium in excess of 25 per cent on 110 occasions in any particular year during this period. The highest amount of honorarium paid to any individual during an year was Rs 5.82 lakh paid to the Director during 1998-99, while his total emoluments were only Rs 3.69 lakh. During the five year's period :

1994-99, the Director received honorarium payment of Rs 12.41 lakh against his total gross salary of Rs 11.52 lakh. Reckoning the total salary and that of total honorarium, 22 scientists received honorarium payments of more than 25 per cent of their salary during the five years, whose aggregate honorarium ranged between 25.73 per cent and 107.75 per cent of the gross salary. Some of the cases where very high amount of honoraria were paid are detailed in *Appendix VIII*.

Since the time for which the scientists were deployed on in-house, grant-in-aid, sponsored and consultancy projects were not budgeted and accounted for, the extent to which the scientists were engaged on each category of the project was not ascertainable.

In view of clear guidelines of CSIR, undertaking so many consultancy projects without the approval of RC could be detrimental to the effective utilisation of manpower for scientific research.

### 3.3.5 Financial Management

CMRI is financed mainly through funds provided by CSIR. CMRI also received external cash flow in the form of contribution from sponsors and collaborators and fees for rendering consultancy services. Besides, it receives royalty, and premium on account of intellectual property generated/transferred to the users. The receipts and expenditure of CMRI for the period 1994-95 to 1998-99 were as under :

*(Rs in lakh)*

Year	Funds from CSIR	Other Receipts #	Total Receipts	Expenditure		Total Expenditure
				Capital	Revenue	
1994-95	649.090	642.340	1291.430	115.266	1066.206	1181.472
1995-96	779.024	503.176	1282.200	170.423	1056.415	1226.838
1996-97	793.920	591.871	1385.791	135.939	1009.739	1145.678
1997-98	1036.460	783.301	1819.761	308.049	1261.830	1569.879
1998-99	1184.388	1367.370	2551.758	204.028	1373.511	1577.539
Total	4442.882	3888.058	8330.940	933.705	5767.701	6701.406

# Other Receipts include receipts from Grants-in-aid project, Sponsored projects, Collaborative projects, Laboratory reserve & Consultancy service.

Expenditure was incurred in excess of budget allotment

Against budget allotment of Rs 565.71 lakh under the heads of Contingencies, Maintenance and Chemicals during the period from 1994-95 to 1997-98, CMRI incurred expenditure of Rs 864.28 lakh i.e. Rs 298.63 lakh, in excess of the budget allotment. Under the Head 'Apparatus and Equipment', budget allotment for the year 1997-98 was Rs 18.22 lakh against which Rs 122.74 lakh was spent. This resulted in excess expenditure of Rs 104.52 lakh over the budget allotment under the above mentioned heads. The circumstances under which such large amounts of money were spent in excess of allotted funds and the source from which it was met were enquired from the Director, CMRI in February 1999. CSIR has stated that excess expenditure was met from LRF as per CSIR instruction.

Diversion of funds from Project fund account to Laboratory Reserve Fund

However, it was observed that CMRI incurred expenditure in excess of amount credited under Laboratory Reserve during the years 1995-96, 1996-97 and 1997-98 to the extent of Rs 34.22 lakh, Rs 44.27 lakh and Rs 33.95 lakh respectively by diverting project funds. CMRI admitted in June 1999 that it had diverted funds from project fund account to meet expenditure of urgent nature. This indicated irresponsible financial management since such diversion from project fund account was irregular and not covered by the conditions governing grants for projects.

### 3.3.6 Patents and Publications

An internationally accepted index of efficacy of scientific research is the number of patents registered and papers published in scientific journals. The position in this regard as far as CMRI is concerned is summarised below :

#### (i) Patents

Only 40 patents were filed out of 244 projects completed and none was registered during 1994-99

It was noticed that out of 244 projects of various types completed during 1994-99 at an expenditure of Rs 6701.41 lakh, CMRI had filed application for 40 patents, out of which no patent was registered.

	1994-95	1995-96	1996-97	1997-98	1998-99	Total
(a) Patent filed	10	11	5	4	10	40
(b) Patent registered out of (a) above	-	-	-	-	-	-

Regarding follow-up action on registration of patents, CMRI stated in November 1999 that registration of patents was monitored by CSIR and as such no follow-up action was taken by them.

Director General, CSIR stated in February 2000 that Indian Patent Office takes six to seven years to grant a patent because patent office has only 30 Patent Examiners and there is a huge backlog of applications pending with them. However, the fact remains that no patent was registered during 1994-99.

#### (ii) Publications

Publication of papers in top referred journals is one of the indicators identified by CSIR to evaluate the performance of the Research institute. Scrutiny revealed that the position of research publication in scientific journals was on the decline even though the number of scientists remained almost same during 1994-95 to 1997-98 (data for 1998-99 was not made available), as would be evident from the following table:

		1994-95	1995-96	1996-97	1997-98
Research papers published	Indian	21	17	19	13
	Foreign	18	18	14	11
	Total	39	35	33	24
Scientists available		130	130	133	135



### 3.3.7 Monitoring and evaluation

As per directives of CSIR, a PME<sup>1</sup> cell was to be constituted for monitoring and evaluation of ongoing projects at regular intervals in each institution functioning under it. The cell was to be responsible for budgeting, costing and maintaining project folders for each project and was required to submit a statement of progressive expenditure incurred on each in-house project. While the PME cell prepared project-wise estimates it did not prepare project-wise accounts. Thus, the estimated cost vis-a-vis actual expenditure incurred in each in-house project could not be ascertained in audit. CSIR while accepting the facts stated in January 2000 that project-wise accounting for in-house projects would be maintained from the year 2000-2001.

In-house projects were not subjected to appraisal of RC

Test check of the minutes of the nine RC meetings held between 1994-99, disclosed that except on one occasion, project review and assessment of in-house projects was not conducted by RC. CSIR stated in January 2000 that the presentation to the RC is restricted to the projects where RC desires such a presentation and where there is a slippage. However, the role of RC as envisaged is much wider and periodic assessment of ongoing projects facilitating effective monitoring is essential.

### 3.3.8 Management of Purchases

Computer system was purchased in August 1996 without ascertaining future use

(a) CMRI placed a supply order on HCL-HP for one computer system at a cost of Rs 29.68 lakh in March 1996 to be used for providing centralised computer facilities for R&D work. The computer system included one compatible color graphics terminal 'VT - 340' valued at Rs 1.20 lakh. Before placing supply order for the system, the Institute did not enquire whether the technology was likely to be used for some time. CMRI made an advance payment of Rs 26.71 lakh to the supplier in March 1996 being 90 percent of the total cost. The system was to be supplied by May 1996.

The computer system had not been installed as of June 1999

After receipt of the supply order, the supplier sought a number of amendments to the original specifications on the ground that it would provide a far superior solution to the institute. Even at this stage the Institute, without enquiring about the likely new technology expected in near future, issued the amendments to the original order as sought by the suppliers. The supplies were received in August 1996. On being informed by the manufacturer that the terminal 'VT - 340' was going to the end of life, the institute took up the matter with the supplier in October 1996 intimating that the Institute would not accept in principle, the terminal supplied to them and enquired about the next product of the same product line or any other substitute of the same power. The supplier, did not agree to make any substitution to 'VT - 340' already supplied as per order. The supplier, however, extended the period of warranty by six months and also undertook to extend maintenance support. CMRI neither accepted the extended warranty nor made arrangement for replacement of 'VT -340' on payment. As a result, the computer system had not been installed as of June 1999. CMRI had not even got its officials trained

<sup>1</sup> Project Monitoring and Evaluation

by the supplier, to run the computer system. Meanwhile CMRI released the balance 10 percent payment of Rs 2.97 lakh to the supplier in April 1997 even without installation and commissioning of the computer system on the basis of an undertaking given by the firm that the issues relating to the installation and training would be resolved by them. The extended warranty period of the system had also expired in February 1998. Thus, the computer system acquired at Rs 29.68 lakh remained idle defeating the purpose for which it was acquired. Moreover, the computer systems become outdated fast due to rapid change in technology.

**Motor boat purchased in April 1995 was lying in stores as of June 1999**

(b) CMRI placed a purchase order in November 1994 on a firm for supply of a Motor Boat at a cost of Rs 2.58 lakh required for a grants-in-aid project titled "Carrying capacity of Damodar River Basin" sponsored by Ministry of Environment and Forests. The boat was to be used for scientific studies of sampling of water in different water bodies of Damodar Basin. In January 1995, advance of Rs 1.23 lakh was released to the supplier. The boat was received in April 1995 at CMRI and balance amount of Rs 1.35 lakh was released in April 1995. According to IWT<sup>1</sup> rules and regulations registration of a boat was essential before it could be used. IWT registered only those boats, which fulfilled certain laid down criteria about its construction and stability. However, these pre-requisite provisions of IWT were not followed by the Institute prior to placing order as they were not aware of the same. As a result, registration of the boat could not be done and the boat was lying in the stores division of the Institute as of January 2000. In the meantime, the project, for which boat was purchased, was completed in May 1997.

CMRI stated in April 1999 that the project work was completed by utilising the facilities available at Damodar Valley Corporation.

Thus, CMRI procured the boat at a cost of Rs 2.58 lakh without any requirement as the project was completed without it being put to use. CSIR stated in January 2000 that efforts were on to register the boat and it would be used in other projects. The reply had to be viewed in light of the fact that CMRI had not been able to obtain the registration even after four and a half years of its purchase. Moreover, CMRI had no project in hand where the boat could be used even if registration was obtained.

**Objective to extend infrastructural facility was not achieved**

(c) CMRI placed purchase order in January 1993 on M/s Advanced Scientific Equipments (P) Ltd., Bombay for supply of MDS<sup>2</sup> at a cost of Rs 3.36 lakh to extend infrastructural facilities in the field of environment analysis. There was no pre-inspection clause in the terms and conditions of purchase order nor any penalty was proposed in the event of receipt of defective equipment. As per purchase order payment was to be made by CMRI through Letter of Credit. But CMRI released Rs 3.18 lakh to the firm prior to receipt of stores in March 1993 neglecting aforesaid condition. The equipment was received in damaged condition in August 1993. On being approached, supplier asked CMRI in March 1994 to send the equipment to their workshop for repair. Instead of sending the equipment back immediately

<sup>1</sup> Indian Water Transport

<sup>2</sup> Microwave Digestion System

to the supplier, CMRI took more than one year and finally sent it in April 1995. Reasons for delay were not on record. The Institute did not pursue the matter with the supplier till February 1999. In September 1999, the supplier declared the equipment as irreparable since it was very old and its spare parts were not available.

Thus, the Institute did not derive the intended benefit of MDS even after spending Rs 3.18 lakh. CSIR stated in January 2000 that the matter had again been taken up with the supplier.

### 3.3.9 Accounting of stores

Twelve different items of stores costing Rs 55.34 lakh purchased during 1993-98 were not accounted for in the Asset Register though procured about one to five years back which meant that the assets created had been kept outside the accounts of CMRI till October 1999. CMRI stated in November 1999 that as the required clearance from the concerned indenter was not received, the store items remained unaccounted for. CSIR stated in January 2000 that these items had already been accounted for in the Asset Register. However, the fact remained that the items remained unaccounted for one to five years, and were accounted for only at the instance of Audit.

Stores valuing  
Rs 55.34 lakh  
remained unaccounted  
for one to five years

### 3.3.10 Manpower analysis

The position regarding sanctioned and working strength of different categories of manpower at the end of each of the financial years under review was as under :

Categories	Manpower position as of									
	31.3.1995		31.3.1996		31.3.1997		31.3.1998		31.3.1999	
	SS	WS	SS	WS	SS	WS	SS	WS	SS	WS
Scientific	190	130	190	130	171	133	171	135	171	131
Technical	130	121	130	115	117	110	117	97	117	86
Supporting	131	134	131	134	120	127	120	113	120	115
Administrative	111	92	122	102	122	100	131	98	133	108

SS – Sanctioned Strength

WS – Working Strength

A Review Committee appointed by the President of CSIR in December 1986 to review the functions and structure of CSIR and its laboratories recommended the ratio of scientific to non-scientific staff at 1:1.5. In case of CMRI, the ratio of scientific to non-scientific staff was over 1:2. There was shortage of scientific staff varying from 21.05 per cent to 31.58 per cent.

### 3.4 Avoidable expenditure due to delay in construction of staff quarters

**Centre for Cellular and Molecular Biology incurred an avoidable expenditure of Rs 24.49 lakh on cost escalation and rent of leased accommodation due to delay in construction of staff quarters. In addition, an amount of Rs 42.02 lakh was paid on account of HRA to its employees.**

CCMB<sup>1</sup>, a constituent unit of CSIR<sup>2</sup> issued a work order to a contractor in September 1994 for construction of 156 staff quarters and for scientists' apartments at a cost of Rs 3.39 crore. The contractor was to complete the construction by September 1996.

Failure to supply lay out plans and changes in design delayed execution of work

CCMB supplied the lay out plans in January 1995 and foundation plans in April 1995 to the contractor even though the architect was appointed in 1989, resulting in delay in commencement of work. As a result, CCMB had to repeatedly grant extension of time to the contractor up to January 1999. The civil part of the work was completed in January 1999 but the external services viz. roads, drainage system, street lighting etc. had not been completed as of August 1999. As a result of this delay, CCMB incurred an expenditure of Rs 3.58 lakh towards cost escalation in excess of the amount provided in the contract. CCMB also incurred an expenditure of Rs 20.91 lakh towards hiring of 24 flats of Types-I to VI on lease for staff during 1997-99. In addition, an amount of Rs 42.02 lakh was paid on account of HRA<sup>3</sup> to its employees from October 1996 to November 1999.

Director, CCMB, stated in July 1999 that the architect included various non-admissible and very costly items in his specifications, which were not acceptable to the department. CCMB further stated that the designs submitted by the architect for construction of five units per block were revised to six units per block, which resulted in delay. CSIR endorsed the above in their reply of January 2000. However, the reply of Director, CCMB and CSIR should be viewed in light of the fact that the architect for this work had been appointed in 1989 i.e. five years before the award of work, and these problems could have been sorted out well before the award of work.

CCMB incurred avoidable expenditure of Rs 66.51 lakh

The delay in construction of quarters and completion of other essential services led to avoidable expenditure of Rs 66.51 lakh on cost escalation, rent of leased accommodation and unnecessary payment of HRA.

<sup>1</sup> Center for Cellular and Molecular Biology

<sup>2</sup> Council of Scientific and Industrial Research

<sup>3</sup> House Rent Allowance

### 3.5 Undue benefit to a commercial organisation

**National Geophysical Research Institute waived intellectual fee recoverable from ONGC resulting in undue benefit to ONGC and loss of revenue of Rs 2.30 crore.**

According to guidelines issued by CSIR<sup>1</sup>, the projects fully funded by the client, having specified R&D objectives and well defined expected project output/results, generally culminating in generation of intellectual property are categorised as sponsored projects. As per the above guidelines, each laboratory of CSIR had to charge an intellectual fee of not less than 33.3 *per cent* of the total expenses and include it in the project charges. The intellectual fee could be waived only for grant-in-aid projects, which did not lead to generation of commercialisable intellectual property.

NGRI<sup>2</sup>, a constituent unit of CSIR undertook a project on 'Integrated Geophysical Surveys in Saurashtra' in October 1994 at Rs 6.90 crore on behalf of ONGC<sup>3</sup>. The objectives of the project were to assess basement configuration and pre-trappean sedimentary thickness for further exploration strategy for hydrocarbon prospects in Saurashtra peninsula. Since the project was wholly funded by ONGC, who had a clear commercialisable objective in terms of collecting data for exploring hydrocarbon prospects and commercially exploiting the results of the project, it was to be categorised as a sponsored project. Accordingly, NGRI had itself classified the project as a sponsored project in its accounts. As such intellectual fee of Rs 2.30 crore at the rate of 33.3 *per cent* of the total cost of the project was chargeable. However, NGRI charged a sum of Rs 6.90 crore on the project, which did not include the intellectual fee resulting in under charging by Rs 2.30 crore.

NGRI did not recover intellectual fee resulting in under charging of the project by Rs 2.30 crore

CSIR stated in October 1999 that since the area of work undertaken and the objectives of work carried out by NGRI did not culminate in the generation of intellectual property, the project had been categorised as grant-in-aid project.

The contention of CSIR is not valid as any project undertaken on the specific request of ONGC as sponsor attracts charging of intellectual fee, and NGRI had also classified it as a sponsored project in its accounts. Moreover, CSIR had itself defined the grants-in-aid projects as those in which laboratory requests for grants-in-aid support from Government departments/agencies. Since the intention of ONGC, a commercial organisation was clearly the commercial exploitation of the data and its results as evident from agreement entered into, the waiver of intellectual fee was not justified. Thus, undue benefit was extended to ONGC by NGRI by not including the intellectual fee of Rs 2.30 crore in the cost of the project.

<sup>1</sup> Council of Scientific and Industrial Research

<sup>2</sup> National Geophysical Research Institute

<sup>3</sup> Oil and Natural Gas Commission

### 3.6 Injudicious purchase of equipment

**A project was completed in December 1993 without commissioning of equipment specifically imported for the project in February 1992 at Rs 18.19 lakh.**

NML<sup>1</sup>, Jamshedpur imported a 50 litre Autoclave<sup>2</sup>, in February 1992, from a German manufacturer at Rs 18.19 lakh for a project "Chemical beneficiation of tungsten ores and pre-concentrate" sponsored by Defence Research & Development Organisation. An automatic temperature regulatory device was required to heat up the Autoclave to the required operating temperature. NML, however, did not plan for its procurement along with the Autoclave.

Installation of equipment was delayed for want of suitable heating system

Even though site for installation was ready in July 1993, 17 months after the receipt of the equipment, it could not be installed as NML was yet to provide automatic temperature regulatory device. Since provision of heating system was not a part of the purchase order, it was only as a result of prolonged efforts that the Indian agent of the firm agreed to supply it free of cost in August 1994. During the course of commissioning of the equipment in August 1994, it was found that the heating system supplied by the Indian agent was not compatible with the equipment and it could reach a temperature of 240°C only as against the requirement of 300°C.

The project was completed even prior to commissioning of equipment

In the meantime, NML completed the project in December 1993, even before the installation of the equipment in August 1994, for which it was imported. NML stated in May 1999 that the objective of the project was achieved by carrying out the experiment on existing two litre and 20 litre Autoclave available with them. It was further stated that 50 litre Autoclave was required towards the end of the project for large-scale experiments but since the sample was not available in large quantities, a few experiments were performed to validate the bench scale data in 50 litre Autoclave. The reply was not based on ground reality as the project was completed in December 1993 whereas attempt to commission 50 litre Autoclave was made only in August 1994.

Council of Scientific and Industrial Research stated in November 1999 that the equipment was commissioned in August 1994 and a few large-scale tests were carried out during June 1995 to December 1995. CSIR, further stated that heating system supplied by the Indian agent was more than adequate for most metallurgical operations. The reply of CSIR had to be viewed in light of the fact that the project for which the equipment was specifically procured was completed in December 1993 even before its installation. Further, the view taken on adequacy of heating requirement was post-facto justification of failure to plan procurement of suitable heating system along with the equipment and has to be viewed as a compromise.

<sup>1</sup> National Metallurgical Laboratory

<sup>2</sup> Equipment used for pressure leaching various types of ores, concentrates and intermediates and waste products at elevated temperature for recovering the metallic value present in these materials.

### 3.7 Irregular engagement of contract employees

**Director, Indian Institute of Petroleum recruited 110 contract workers during October 1997 to March 1999 in violation of ban imposed by Council of Scientific and Industrial Research on engaging the contract employees.**

In accordance with instructions issued by CSIR<sup>1</sup> in March 1990 no casual/daily wage/contract worker could be employed by its laboratories, unless it became absolutely essential to engage such persons for execution of sponsored project or for any specific time-bound work. In such cases their engagement would be coterminous with the completion of the concerned work and would be done with the prior approval of CSIR.

The violation of these instructions by IIP<sup>2</sup> was pointed out in Paragraph 2.1 on "Manpower Audit" in the Comptroller and Auditor General of India's Audit Report for the year ended March 1997, wherein it was noted that IIP engaged up to 116 persons through contractor and deployed them on regular work such as Typing, Computer Operating, Xerox Operating etc. However, despite the issue being earlier highlighted Director, IIP in October 1997 decided to utilise 20 per cent of total contingency earmarked in each sponsored project and also 10 per cent amount of the project earmarked as overhead towards employment of contract workers for certain common services not directly related to the projects.

Accordingly, IIP transferred Rs 14.58 lakh from the contingency account of 20 sponsored projects and Rs 7.69 lakh from Laboratory Reserve Fund for engaging the contract employees. IIP employed 110 contract workers during October 1997 to March 1999, of which 37 could be identified as relatives of its regular employees. IIP paid a salary of Rs 29.57 lakh to the contract employees during October 1997 to March 1999. Administrative Officer, IIP deliberately misinformed CSIR in March 1998 and September 1998 that it had not engaged any daily wage/contract worker.

Director, IIP, therefore, consciously flouted instructions of CSIR, and withheld information about it and incurred unauthorised expenditure of Rs 29.57 lakh.

The matter was referred to the Department in August 1999; their reply was awaited as of January 2000.

<sup>1</sup> Council of Scientific and Industrial Research

<sup>2</sup> Indian Institute of Petroleum

Director, IIP utilised contract workers for common services not directly related to the project

### 3.8 Impropriety in administrative expenditure

#### Director, IIP incurred improper expenditure of Rs 24.70 lakh on administrative/establishment matters.

Following instances of impropriety were noticed in the administrative expenditure incurred by IIP<sup>1</sup> during 1996-99:

Rs 9.75 lakh spent on STD/residential telephone facility and mobile telephones

(a) Director, IIP sanctioned STD telephone facility at the residences of 18 officers not entitled to such facility, of which two were not even entitled for residential telephone. Similarly he also purchased two mobile telephones, one for his own use and another for use of the Director General, CSIR<sup>2</sup>. The total expenditure incurred on these telephone call charges during 1996-99 was Rs 9.75 lakh. As Director, IIP had no powers to sanction such telephone/mobile facilities to non-entitled officers, the expenditure incurred was irregular.

Rs 8.08 lakh was spent on foreign visits by officials not connected with R&D activities

(b) IIP received funds of Rs 50 lakh from World Bank for the purpose of deputing its R&D personnel for advance international training in specific areas. It was, however, noticed in audit that during the period 1997-99, five officials not engaged in R&D activities were deputed for visits abroad against these funds and an expenditure of Rs 8.08 lakh was incurred. Further, the visit of two officials could not be categorised as advance international training.

IIP did not avail discount of Rs 2.97 lakh from Air India

(c) IIP had been booking air tickets through agents despite the fact that 12 per cent discount was available if the tickets were booked directly through Air India. As a result, Rs 2.97 lakh discount was foregone during January 1998 to March 1999.

(d) IIP invited tender in November 1996 for sale of 1000 quintals of wooden logs and accepted the rate of Rs 377 per quintal offered by a contractor for the entire lot of 1000 quintals of wood. After lifting 485 quintals of wood, the contractor reported that the remaining wood was badly damaged and requested IIP to allow him to lift the remaining wood at a lump sum price. Although the contractor had himself made the bid to lift the whole lot at Rs 377 per quintal, IIP allowed him to lift the remaining wood at Rs 140 per quintal. The contractor lifted the remaining wood against which IIP issued the challans for 265 quintals only and there was no record as to status of the remaining 250 quintals. Thus, IIP received Rs 2.19 lakh only against the accepted bid of Rs 3.77 lakh offered by the contractor. Had IIP allowed the contractor to lift the wood only after obtaining full payment quoted by him the loss of Rs 1.58 lakh could have been avoided.

Controller of Administration, IIP stated in May 1999 that the matter was under investigation.

<sup>1</sup> Indian Institute of Petroleum

<sup>2</sup> Council of Scientific and Industrial Research



Overpayment of  
Rs 2.32 lakh

(e) IIP disbursed Rs 39.48 lakh during 1997-98 to its staff as share of intellectual fees/royalties for the year 1994-96 against the actual distributable amount of Rs 37.16 lakh resulting in an overpayment of Rs 2.32 lakh.

The matter was referred to the Department in July 1999; their reply was awaited as of January 2000.

## CHAPTER 4 : MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES

### 4.1 Refuse Incinerator-cum-Power Generation Plant

**Refuse Incinerator-cum-Power Generation Plant installed by Ministry of Non-Conventional Energy Sources in March 1985 remained inoperative since its installation. The Ministry failed to utilise or dispose off the inoperative plant and incurred an expenditure of Rs 1.25 crore on maintenance and insurance of the plant.**

The failure to utilise a Refuse Incinerator-cum-Power Generation plant at Timarpur, Delhi, imported at a cost of Rs 20 crore, was pointed out in Paragraph No.2.1 of the report of the Comptroller and Auditor General of India – Union Government (Scientific Departments) for the year ended 31 March 1990; (No.2 of 1991). The Cabinet decided in July 1990 to wind up the project.

In September 1991, Cabinet directed MNES to explore alternative use of plant

MNES<sup>1</sup> attributed reason for non-utilisation to failure of the Danish supplier to demonstrate successful operation and referred the matter to an Arbitration Tribunal at London in May 1991. The Tribunal gave its award during 1993 in favour of the supplier. In the meantime, based on a proposal from MNES, Cabinet directed MNES in September 1991 to explore the possibilities of alternative use of the plant.

M/s Zen Global Finance Limited, a private entrepreneur, offered to make the plant re-operational by screening/processing of the incoming garbage as well as carrying out necessary modifications in the plant design at their own cost. Before entering into an agreement with the entrepreneur, MNES considered it necessary to obtain prior commitment of Government of NCT<sup>2</sup> of Delhi with regard to free supply of garbage at the plant site by the MCD<sup>3</sup> and for purchase of power to be generated from the plant by DVB<sup>4</sup>. MNES was to facilitate these memorandums-of-understanding/tie-ups between the entrepreneur and Government of NCT of Delhi before handing over the plant to entrepreneur.

MNES has yet to identify entrepreneur to run plant

MNES could not enter into an understanding with MCD/DVB. In the meanwhile, as the identified entrepreneur raised demand for subsidy the Ministry dropped his case for further consideration. MNES decided in February 1999 to make fresh attempts to issue an advertisement on global basis for identifying entrepreneurs to make the plant operational. Final outcome was awaited as of July 1999.

<sup>1</sup> Ministry of Non-Conventional Energy Sources

<sup>2</sup> National Capital Territory

<sup>3</sup> Municipal Corporation of Delhi

<sup>4</sup> Delhi Vidyut Board

**Avoidable expenditure of Rs 1.25 crore was incurred on maintenance and insurance of plant**

Meanwhile, an expenditure of Rs 1.00 crore was incurred till March 1998 towards maintenance of the plant. After March 1998, Ministry stopped providing funds for shut down maintenance of the plant pending Internal Finance Division's concurrence. However as stated by the Ministry in July 1999, the DVB continued to maintain the plant and an amount of Rs 33 lakh had become payable to DVB on this account as of July 1999. In addition, MNES paid a sum of Rs 25.49 lakh on account of insurance, since the award of Tribunal in 1993.

There is a clear failure of MNES to take concrete action to either make alternative use of the plant, or dispose it off. In the bargain, an avoidable expenditure of Rs 1.00 crore on maintenance and Rs 25.49 lakh on insurance was incurred besides the liability to pay Rs 33 lakh to DVB for maintenance beyond March 1998.

## CHAPTER 5 : DEPARTMENT OF TELECOMMUNICATION (CENTRE FOR DEVELOPMENT OF TELEMATICS)

### 5.1 Wasteful expenditure due to abandoning of scheme

**C-DOT developed a technology, which became obsolete even before implementation thereby rendering the expenditure of Rs 3.81 crore under the project wasteful.**

Recognising the necessity and importance of having adequate telegraph facilities in the rural areas of North East region, INSAT Co-ordination Committee in November 1985 approved a scheme SBRTN<sup>1</sup> to be jointly executed by DOT<sup>2</sup> and Department of Space with ITI<sup>3</sup> as manufacturing agency. The scheme envisaged a network in star configuration with the existing earth station at Shillong working as master station. During the pilot project about fifty rural telegraph offices were to be provided with earth terminals called RTTs<sup>4</sup> within a time frame of 30 months.

**Purchase order for 55 RTTs at Rs 2.20 crore placed on ITI**

A memorandum of understanding was signed between DOT and ISRO<sup>5</sup> in May 1986. DOT and ISRO were jointly responsible for planning, co-ordination and implementation of the pilot project of SBRTN for NE. Telecommunication Research Centre of DOT and Space Application Centre of ISRO were entrusted with functional responsibility. C-DOT<sup>6</sup> was assigned the job of design and system engineering jointly with Space Application Centre and ITI. DOT placed a purchase order on ITI, in November 1988, for supply of 55 RTTs at a unit cost of Rs 4.00 lakh totalling Rs 2.20 crore, later on revised to Rs 5.14 lakh per unit for 50 RTTs under production model. As per purchase order first batch of five prototype RTTs was to be delivered by end of February 1988 and the balance 50 RTTs was to be supplied after successful field trial and clearance of DOT.

**Production clearance was accorded after testing of five prototype RTTs**

Five prototype RTTs costing Rs 32 lakh supplied in January 1989 were tested between February 1989 and August 1989 after their installation, (Shillong-three, Ahmedabad-one and Bangalore-one), to prove designs and to obtain production feed back. A clearance for pilot production was given in September 1989.

However, in January 1990, NE circle of Telecommunication intimated about stopping further deployment of RTTs since it did not suit the requirement of the region, as it lacked voice facilities. In a co-ordination committee meeting on SBRTN held in May 1990 it was decided to install five RTTs apart from

<sup>1</sup> Satellite Based Rural Telegraph Network

<sup>2</sup> Department of Telecommunication

<sup>3</sup> Indian Telephone Industry

<sup>4</sup> Rural Telegraph Terminals

<sup>5</sup> Indian Space Research Organisation

<sup>6</sup> Centre for Development of Telematics

Despite reservations regarding the utility, manufacture of RTTs was not stopped

three prototype RTTs for field trials and C-DOT was to work on upgradation of RTTs for voice communication. However, in co-ordination committee meeting held in September 1991, despite apprehension of suitability of RTTs at remote locations, it was stated by C-DOT that it was not feasible to incorporate the voice circuit in them. Despite reservations on the utility of RTTs, C-DOT made no efforts to slow down or stop the production of RTTs till all aspects relating to its operations were resolved. The supply of all 50 RTTs ordered was completed in phases between March 1991 and January 1993 and supply of 50 Antennae at unit cost of Rs 0.52 lakh was completed by July 1994. An amount of Rs 1.78 crore was paid by C-DOT during 1998-99 in settlement of the supplies made by ITI for RTTs apart from Rs 1.50 crore paid as advance between November 1988 and May 1990. Rs 42.27 lakh were also spent by C-DOT on procurement of accessories of RTTs between May 1991 and February 1993.

RTTs were not installed as better technology was available

Of 50 RTTs supplied under production series, five were installed at various locations in NE between November 1991 and June 1992. Five more were diverted and installed at Bangalore-three, Delhi and Ahmedabad one each to monitor the network. Of the remaining 40 RTTs, 35 were stored at Central Warehousing Corporation godown in Guwahati and rest at Bangalore, Delhi and Shillong. However, in October 1994 Department of Telecommunication conveyed final decision not to install the remaining RTTs because most of the stations to be covered by SBRTN have already been covered with Multi-Channel Radio Systems and as such SBRTN terminals having a very low speed were no longer required at these places. It further asked C-DOT to dispose the systems to the best advantage. A committee constituted in December 1998 to explore the possibility of usage of the sub-systems and components in other projects of C-DOT, identified some parts viz., Antennae, LNAs, SSPAs and Oscillators for use in other on-going project of C-DOT while other components were not found to be of any use since these were custom built for SBRTN, it recommended their disposal. Action is yet to be initiated for utilisation of components identified for use in other projects and dispose-off the remaining items as of June 1999.

Meanwhile, an amount of Rs 10.14 lakh had been paid to Central Warehousing Corporation as godown rent and insurance charges for the period April 1991 to March 1999.

Expenditure of Rs 3.81 crore was rendered waste

Thus, the technology developed by C-DOT could not be put to use as it had become obsolete even before it was adopted for implementation. Production of RTTs was allowed to continue despite doubts about its utility, thereby rendering wasteful the entire expenditure of Rs 3.71 crore on the manufacture of 50 RTTs and procurement of accessories for terminals. Besides, an unfruitful expenditure of Rs 10.14 lakh was incurred as godown/insurance charges. Even after a lapse of nearly five years of being aware of unsuitability of the RTTs, no action has been taken either to dispose off the unusable items or for alternate utilisation of these items in other projects.

While accepting the facts, DOT stated in October 1999, that the technologies were changing very rapidly and no technology lasted for more than two years. As such with the passage of time, Multi-Channel Radio System was found to

be more appropriate and techno-economically viable. Hence, it was decided in October 1994 to discontinue further installation of SBRTN.

DOT's reply confirms the fact that technology developed by C-DOT was not state-of-the-art and became obsolete even before adoption. By allowing the production of RTTs to continue even after being aware of its unsuitability in January 1990, DOT incurred wasteful expenditure of Rs 3.81 crore on an obsolete technology.

## CHAPTER 6 : INDIAN COUNCIL OF AGRICULTURAL RESEARCH

### 6.1 Undue benefit to three private firms due to non-levy of liquidated damages

**Failure of ICAR to recover liquidated damages of Rs 36.20 lakh for delay in supply from three private firms resulted in extending undue benefit to them.**

ICAR entered into contract with three firms for supply of computer system

For strengthening information management, ICAR<sup>1</sup> decided in 1995 to establish Agricultural Research Information Systems with a provision of Rs 26.30 crore under National Agricultural Research Project with the assistance of World Bank. The establishment of Agricultural Research Information Systems, scheduled for completion by June 1996, was to serve 234 centres, viz. 120 Zonal Research Stations, 27 SAUs<sup>2</sup> Headquarters, 59 ICAR Institutes/Project Directorates, 26 National Research Centres and ICAR Headquarters at two locations.

ICAR entered into separate agreements in March 1996 with three firms, selected on the basis of international competitive bid, for supply of various computer systems as given in the table below :

Sl. No.	Name of the firm	Description	Quantity	Amount (Rs in lakh)	Total (Rs in lakh)	Scheduled date of supply
1.	HCL-HP Ltd.	LAN Servers (32 Users)	46	122.36	1289.14	15 June 96
		LAN Servers (16 Users)	92	187.59		
		LAN Servers (8 Users)	92	143.52		
		Work Station	745	341.73		
		Laser Printer, UPS and Modem etc.		404.30		
		AMC <sup>▲</sup>		89.64		
2.	Fujitsu ICIM Ltd.	Unix Servers (32 Users)	12	48.85	227.35	30 June 96
		Unix Servers (16 Users)	23	76.49		
		Unix Servers (8 Users)	23	72.35		
		AMC		29.66		
3.	Motorola India Ltd.	Router	30	56.96	67.00	30 June 96
		AMC		10.04		

As per bidding document, which formed part of the contract agreement, in case of delay in supply, a sum equivalent to 0.5 per cent for each week of delay, subject to maximum of 10 per cent of the price of delayed goods or unperformed services, was to be deducted as liquidated damages.

<sup>1</sup> Indian Council of Agricultural Research

<sup>2</sup> State Agricultural Universities

<sup>▲</sup> Annual Maintenance Charges

All firms delayed supply of equipment justifying levy of liquidated damages

The three firms did not supply the computer systems to all the centres by stipulated date i.e., 15/30 June 1996. M/s HCL-HP-Ltd. was to supply at 234 centres including ICAR<sup>1</sup> Headquarters. Test check of delivery by HCL-HP revealed that the firm supplied the items to 54 centres between 26 June 1996 and 20 June 1997 accounting for a delay of one to fifty two weeks. In case of M/s Fujitsu ICIM Ltd., the firm completed the supply to all 58 centres where it had to supply the equipment, between January 1997 and May 1997 accounting for a delay of twenty four to forty weeks. In the case of Motorola India Ltd, which had to supply 30 Routers to SAUs and ICAR institutes, it was noticed that as of October 1996 only 18 Routers were supplied. Liquidated damages leviable in terms of contract agreement in above cases were Rs 36.20 lakh. However, ICAR did not deduct liquidated damages while making final payment of Rs 7.29 crore to the above firms during March – May 1997, which was an undue benefit to them. Possibility of similar delays in other centres and corresponding higher element of liquidated damages cannot be ruled out.

ICAR stated in September 1999 that there was no justification to deduct liquidated damages, as SAUs were unable to prepare the sites for installation at some locations. ICAR reply refers only to the SAUs, which numbered 27 while there were other 207 centres where supply was also delayed but liquidated damages were not levied.

## 6.2 Avoidable payment of interest

**Failure of ICAR to make provision in budget for depositing the rupee equivalent of the grant-in-aid in a Japanese aided project led to avoidable payment of interest of Rs 31.58 lakh.**

DARE<sup>2</sup> sanctioned a Japanese grant-in-aid project on "Development of Quality Seed" in December 1995 at Rs 21.95 crore to be executed by Indian Agricultural Research Institute a constituent unit of ICAR. Government of Japan was to provide 662 million Yen equivalent to Rs 21.50 crore as grant-in-aid for construction of building, equipment and consultancy services and Government of India contribution was Rs 0.45 crore.

ICAR did not make budget provision to deposit rupee value of goods imported from Japan

As per the licensing conditions, ICAR was to deposit rupee value of goods to be imported under grant-in-aid from Government of Japan within 10 days from the date of receipt of the negotiable set of documents by ICAR's bankers. The conditions also stipulated payment of interest at 12 *per cent* per annum for the first 30 days from the date of payment made to the foreign supplier and 18 *per cent* per annum for the period in excess thereof. As per the directives of Ministry of Finance and DARE, ICAR was to make budget provision in its budget for 1996-97 for depositing the rupee equivalent of goods imported under the grant-in-aid into the account of Government of India. However,

<sup>1</sup> Indian Council of Agricultural Research

<sup>2</sup> Department of Agricultural Research and Education



Deputy Director General (Crop Science), ICAR failed to make any such provision in the budget for the year 1996-97.

ICAR's bankers received on 31 July 1996, the documents for 282.30 million Yen equivalent to Rs 9.47 crore, which was paid to the suppliers on 19 July 1996. ICAR deposited Rs 9.84 crore, only on 11 October 1996 after making necessary re-appropriations, 85 days after the amount became due for payment and as a result Rs 35.04 lakh was paid as interest. Allowing the period of 12 days taken for documents to reach ICAR's bankers and 10 days to deposit the rupee equivalent, the interest of Rs 28.19 lakh paid for 63 days could have been avoided had necessary provision been made in time.

Similarly, for another payment of Rs 2.42 crore to the foreign supplier on 31 January 1997 for which ICAR's bankers received documents on 3 February 1997, ICAR deposited Rs 2.47 crore along with interest of Rs 4.42 lakh on 17 March 1997 after 47 days of amount becoming due for payment. Out of this, the delay of 34 days was avoidable, which resulted in payment of interest of Rs 3.39 lakh.

Delay in deposit of rupee equivalent, led to avoidable interest payment of Rs 31.58 lakh

Thus, failure of Director General (Crop Science), ICAR to make the necessary budget provision and consequential delay in depositing the rupee equivalent of goods imported under grant-in-aid into Government of India account within the prescribed time resulted in avoidable payment of interest of Rs 31.58 lakh.

ICAR stated in November 1999 that necessary provision to meet the expenditure of grant-in-aid of Rs 21.50 crore was not made in the absence of awareness of the procedure regarding utilisation of grant-in-aid from Japan. The reply, however, only serves to underscore the ignorance on the part of ICAR despite specific directions of Ministry of Finance of September 1995 to have necessary budget provision leading to avoidable payment of Rs 31.58 lakh.

## CHAPTER 7 : MINISTRY OF MINES (GEOLOGICAL SURVEY OF INDIA)

### 7.1 Avoidable expenditure on rent

**GSI failed to take timely action to vacate hired buildings, resulting in avoidable expenditure of Rs 116.45 lakh.**

Committee recommended vacation of five rented sheds after completion of GSI's own building

GSI<sup>1</sup>, Calcutta was in possession of five sheds in a building at 5-1, K.C. Road, Calcutta, which it was using for storage and workshop. A committee, constituted by Ministry of Mines in April 1995 to assess the over all requirement of accommodation in offices of GSI based in Calcutta, recommended in August 1995 to vacate these sheds after completion of GSI's own building for stores and workshop at Salt Lake, Calcutta, which was under construction at that time.

Failure to vacate sheds led to avoidable expenditure of Rs 116.45 lakh

GSI took over the newly built stores complex at Salt Lake in January 1997 but did not vacate the above sheds at K.C. Road as of August 1999 resulting in an avoidable expenditure of Rs 116.45 lakh towards payment of rent for the period February 1997 to August 1999.

The Administrative Officer, GSI stated in February 1999 that there were lots of jobs involved for processing of disposal action as well as shifting of stores for vacating the premises. Details in this regard were called for but the reply indicated that adequate efforts were not made to take timely action for disposal of unserviceable stores. Action for disposal was initiated only in 1997, whereas even by 1995, many stores had become obsolete due to no transaction having taken place for 10-15 years.

The matter was referred to the Department in May 1999; their reply was awaited as of January 2000.

<sup>1</sup> Geological Survey of India

## CHAPTER 8 : DEPARTMENT OF ATOMIC ENERGY

### 8.1 Undue benefit to a Joint Sector Company

**Despite mention in the reports of the Comptroller & Auditor General of India, Department of Atomic Energy continued to give undue benefit to Gujarat State Fertilizer Company Limited.**

DAE<sup>1</sup> and GSFC<sup>2</sup> entered into an agreement in 1973 for routing the ammonia gas produced by GSFC to be used for extraction of heavy water by Heavy Water Plant, Baroda and thereafter returning the same to GSFC. Under the agreement, DAE was to reimburse the cost of transit losses reckoned at one tonne of ammonia per day to GSFC.

The agreement also provided for supply of natural gas by DAE to GSFC for operating the A3 plant. The agreement, however, did not provide for the terms of payment in this regard. For meeting the requirement of natural gas for DAE and GSFC, DAE from time to time, entered into agreements with ONGC<sup>3</sup> and GAIL<sup>4</sup> for supply of natural gas. The natural gas received from ONGC/GAIL was being shared by DAE and GSFC in the ratio 1:2.

However, these conditions of contract were frequently violated. These were pointed out in previous Audit Reports. Cases of persistent irregularities noticed during audit of records of DAE for the period 1998-99 are brought out below :

(i) In paragraph 3.2 of the Report of the Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended 31 March 1997 it was brought out that GSFC, unilaterally adjusted Rs 11.90 crore for the period 1975-76 to 1996-97 towards compensation of loss of ammonia at the rate of five tonne per day over and above the contracted one tonne per day. In its action taken note, DAE stated (a) GSFC was requested to refund the amount recovered unilaterally and to stop making further recovery in February 1994; (b) the Ministry of Fertilizers also concurred with the views of DAE in August 1998; and (c) the issue was being taken up with GSFC. Despite this, DAE not only failed to recover the irregular adjustment of Rs 11.90 crore but also did not prevent further irregular adjustment of Rs 1.91 crore during 1997-99 by GSFC. DAE stated in November 1999 that GSFC and the Ministry of Fertilizers and Chemicals were being pursued to resolve the issue.

(ii) It was pointed out in paragraph 3.12(iii) of the Audit Report for the year ended 31 March 1988 that consumption of natural gas by GSFC was more than two thirds of the total supplies and that there was need for a formal agreement with GSFC in this regard. However, DAE did not enter into any

<sup>1</sup> Department of Atomic Energy

<sup>2</sup> Gujarat State Fertilizer Company Limited

<sup>3</sup> Oil and Natural Gas Commission

<sup>4</sup> Gas Authority of India Limited

GSFC unilaterally  
adjusted Rs 13.81  
crore for loss of  
ammonia

such agreement. In absence of any agreement, DAE<sup>1</sup> could not enforce recovery of legitimate dues/claims as discussed in subsequent paragraphs :

(a) Up to April 1991, GSFC paid the cost of total natural gas consumed only to the extent of two thirds under mutual arrangement which was below its actual consumption of natural gas. Thereafter, GSFC started paying for natural gas based on actual consumption. However, DAE had not recovered Rs 1.03 crore due on account of the excess gas consumed by GSFC during December 1989 to April 1991. DAE stated in November 1999 that only Rs 26.40 lakh was realisable from GSFC reckoning the actual quantity of natural gas consumed during 1989-90 and 1990-91 after giving credit for cost of ammonia back chargeable to DAE and claim for Rs 26.40 lakh was already preferred on GSFC.

DAE failed to recover Rs 53.63 lakh towards shortfall in guaranteed off-take of natural gas

(b) The agreement executed from time to time between DAE and ONGC/GAIL specified off take of a minimum guaranteed quantity of natural gas. DAE, accordingly paid an amount of Rs 1.78 crore during 1989-99 for the natural gas actually not consumed during the periods when the consumption was below the contracted quantity. DAE did not recover the proportionate burden of shortfall from minimum guaranteed off-take of natural gas to the extent of Rs 95.25 lakh from GSFC during this period. This apart, Rs 5.76 lakh was recoverable from GSFC as proportionate cost of pipelines, depreciation, and operation and maintenance charges paid by DAE to ONGC/GAIL through monthly bills. DAE stated in November 1999 that only an amount of Rs 53.63 lakh was recoverable. DAE also informed that the claim for recoverable amount was preferred on GSFC.

From the foregoing, it is clear that DAE failed to recover an amount of Rs 14.61 crore from GSFC on account of legitimate dues, and to that extent not only had GSFC derived undue benefit, but its annual accounts also failed to give a true and fair view.

## 8.2 Non-establishment of a demonstration plant for irradiation of spices

**Failure of BRIT to take timely action and co-ordinate all phases of the project of demonstration plant for irradiation of spices deprived industry of contemplated benefits despite expenditure of Rs 3.04 crore.**

Recognising the need for irradiation of spices, DAE sanctioned setting up of demonstration plant

India's share in world export of spices declined from 14.5 *per cent* in 1980 to 9.1 *per cent* in 1994. A sustainable market for Indian spices has not been possible in view of global rejection of conventional chemical fumigation used in India for decontamination of spices, which had been banned in many countries that were only accepting spices decontaminated by radiation process. Therefore, there was an urgent need for establishing a system of irradiation of

<sup>1</sup> Department of Atomic Energy

spices. BRIT<sup>1</sup>, a unit of DAE<sup>2</sup> conceived a project in April 1995 for setting up of a demonstration plant for irradiation of spices so as to transfer the process from the laboratory to industrial scale.

Accordingly, DAE sanctioned a project "Demonstration plant for irradiation of spices" in June 1995 at an estimated cost of Rs 2.98 crore with a capacity to irradiate 12000 tonne of spices per annum. The project was to provide an internationally acceptable irradiation service facility for hygienisation of spices meeting the standards of exports. The objective of the plant was to develop commercial scale irradiation technology, demonstrate its effectiveness for decontamination of spices for both export and domestic use. The project was contemplated for completion by November 1996.

The plant was to help transfer the process from laboratory to industrial scale application

BRIT placed the work order for the mandatory requirement of soil investigation of the plot on which the irradiator was to be built, only in September 1995. It approached the Atomic Energy Regulatory Board in December 1995 and obtained its clearance in March 1996.

The plant had not been commissioned even after 22 months of completion of building

The civil work commenced in October 1996 and was completed in November 1997 at a cost of Rs 1.93 crore as against the target of May 1996 contemplated in the project report. However, even after 22 months of the completion of the building and despite an expenditure of Rs 3.04 crore on the project, the plant had not been commissioned as of September 1999.

DAE stated in August 1999 that the plant could not be put on stream without obtaining statutory permission from FDA<sup>3</sup>, Government of Maharashtra, which had to frame a set of rules and regulations for this purpose. The reply had to be viewed in light of the fact that Chief Executive, BRIT had admitted in September 1999 that a committee with the representatives from FDA, Government of Maharashtra and DAE formed to adopt rules for permitting food irradiation, actively commenced functioning only from August 1998, i.e. after more than three years from the date of approval of the project and after nine months from the date of completion of the building. If DAE had taken timely action in this direction, the delay in commissioning of the plant could have been avoided.

DAE missed the opportunity to demonstrate commercial scale irradiation plant so far

DAE further stated that the proposed facility could process only 12000 tonne per annum as compared to the export of over 2.5 lakh tonne of spices per annum from India and hence this would not influence the market share of India in the world market. This cannot be accepted since the basic objective of establishing the plant was to demonstrate the effectiveness of the irradiation treatment of spices and transfer the process from the laboratory to industrial scale which would have enhanced acceptability of Indian spices in the international market. In fact Director, Marketing Spices Board, Cochin, in August 1999 had stressed the need to take appropriate measures to reduce incidence of pesticides residues and aflatoxin to ensure sustainable international market.

<sup>1</sup> Board of Radiation & Isotope Technology

<sup>2</sup> Department of Atomic Energy

<sup>3</sup> Food & Drug Administration

An opportunity to demonstrate commercial scale irradiation of spices, which would have led to boosting of exports, has been missed so far due to tardy action on the part of BRIT.

### 8.3 Infructuous expenditure due to abandoning of a project

**As a result of scaling down of target fixed for generation of nuclear power, Rs 16.06 crore out of Rs 44.43 crore spent on mining project by DAE was rendered infructuous.**

UCIL<sup>1</sup>, a public sector undertaking under the administrative control of DAE<sup>2</sup> is the sole producer of uranium concentrate required as fuel for India's nuclear power and research reactors.

To meet the additional fuel requirement for the targeted generation of 10000 MW of nuclear power by 2000 AD, DAE had sanctioned a project in April 1989 for establishment of two mines by UCIL at Narwapahar and Turamdih with a capacity each of 1500 tonne per day of dry ore and an ore processing mill with a capacity of 3000 tonne per day at Turamdih for treating the ore from both the mines. The project with the estimated cost of Rs 495.54 crore was scheduled for commissioning by December 1993.

Consequent to scaling down of target generation, DAE abandoned mining and mill project at Turamdih

DAE scaled down the target of generation of power in March 1994 under the Nuclear Power Profile from 10000 MW to 3820 MW by 2002. Consequent to scaling down of the target of nuclear power generation DAE abandoned the mining and mill project at Turamdih in October 1994, reduced the production capacity of Narwapahar mine to 1050 tonne per day and augmented the capacity of the existing Jaduguda mill from 1340 to 2090 tonne per day. Accordingly, the estimated cost of the project was reduced from Rs 495.54 crore to Rs 351.17 crore. By that time UCIL had already spent Rs 44.43 crore on the Turamdih mine.

DAE decided, in November 1998, to bear the expenditure on closed Turamdih project on Government account after adjusting the sale proceeds of assets acquired under the project. Accordingly, DAE transferred 165 acres of township land with buildings at Turamdih to CRPF<sup>3</sup> for a consideration of Rs 21.22 crore. Taking over of the remaining land by CRPF at Rs 7.15 crore was under finalisation. There would still be a net infructuous expenditure of Rs 16.06 crore on this project.

<sup>1</sup> Uranium Corporation of India Limited

<sup>2</sup> Department of Atomic Energy

<sup>3</sup> Central Reserve Police Force

Scaling down of generation target led to infructuous expenditure of Rs 16.06 crore

DAE stated in August 1999 that the decision to invest in Turamdih project was taken with reference to the requirement of Uranium for the nuclear power programme at that time and the decision to abandon the project was due to reduction in the target for nuclear power generation. Thus, scaling down the target for generation of Nuclear power resulted in infructuous expenditure of Rs 16.06 crore on the mining project.



(P.K. JENA)  
Principal Director of Audit,  
Scientific Departments

New Delhi  
Dated :

30 मई 2000  
MAY 2000

Countersigned



(V.K. SHUNGLU)  
Comptroller and Auditor General of India

New Delhi  
Dated :

31 MAY 2000

## APPENDIX I

### Grants released to Autonomous Bodies audited under section 19(2) and 20(1) of Comptroller and Auditor General's (Duties, Powers & Conditions of Service) Act, 1971

(Reference - Paragraph No.1.3 at page 9)

Sl. No.	Name of the Autonomous Body	Amount of grants released in 1998-99 (Rs in crore)
1.	Wild Life Institute of India, Dehradun	5.25
2.	Central Zoo Authority of India, New Delhi	5.30
3.	Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram	20.50
4.	Technology Development Board, New Delhi	28.00
5.	Indian Council of Agricultural Research, New Delhi	105.14
6.	Indian Council of Medical Research, New Delhi	106.36
7.	Council for Scientific and Industrial Research, New Delhi	710.41
<b>Total</b>		<b>980.96</b>



## APPENDIX II

Grants released to Autonomous Bodies audited under section 14 of  
Comptroller and Auditor General's (Duties, Powers & Conditions of Service) Act, 1971

(Reference - Paragraph No.1.3 at page 9)

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 1998-99 (Rs in crore)
<b>Department of Atomic Energy</b>		
1.	Tata Memorial Centre, Mumbai	81.83
2.	Saha Institute of Nuclear Physics, Calcutta	23.20
3.	Institute of Physics, Bhubaneswar	8.22
4.	Atomic Energy Education Society's School, Mumbai	7.70
5.	Tata Institute of Fundamental Research, Mumbai	79.30
6.	Mehta Institute of Mathematical Physics, Allahabad	6.51
7.	Institute of Plasma Research, Ahmedabad	14.77
8.	Institute of Mathematical Science	6.20
<b>Total</b>		<b>227.73</b>
<b>Department of Bio-technology</b>		
9.	National Institute of Immunology, New Delhi	11.68
10.	National Centre for Cell Science, Pune	7.14
11.	Centre for DNA finger printing and Diagnostics, Hyderabad	5.76
<b>Total</b>		<b>24.58</b>
<b>Department of Electronics</b>		
12.	Centre for Development of Advance Computing, Pune	8.10
13.	Society for Applied Microwave Electronics Engineering Research, Mumbai	6.80
14.	Electronic Research and Development Centre of India	6.32
15.	National Centre for Software Technology, Mumbai	1.50
16.	Centres for Electronics Design and Technology of India, New Delhi	6.49
17.	Software Technology Parks of India	6.55
18.	Centre for Materials for Electronics Technology Research	5.70
19.	Centre for Liquid Crystal Research	2.15
20.	Society for Electronics Tests Engineering, New Delhi	0.74
21.	Education and Research Network (ERNET) India	14.15
<b>Total</b>		<b>58.50</b>

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 1998-99 (Rs in crore)
<b>Ministry of Environment and Forests</b>		
22.	Central Pollution Control Board, New Delhi	16.00
23.	Indian Institute of Forest Management, Bhopal	3.60
24.	Indian Council of Forestry Research and Education, Dehradun	83.61
25.	Padmaja Naidu Himalayan Zoological Park, Darjeeling	00.12
26.	G.B. Pant Himalayan Paryavaran Evam Vikas Sansthan, Almora	4.43
27.	Indian Plywood Research and Training Institute, Bangalore	1.79
28.	Centres for Excellence	5.98
<b>Total</b>		<b>115.53</b>
<b>Department of Science &amp; Technology</b>		
29.	Raman Research Institute, Bangalore	7.41
30.	Bose Institute, Calcutta	7.03
31.	Indian Institute of Tropical Meteorology, Pune	5.00
32.	Indian Association for Cultivation of Science, Calcutta	8.26
33.	Indian Institute of Astrophysics, Bangalore	22.66
34.	Indian Institute of Geo-magnetism, Mumbai	5.05
35.	Indian Science Congress Association, Calcutta	0.78
36.	Indian National Science Academy, New Delhi	6.32
37.	Birbal Sahni Institute of Palaeobotany, Lucknow	3.67
38.	Wadia Institute of Himalayan Geology, Dehradun	4.06
39.	S.N.Bose National Centre for Basic Sciences, Calcutta	2.00
40.	Maharashtra Association for Cultivation of Science	3.31
41.	Indian Academy of Sciences, Bangalore	1.19
42.	J.N. Centre for Advanced Scientific Research, Bangalore	7.77
43.	National Academy of Science, Allahabad	0.41
44.	Technology Information Forecasting and Assessment Council, New Delhi	3.09
45.	Vigyan Prasar, New Delhi	0.75
46.	International Advanced Research Centre for Powder metallurgy and New materials (ARC)	5.00
47.	Indian National Academy of Engineering	0.12
<b>Total</b>		<b>93.88</b>

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grant: released in 1998-99 (Rs in crore)
<b>Department of Space</b>		
48.	National Remote Sensing Agency, Hyderabad	15.00
49.	Physical Research Laboratory, Ahmedabad	18.90
50.	National MST Radar Facility , Gadanki	1.34
<b>Total</b>		<b>35.24</b>
<b>Department of Telecommunications</b>		
51.	Centre for Development of Telematics (C-DOT)	74.75
<b>Total</b>		<b>74.75</b>
<b>Planning Commission</b>		
52.	Regional Computer Centre, Calcutta	0.03
<b>Total</b>		<b>0.03</b>
<b>Grand Total</b>		<b>630.24</b>

**APPENDIX III**

**Outstanding Utilisation Certificates**  
(Reference - Paragraph No.1.4 at page 9)

(Rs. in lakh)

Ministry / Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 1998	Amount
Atomic Energy	1985-86	1	1.50
	1988-89	2	2.96
	1989-90	2	0.57
	1990-91	2	0.75
	1991-92	1	2.51
	1992-93	3	1.82
	1993-94	3	5.79
	1994-95	5	3.25
	1995-96	4	5.14
	1996-97	38	68.80
	1997-98	20	72.35
		<b>Total</b>	<b>81</b>
Environment & Forests	1980-81	2	1.28
	1981-82	20	7.97
	1982-83	28	46.51
	1983-84	97	65.91
	1984-85	151	240.55
	1985-86	127	504.15
	1986-87	81	546.35
	1987-88	309	9906.54
	1988-89	370	2649.01
	1989-90	555	199.26
	1990-91	72	1260.03
	1991-92	100	1641.59
	1992-93	236	3329.87
	1993-94	67	82.18
	1994-95	152	1346.28
	1995-96	16	29.16
	1996-97	673	22716.29
	<b>Total</b>	<b>3056</b>	<b>44572.93</b>

(Rs. in lakh)

Ministry / Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 1998	Amount
Ocean Development	1983-84	8	101.52
	1984-85	22	22.66
	1985-86	45	40.26
	1986-87	23	27.20
	1987-88	21	221.63
	1988-89	66	59.25
	1989-90	100	334.16
	1990-91	17	227.46
	1991-92	32	434.31
	1992-93	8	3.00
	1993-94	16	40.20
	1994-95	79	668.87
	1995-96	53	58.77
	1996-97	78	280.30
	1997-98	172	3872.22
	<b>Total</b>	<b>740</b>	<b>6391.81</b>
Space	1976-77	1	0.05
	1977-78	1	0.15
	1978-79	1	0.03
	1979-80	2	0.21
	1980-81	5	0.72
	1981-82	4	0.67
	1982-83	21	7.28
	1983-84	11	2.16
	1984-85	22	8.33
	1985-86	10	2.55
	1986-87	16	5.65
	1987-88	12	5.45
	1988-89	6	4.85
	1989-90	4	3.18
	1990-91	7	7.84
	1991-92	5	2.48
	1992-93	4	7.17
	1993-94	20	25.51
	1994-95	25	71.55
	1995-96	23	115.67
1996-97	60	196.72	
1997-98	80	440.98	
	<b>Total</b>	<b>340</b>	<b>909.20</b>

(Rs. in lakh)

Ministry / Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 1998	Amount
Geological Survey of India Department of Mines	1994-95	1	0.05
	1995-96	2	0.15
	1996-97	5	0.40
	1997-98	2	0.16
	<b>Total</b>	<b>10</b>	<b>0.76</b>
Electronics	1992-93	46	119.00
	1993-94	53	150.00
	1994-95	71	880.00
	1995-96	83	2878.00
	1996-97	90	1115.00
	<b>TOTAL</b>	<b>343</b>	<b>5142.00</b>
Non-Conventional Energy Sources	1995-96	222	1063.00
	1996-97	311	1717.00
	1997-98	40	605.00
	<b>Total</b>	<b>573</b>	<b>3385.00</b>
<b>GRAND TOTAL</b>		<b>5143</b>	<b>60567.14</b>

## APPENDIX IV

### List of Laboratories

(Reference - Paragraph No.3.1.1(b) at page 23)

1.	Central Building Research Institute (CBRI), Roorkee
2.	Central Drug Research Institute (CDRI), Lucknow
3.	Central Food Technological Research Institute (CFTRI), Mysore
4.	Central Mechanical Engineering Research Institute (CMERI), Durgapur
5.	Central Mining Research Institute (CMRI), Dhanbad
6.	Indian Institute of Chemical Technology (IICT), Hyderabad
7.	Indian Institute of Petroleum (IIP), Dehradun
8.	Institute of Microbial Technology (IMTECH), Chandigarh
9.	National Aerospace Laboratories (NAL), Bangalore
10.	National Chemical Laboratory (NCL), Pune
11.	National Environmental Engineering Research Institute (NEERI), Nagpur
12.	National Institute of Science Communication (NISCOM), New Delhi
13.	National Physical Laboratory (NPL), New Delhi
14.	National Institute of Oceanography (NIO), Goa

**APPENDIX V**  
**Institute-wise details of expenditure on non R&D activities**  
(Reference - Paragraph No.3.1.4 (a) at page 27)

			<i>(Rs. in lakh)</i>
Sl. No.	Name of laboratory	Nature of irregularities	Amount
1.	2.	3.	4.
1.	IIP, Dehradun	(i) Construction/repair of Central School/bank building including supply of furniture, bus stop, shed/road/street lighting	16.52
		(ii) Snacks/lunches/dinners	9.55
		(iii) Payment to Private contractor on account of Security/housing keeping contract	26.29
		(iv) Purchase of medicines and reimbursement of medical claims	13.40
		(v) Expenditure on foundation day/golden jubilee Day	0.20
		(vi) Distribution of gifts/mementos	2.95
		(vii) Printing of Hindi Patrika 'Vikalp' and organising of Kavi Sammelan/Hindi Divas	4.67
		(viii) Grants to staff/welfare club	2.21
		(ix) Payment of telephone/mobile phone bills	46.84
		(x) Payment of electricity bills	37.34
		(xi) Petrol/diesel payments	4.14
		(xii) Postal/courier service charges	2.48
		(xiii) Payment of LTC and TTA	5.68
		(xiv) Payment of Honorarium/OTA/Night duty allowances	17.16
		(xv) Grants/financial assistance to Doon School, Doon Press club, P.R. Society of India	0.95
		(xvi) Reimbursement of newspaper bills provided at the residences of officers	1.27
		(xvii) Purchase of liveries	2.35
		(xviii) Furnishing/renovation of guest house	2.57
		(xix) Expenditure incurred from LRF towards purchase of stores, equipment, water proofing treatment, telephone bills, electricity bills, lunch/dinner etc. subject to recoupment from CSIR Grant/sponsored projects.	66.89
<b>Total</b>			<b>263.46</b>
2.	IMTECH, Chandigarh	(i) Fittings of gas line in hostel mess	0.79
		(ii) Expenditure on foundation day celebration	0.24
		(iii) Grants to staff club	0.10
		(iv) Payment of telephone bills	2.60
		(v) Petrol/diesel for vehicles	0.41
		(vi) Postal/private courier service charge	0.28
<b>Total</b>			<b>4.33</b>



(Rs. in lakh)

1.	2.	3.	4.
3.	NPL, New Delhi	(i) Construction/repair of generator shed, fire fighting	3.41
		(ii) Snacks/lunches/dinners	1.26
		(iii) Payment to private contractor on account of security/house keeping contract	4.10
		(iv) Purchase of medicines for dispensary	0.20
		(v) Distribution of gifts/mementos(watches)	5.91
		(vi) Grants to staff club	0.05
		(vii) Payment of telephone bills	1.01
		(viii) Payment of electricity and water charges	28.17
		(ix) Petrol/diesel charges	0.66
		(x) Postal/courier charges	1.34
		(xi) Payment of TA	0.67
		(xii) Payment of honorarium/OTA	5.13
		(xiii) Reimbursement of news papers bills provided at the residences of officers	0.99
		(xiv) Municipal tax	50.09
		(xv) Payment of liveries	1.48
<b>Total</b>			<b>104.47</b>
4.	NISCOM, New Delhi	i) Payment to private contractor on account of security/housing keeping	2.69
		ii) Snacks/lunches	0.14
		iii) Expenditure on foundation/golden jubilee day	0.35
		iv) Grants to staff club	0.10
		v) Payment of telephone bills	2.67
		vi) Payment of the electricity/water charges	17.68
		vii) Petrol/diesel	1.16
		viii) Postal/courier service charges	13.56
		ix) Reimbursement of newspapers bills provided at residences of officer	1.05
		<b>Total</b>	
5.	CBRI, Roorkee	(i) Furnishing/renovation of guest house	4.53
		(ii) Snacks/lunches/dinners	2.04
		(iii) Purchase of medicines and reimbursement of medical claims	4.42
		(iv) Expenditure on foundation day/golden jubilee Day	4.26
		(v) Distribution of gifts/mementos	1.70
		(vi) Grants to staff/welfare club	0.63
		(vii) Payment of electricity bills	16.03
		(viii) Petrol/diesel payments	4.76
		(ix) Payment of TA	1.95
		(x) Payment of honorarium	0.10
		(xi) Reimbursement of newspaper bills provided at the residences of officers	0.34
		(xii) Payment of liveries	0.34
		(xiii) Advertisement charges	3.47
<b>Total</b>			<b>44.57</b>

(Rs. in lakh)

1.	2.	3.	4.
6.	CDRI, Lucknow	(i) Snacks/lunches/dinners	0.08
		(ii) Grants to staff/welfare club	0.10
		(iii) Electricity bills	8.92
		(iv) Expenditure incurred from LRF towards freight charges of equipment procured for DST/grants-in-aid projects subject to recoupment from concern projects	0.51
<b>Total</b>			<b>9.61</b>
7.	CMERI, Durgapur	(i) Security/housing keeping contract to private contractor	7.69
		(ii) Purchase of medicines	3.14
		(iii) Payment of telephone bills	2.66
		(iv) Payment of electricity bills	3.63
<b>Total</b>			<b>17.12</b>
8.	CMRI, Dhanbad	(i) Snacks/lunches/dinners	0.44
		(ii) Payment of LTC	1.70
		(iii) Furnishing/renovation of guest house	3.19
<b>Total</b>			<b>5.33</b>
9.	IICT, Hyderabad	(i) Painting of Primary and main school building	0.92
		(ii) Grants to staff/welfare club	0.91
		(iii) Payment of electricity bills	7.35
		(iv) Payment of honorarium	0.44
<b>Total</b>			<b>9.62</b>
10.	NAL, Bangalore	(i) Repair of over head tank	15.13
		(ii) Payment of honorarium	2.86
<b>Total</b>			<b>17.99</b>
11.	NCL, Pune	(i) Snacks/lunches/dinners	0.73
		(ii) Expenditure on foundation day/golden jubilee Day	28.60
		(iii) Telephone bills/mobile telephone bills including Pagers charges (8 numbers)	21.63
		(iv) Payment of electricity bills	28.26
		(v) Payment of OTA	11.88
		(vi) Payment of liveries	1.60
		(vii) Payment of hotel/guest house accommodation charges in respect of Parliamentary Committee	1.45
<b>Total</b>			<b>94.15</b>
12.	NIO, Goa	(i) Snacks/lunches/dinners	6.23
		(ii) Reimbursement of medical claims	1.03
		(iii) Expenditure on foundation/golden jubilee Day	6.63
		(iv) Distribution of gifts/mementos	0.49
		(v) Grants to staff/welfare club	1.19
		(vi) Grants/financial assistance to private school	0.05
		(vii) Payment made from LRF towards interest on decretal amount ordered by Hon'ble High Court and on equipment for sponsored projects subject to recoupment from CSIR/project grants	11.58
<b>Total</b>			<b>27.20</b>

## APPENDIX VI

## Details of Foreign visits

(Reference - Paragraph No.3.1.4 (b) at page 32)

(Rs in lakh)

Sl No	Name of Official	Country visited & period of visit	Purpose of visit	Expenditure from LRF	Remarks
1.	2.	3.	4.	5.	6.
<b>CBRI, Roorkee</b>					
1.	S.K. Aggarwal, Scientist E '1'	Italy 8.5.98 to 10.7.98	To attend training	1.22	-
2.	M.P. Jai Singh, Scientist 'G'	Denmark 6.6.98 to 15.6.98	To attend 16 <sup>th</sup> General Assembly of EIB & to undertake the exercise of business development	Included at Sl. No. 1	-
<b>NIO, GOA</b>					
3.	Dr.L.V.G. Rao Scientist, NIO	Malaysia 28.7.98 to 31.7.98	To participate in the fourth Pacific Ocean Remote Sensing Conference	0.40	-
4.	Dr. C.S. Murthy, Scientist 'F'	France 17.11.98 to 27.11.98	To participate in 31 <sup>st</sup> session of Executive Council (UNESCO)	0.93	-
5.	Prof. P. Sambandra, Consultant	Germany & Netherland July 1998	To collect information and finalisation of specification and requirements for the acquisition of second hand vessel	2.38	-
<b>IIP, Dehradun</b>					
6.	Himmat Singh, Scientist	USA 16.4.97 to 17.4.97	To attend symposium on worldwide prospective on MCA of lubricants oil.	1.47	-
7.	K.S. Jauhri Scientist, IIP	USA and France 14.4.97 to 28.4.97	To attend technology transfer seminar	1.45	-
8.	V.K. Kapoor Scientist, IIP	USA and Canada 6.10.97 to 28.10.97	Business Development	2.22	-
9.	M.M. Kumar Scientist, IIP	USA and Canada 6.10.97 to 28.10.97	Business Development	2.28	-
10.	Dr. T.S.R. Prasada Rao, Director	Beijing (China) 12.10.97 to 24.10.97	To participate in world petroleum congress and research institute of petroleum.	2.19	-
11.	V.K.Chibber, Scientist	U.K. 13-10-97 to 26.10.97	Equipment training	0.69	-
12.	A.K.Gupta, Scientist	Houston, New Jersey and Chicago (USA) 6.11.97 to 19.11.97	Meetings with Multi National Oil Companies	1.80	-

(Rs. in lakh)

1.	2.	3.	4.	5.	6.
13.	K.S.Johri, Scientist	USA 4-1-98 to 10-1-98	For discussion on commercial agreement	1.45	-
14.	Sudhir Singhal	Singapore 7.1.1998 to 16.1.1998	To attend Seminar & annual fuel and lubes conference	1.58	-
15.	O.N. Anand, Scientist	Singapore 13.1.98 to 17.1.98	To discuss with M/s Mobil for commercialising the technology	0.99	-
16.	G. Murlidhar, Scientist	Cape Town (South Africa) 25.1.98 to 28.1.98	To attend conference	1.17	-
17.	Dr. H.U.Khan, Scientist	Germany, Czech Republic 12.3.98 to 11.5.98	Marketing of Technology	0.44	-
18.	Dr. T.S.R. Prasada Rao, Director	Houston, Chicago (USA) 29.3.98 to 11.4.98	To attend symposium / conference/ meeting with US Companies	1.66	-
19.	Dr. Himmat Singh, Scientist	Singapore and USA, 8.4.98 to 10.4.98 and 11.4.98 to 17.4.98	Business development	1.02	-
20.	J.S.Dutta, Tech. Officer	USA & UK 12.4.98 to 24.4.98	Training Course	1.69	-
21.	V.K. Bhatia, Scientist	Malaysia 3.5.98 to 8.5.98	Business Development	0.60	-
22.	A.K.Sexena, Scientist	Singapore 26.5.98 to 29.5.98	Presentation of technology in conference	1.45	-
23.	S.M.Nanoti, Scientist	Singapore 26.5.98 to 29.5.98	Presentation of technology in conference	1.29	-
24	S.N.Sharma, Scientist	San Diego (USA) 17.6.98 to 26.6.98	To attend training on technology management	1.76	-
25.	V.S. Saini Scientist,	Russia, France and Germany 20.6.98 to 29.6.98	Business Development	1.18	-
26. *	Vijay K. Kelkar, Chairman, Research Council, IIP	Chicago, Houston, Washington, New York (USA) 29.7.98 to 12.8.98	Discussion for marketing of technology	2.17	Approval of Vice- President of CSIR, was not obtained.
27.	Dr.T.S.R. Prasada Rao, Director	Paris (France) & Houston, Frankfurt, Chicago, Washington, New York, Tulsa (USA) 29.7.98 to 12.8.98	Marketing of Technology	3.67	-

(Rs. in lakh)

1.	2.	3.	4.	5.	6.
28.	K.S.Jauhri, Scientist	Houston, New Jersey(USA) 7.9.98 to 19.9.98	To attend Business meet/Workshop	2.11	-
29.	K.K. Gandhi, Scientist	Houston, Washington (USA) 7.9.98 to 19.9.98	-- do --	1.87	-
30.	A.K.Saxena, Scientist	Houston (USA) 7.9.98 to 19.9.98	-- do --	1.82	-
31.	M.P.Saxena, Scientist	Chicago, New Jersey (USA) & Germany 16.9.98 to 22.9.98	Review meeting on sponsored project	1.33	-
32.	A.K. Gupta	-do-	-do-	0.63	-
33.	Dr. M.O.Garg, Scientist	Chicago, Houston, New Jersey (USA) 3.10.98 to 11.10.98	To commercialise IIP technology	2.17	-
34.	Dr. Alok Sexena, Scientist	-do-	-do-	2.15	-
35.	S.K.Goel, Scientist	U.K. and USA 4.10.98 to 30.10.98	To attend International conference, business development	1.51	-
36.	K.G. Mittal, Scientist	USA 4.10.98 to 9.10.98	To review final design of mini refinery	1.19	-
37.	Y.K. Kuchhal, Scientist	Beijing (China) & Singapore 16.11.98 to 21.11.98	For technical exchange with Research Institute of Petroleum	1.00	-
<b>Total</b>				<b>53.91</b>	

**APPENDIX VII**

**Statement showing time over-run of in-house projects**  
(Reference - Paragraph No.3.2.4 (A) at page 37)

Sl. No.	Title of the project	Cost (Rs. in lakh)	Date of start/expected date of completion	Actual date of start/actual date of completion	Time over run in months	Remarks
1.	Characterisation of bearings for the turbo-alternators of thermal power plants	1.826	01.04.90/ 28.02.92	01.04.90/ 30.05.92	3	No technology was developed
2.	Fluidised bed gasification of coal	41.000	01.10.86/ 31.01.92	01.10.86/ 31.05.92	4	No technology was developed
3.	Development of harmonic drive/wave generator	8.970	01.04.90/ 31.03.91	01.04.90/ 31.03.96	60	Technology developed but not transferred
4.	Development of cold forming process and manufacturing technology for aluminum alloy bicycle hub	5.000	01.01.96/ 30.06.96	01.01.96/ 30.04.97	10	1) Technology developed but not transferred 2) Sent for testing but report not readily available
5.	Design & dev. of high speed indexing unit using globoidal cam including manufacturing technologies involved.	20.000	01.07.96/ 31.03.97	01.07.96/ 31.07.98	16	Technology developed but not transferred
6.	Conversion of mechanical weighing scale	1.100	01.07.97/ 31.12.97	01.07.97/ 15.09.98	9	Technology developed but not transferred
<b>TOTAL</b>		<b>77.896</b>				

## APPENDIX VIII

**Honorarium more than 50 per cent of gross salary paid during 1994-99 to scientists**  
(Reference - Paragraph No.3.3.4 (D)(a) at page 59)

Name of the Scientist S/Shri	Year	Gross salary (in Rupees)	Honorarium received (in Rupees)	Percentage
C.N.Ghosh	1995-96	62248	48612	78.09
Dr. Ajay Kr Singh (Sr)	1996-97	73791	48653	65.93
N.Sahay	1996-97	93568	52010	55.58
Pradip Kr.Singh	1994-95	63212	39233	62.06
Sujit Kr.Mandal	1995-96	72492	40366	55.68
P.K.Mandal	1997-98	92911	61017	65.67
Suraj Kr. Dass	1994-95	95695	68384	71.46
	1995-96	110988	59666	53.76
	1998-99	257548	143492	55.71
Dr. B.K. Singh	1995-96	106354	53500	50.30
M.K. Burman	1997-98	36358	34348	94.47
J. Achari	1994-95	110360	68384	61.96
	1995-96	155916	77871	49.94
	1996-97	161537	113433	70.22
	1998-99	269266	180692	67.11
R.B. Singh	1995-96	129129	99945	77.40
Dr.P.Prasad	1995-96	116883	73169	62.60
B.K. Tewari	1998-99	277465	196052	70.66
Dr. D.N. Thakur	1995-96	166878	97338	58.33
B.D. Baligha	1994-95	141220	100000	70.81
Dr. P.R. Shery	1994-95	140420	99500	70.86
	1995-96	162710	105500	64.84
Dr. J.L. Jetwar	1997-98	239398	189558	79.18
Dr. T.N. Singh	1995-96	165078	124500	75.42
	1996-97	185501	143336	77.27
	1997-98	288914	362086	125.33
	1998-99	368666	581776	157.81
Prof. B.B. Dhar	1994-95	153064	99999	65.33
	1995-96	173796	143879	82.72
	1996-97	195842	186358	95.16
	1997-98	85347	103606	121.39
Dr. Noor Ahmed	1998-99	113194	69972	61.82
Dr. Johri Lal P.	1997-98	26059	18930	72.64

